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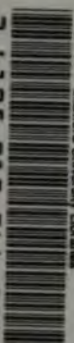
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 ERIOBETRYA JAPONICA (THE LOQUAT), FRUITING SPRAY OF (August 19).[^]

FRIAR PARK HOUSE, HENLEY; AND VIEW OF ROCKERY IN GARDENS AT (Oct. 28).
 HYBRIDISTS, PHOTOGRAPHS OF THIRTY-SIX, DISTINGUISHED (July 15).[^]
 VIEW IN THE TROPICAL FERN-HOUSE, KEW (August 5).



THE Gardeners' Chronicle

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THE HYBRIDISATION CONFERENCE.

AN International Conference on Hybridisation is to be held under the auspices of the Royal Horticultural Society on Tuesday, July 11, at Chiswick, and on the following day at the Westminster Town Hall. A luncheon will be offered to the foreign visitors at Chiswick on the 11th, and a dinner at the Horticultural Club in the evening. On Wednesday a banquet will be held at the Hôtel Métropole, when some members of the Government and public men will be present to greet the foreign guests, and to evince their sympathy with the Royal Horticultural Society.

In view of the great importance of the subject, we propose to publish a series of short notes illustrative of the progress that has resulted from the practice of cross-breeding. At the same time we shall hope to be able to issue a large number of portraits of representative hybridisers and plant-breeders. We shall not attempt to treat the subject exhaustively, or even to follow any regular sequence. We cannot hope in the space at our command to make the collection complete, but we shall endeavour to make it suggestive.

HYBRIDISATION AT KEW.

Plant-breeding has hitherto been left almost entirely to the commercial and amateur horticulturists; it is indeed only recently that a plant of garden origin has been allowed to have a scientific interest. Hence the fewness of hybrids raised in botanical establishments compared with those raised elsewhere. Probably, more hybrids have been raised at Kew than in all other botanical gardens put together. Writing from memory, the principal hybrids raised in others are the *Sarracenias*, *Lachenalias* and *Nerines*, raised at Glasnevin; the *Cinerarias* at Cambridge, and the *Cypripediums* at Birmingham. The following is a list of the Kew hybrids: of these the plants of chief horticultural interest are the *Cinerarias*, *Disas*, *Rhododendrons* and *Streptocarpus*. The *Cinerarias* are remarkable for both size of plant and colour of flower, in which respect they bid fair to modify the character of the garden *Cineraria*. The *Disas* are now well known, and rank among popular cool-house Orchids. *Rhododendron Kewensis* is one of the handsomest of first hybrids in this genus, and the *Streptocarpus* now almost rival *Gloxinias* in popularity. They owe their position in the first place to the introduction of the remarkable *S. Dunni* from the Transvaal. This was crossed at Kew with other species, and their progeny again crossed. The results were striking enough to attract the attention of Messrs. Veitch, who obtained a selection of the seedlings from Kew, and from them have obtained the race of plants now associated with their name. Messrs. F. Sander & Co., and J. Laing & Sons also had a selection of hybrids from Kew. The *Phyllocactus* and

Hippeastrums have also been hybridised, at Kew, and some first-class seedlings have been raised there. Of the unflowered hybrids it is too soon to speak, beyond stating that they all promise to be interesting botanically, if not horticulturally.

LIST OF HYBRID PLANTS RAISED IN THE ROYAL GARDENS, KEW.

Name.	Parentage.
<i>Aloe Lynchii</i> ...	<i>A. alboeinata</i> , <i>Gasteria verrucosa</i> ×
<i>Aloe</i> ...	<i>A. macracantha</i> , <i>Gasteria verrucosa</i> ×
<i>Bravoa</i> ...	<i>B. Bulliana</i> × <i>B. geminiflora</i>
<i>Amaryllis</i> ...	<i>A. Belladonna</i> , <i>Brunsvigia Josephinae</i> ×
<i>Cereus</i> ...	<i>C. triangularis</i> × <i>C. grandiflorus</i>
<i>Cereus</i> ...	<i>C. Macdonaldii</i> × <i>Phyllocactus</i>
<i>Cineraria Kewensis</i> ...	<i>C. cruenta</i> × garden seedling
<i>Cheiranthus</i> ...	<i>C. mutabilis</i> × <i>C. Cheiri</i>
<i>Crinum</i> ...	<i>C. longifolium</i> × <i>C. Moorei</i>
<i>Cytisus Kewensis</i> ...	<i>C. Ardoini</i> × <i>C. albus</i>
<i>Cytisus</i> ...	<i>C. Ardoini</i> × <i>C. biflorus</i>
<i>Disa Kewensis</i> ...	<i>D. grandiflora</i> × <i>D. tripetaloides</i>
<i>D. Langleyensis</i> ...	<i>D. racemosa</i> × <i>D. tripetaloides</i>
<i>D. premier</i> ...	<i>D. Velthei</i> × <i>D. tripetaloides</i>
<i>Disa</i> ...	<i>D. grandiflora</i> , <i>D. Kewensis</i> ×
<i>Disa</i> ...	<i>D. grandiflora</i> × <i>D. nervosa</i>
<i>Hippeastrum</i> ...	Various crosses
<i>Musa Kewensis</i> ...	<i>M. Manni</i> × <i>M. roseacea</i>
<i>Nymphaea Kewensis</i> ...	<i>N. lotus</i> × <i>N. devoniensis</i> (Bot. Mag., t. 6983)
<i>Passiflora Kewensis</i> ...	<i>P. Raddiana</i> × <i>P. coccinea</i>
<i>Phyllocactus</i> ...	Various crosses
<i>Rhododendron Kewense</i> ...	<i>R. Griffithianum</i> × <i>R. Hookeri</i>
<i>Rhododendron</i> ...	<i>R. Smirnowii</i> × various seedlings
<i>Rhododendron</i> ...	<i>R. Fortunei</i> × various seedlings
<i>Rosa</i> ...	<i>R. macrophylla</i> × <i>R. rugosa</i>
<i>Rosa</i> ...	<i>R. microphylla</i> × <i>R. rugosa</i>
<i>Streletzia</i> ...	<i>S. Reginae</i> × <i>S. augusta</i>
<i>Streptocarpus Bindi</i> ...	<i>S. Rexi</i> × <i>S. parviflorus</i>
<i>S. Dyerianus</i> ...	<i>S. Dunni</i> × <i>S. Wendlandi</i>
<i>S. Kewensis</i> ...	<i>S. Dunni</i> × <i>S. Rexi</i>
<i>S. Watsoni</i> ...	<i>S. Dunni</i> × <i>S. parviflorus</i>
<i>Streptocarpus</i> ...	<i>S. Fannini</i> × <i>S. Rexi</i>

W. W.

FLORISTS' FLOWERS.

THE AURICULA.

It is difficult to say for certain when the improvement in the Florists' Auricula commenced, and the materials employed to bring about the evolution of the show varieties. It appears probable that the work commenced in Holland, and that when the Flemish weavers, driven from their own country by religious persecution, came to this country, they doubtless brought their Auriculas with them, as things too precious to be left behind. It is well known that they and their descendants were cultivators of this flower, especially in Lancashire.

Gerarde, in 1597, enumerated eight kinds as commonly grown in the gardens about London, but there is reason to think they were not much esteemed, and there is no mention of improving by raising from seed. Johnson, in his edition of Gerarde, published in 1633, says there were then a great many varieties of these flowers growing in the garden of Mr. Tradescant. Tradescant's garden was at Lambeth, and he at the time that Johnson wrote, was gardener to Charles I. Tradescant was a Dutchman, and it is probable that bringing with him to this country that knowledge of floriculture for which his countrymen were even then justly famed, he applied it to the improvement of the Auricula. Hughes, in his *Flower Garden*, published in 1672, gives short directions for the cultivation of this flower, and it is said he was the first writer on gardening known to speak of the subject as the Auricula. In 1757, James Thompson, a flricist of Newcastle, printed in that town a scale of properties of a good flower under the title of *The Distinguishing Properties of a fine Auricula*. But these were not the first, for Richard Bradley, in his *New Improvements of Gardening*, published in 1718, gives seven characteristics of excellence which are "required by florists," to be possessed by the Auricula. Maddock, in his *Treatise on the Auricula*, published in 1792, states that the Auricula "owes its present improved state principally to the assiduity and attention of English florists to its culture, who have from the seed of a flower imported from Holland about fifty years

since, produced by continued cultivation, almost all the varieties we now can boast." George Glenny held that the Dutch had their Auriculas in the first instance from England, and that it was the Dutch who obtained the first improved varieties, because the English growers used to buy them from the Dutch in large quantities.

In the forties the leading green-edged Auriculas in cultivation were Leigh's Col. Taylor, Page's Champion, Booth's Freedom, Oliver's Lady Ann Wilbraham, Hudson's Apollo, Dickson's Matilda, Dickson's Earl Grey, and Lightbody's Star of Bethlehem. Grey edges: Lancashire's Lancashire Hero, Dickson's Prince Albert, Fletcher's Ne Plus Ultra, and Mary Ann; Grimes' Privateer, Headly's Stapleford Hero, Oliver's Lovely Ann (in later years classed with the green edges), Kenyon's Ringleader, and Waterhouse's Conqueror of Europe. White edges: Taylor's Favourite, and Incomparable; Lee's Bright Venus, Popplewell's Conqueror, Lee's Earl Grosvenor, Lightbody's Fair Maid, Ashworth's Regular, Campbell's Robert Burns, and Taylor's Glory. Selfs: Smith's Mrs. Smith, Netherwood's Othello, Martin's Eclipse, Kaye's Jupiter, Redman's Metropolitau, and Gorton's Stadtholder (a yellow self).

With very few exceptions, we know little or nothing of the men who raised the foregoing varieties, or the material from which they derived them. In the succeeding ten years, such green edges as Beeston's Apollo, Dickson's Duke of Wellington, Dickson's Prince Albert, and Ashton's Prince of Wales, had put in appearance. Grey edges: Smith's General Bolivar, and Headly's Superb. White edges: Heaps Smiling Beauty, and Hepworth's True Briton. A little later came Headly's George Lightbody, and Lightbody's Richard Headly, two of the finest grey edges of the present day; Smith's Lycurgus (green edge), Lightbody's Meteor Flag, Martin's Mrs. Sturrock, Spalding's Blackbird, and Kaye's Topsy, a quartette of selfs; and with such material the Rev. F. D. Horner, B. Simonite, J. Douglas, Woodhead, Mellor, and others, set about adding to the varieties which form the cream of our collections in the present day.

The alpine type is to a larger extent a product of more recent years. Fifty years ago, but few appeared to be grown, the leading varieties Fair Rosamond, Fair Ellen, Queen of the Alps, &c.; succeeded by a very popular light variety named Conspicua. It was not until Mr. C. Turner took the alpine Auricula in hand, that substantial improvement came; and excellent work has also been done by Douglas, Phillips, and others. The leading varieties in this section appear to emanate from the south of England.

Two old double-flowered varieties, the Double-Black and the Double Yellow, have been in cultivation for many years, but they are quite superseded by varieties so large, full, and fine, as to stand in the same relation to the single Auriculas as the double *Cinerarias* do to their single forms. They flower later than do the other sections. *R. D.*

THE CALCEOLARIA.

It is difficult to trace the commencement of the crosses made with a view to the improvement of the Calceolaria, but it would appear it was Mr. H. Major, of Knosthorpe, Leeds, who was one of the earliest to take the flower in hand. Desirous of improving it as a show flower he, about 1830, commenced by crossing such reputed species as *rugosa*, *bicolor*, *arachnoides*, and others, and by 1834 he had added considerably to the quality of the strain, and had succeeded in obtaining a crimson-scarlet self, which was regarded as a great acquisition; and also a shrubby variety, which it was thought was the forerunner of a dwarf strain. Such coloured illustrations as were given in the thirties show small, ill-shapen, bag-like blossoms, such as the earliest productions of Major, Sharma, Plant, and others; indeed, it would appear that in the early thirties there was in Yorkshire several raisers who were doing their utmost in the way of

improvement. These illustrations, poor [as] they appear to us sixty years afterwards, are valuable as presenting the flower in its elementary form; a shilling would almost cover the largest of them.

It was probably such material as this which formed the ground-work of the late Mr. T. R. Kinghorn's experiments when gardener to the Earl of Kilmorey, at Twickenham; Mr. Pennycuik, of Twickenham; Mr. W. H. Holmes, of Sudbury; Mr. W. Willison, New Gardens, Whitby; Messrs. Dicksons & Co., Edinburgh; Mr. N. Gaines, Surrey Lane, Battersea; Mr. M. Woodhouse, Whitby; and others. That *C. rugosa* had much to do with the production of the shrubby habit in the *Calceolaria* there can be no doubt, as instances are recorded in which it was employed, either as a pollen or seed-bearing parent. Mr. H. Constantine, gardener for many years at Hillingdon Court, Uxbridge, made a considerable reputation as a raiser and exhibitor, and forty years ago had much to do with shaping the present character of the flower. The Dobsons, of Isleworth, a firm in their day celebrated for *Calceolarias*, *Pelargoniums*, &c., had a very fine strain of the former, and by their selections did much to develop the dwarf-habited type grown in the present day.

In the fifties a distinct section of shrubby *Calceolarias* was cultivated with a more thickly-branching habit, and woody stems, as many as fifty varieties being enumerated in a list I have before me, published in 1856. It appears to be an acknowledged fact that crosses between different species of *Calceolaria*, in common with other plants, are more fertile than the original species from which they have descended, and this may account for the additional vigour in their subsequent progeny found in the earlier crosses made between the shrubby species. In 1855, Mr. J. Cole, of St. Albans, raised from seed a batch of shrubby varieties, which were great improvements on any preceding forms. At that time there were in cultivation certain sub-shrubby varieties, of which one named Sultan was a very fine type, and it was the pollen of such Mr. Cole employed on the best of the shrubby varieties; a batch of ten varieties of Mr. Cole's raising was sent out in 1856, by the late Mr. Charles Turner.

At that time, Mr. J. James was the gardener at Redlee, Isleworth, and was growing *Calceolarias*, *Cinerarias*, *Pelargoniums*, &c., for exhibition purposes. He made use of the pollen of these new shrubby varieties, which he grew and exhibited in fine character, on to the best of Dobson's more soft-wooded types, and may justly be said to have originated our modern strains, which his son, Mr. W. J. James, of Farnham Common, Messrs. Sutton & Sons, and others, have brought to such a high stage of perfection. There is one danger attending the present strains, that the attempts in the direction of attaining mere size is being done at the expense of substance, and a gain of flabbiness in the corollas. R. D.

CYCLAMEN.

It would seem that no serious attempts were made to improve *C. latifolium* (persicum) until early in the fifties, when Messrs. E. G. Henderson & Son, of the Wellington Road Nurseries, produced some new forms, which they denominated "hybrids;" but no record is made of any crosses which produced them, and there is no doubt that no hybridisation between species took place. It may be supposed that some seedlings showing improvements had put in appearance, and cross-fertilisation of the varieties was attempted, and in this way Messrs. Henderson & Son's so-called hybrids were produced; but who took the lead in the matter is not recorded. It is possible that it was discovered some variation could be obtained from seeds, and possibly some attempts at cross-fertilisation were made.

Probably two of the first to attempt cross-fertilisation of the *Cyclamen* were Mr. H. Little and Mr. B. Hooke, of Twickenham, as both were successful in obtaining new varieties of a very promising character. Mr. Hooke certainly went to

work in a systematic manner, for he crossed deep-coloured varieties with their fellows, whites with whites, and so on; and in this way he materially affected the improvement of the flower. I used to visit Mr. Hooke both at Twickenham, and later at Hillingdon; and when Mr. Little moved to Hillingdon also, he maintained his work of improving the flower, aiming at the production of dark crimson-coloured varieties, seeking also to improve the size of the blossom, and the floriferousness of the plants.

The large-flowered or giant type has been developed during the last twenty years, and mainly at the St. George's Nursery, at Hanwell. Messrs. Sutton & Sons, at Reading, made many successful crosses in developing new colours, adding substance to the flowers, and enhancing the decorative value of the *Cyclamen* more than forty years ago. Mr. James Atkins added to the value of the more hardy types, by crossing *C. latifolium* on to *C. Coum*. Some of the seedlings were reproductions; one in particular showed a true hybrid character, and became known as *C. Atkinsii*. The seeds which produced *C. Atkinsii* were sown in August, 1852, and bloomed in 1854. Seedlings from *C. Atkinsii* are very apt to revert to the *C. Coum* type, only a small proportion of them coming true to character.

THE GLOXINIA.

The earliest coloured illustration of a *Gloxinia* I can find is in the *Floricultural Magazine* for 1836, then edited by the late Mr. Robert Marnock. It is that of *G. Youngiana*, a white flower with a pale purple throat, raised by Mr. Young, nurseryman, of Epsom. How great an improvement this was upon *Sinningia* (*Gloxinia*) *speciosa*, introduced in 1815, it is difficult to say, but twenty years afterwards it had been recognised that new varieties were readily raised from seed, that there was a strong tendency to run into varieties, and that not a few varieties of great beauty had been raised in this way. Mr. Carton, at that time in charge of the gardens at Syon House, Brentford, and a skilful hybridiser, was leading the way in improving the flower, and obtained a variety named *Cartoni* from *Gloxinia rubra* and *Sinningia guttata*; and he also made use of *S. hirsuta*; and he also raised *magnifica*, *insignis*, *bicolor*, and others. These were exhibited at a meeting at the Royal Horticultural Society in Regent Street, in June 1844, by Mr. R. Glendinning, then a nurseryman at Turnham Green, and there is no doubt they found their way into cultivation, and became valuable seed-bearing parents.

In the following year the first erect-flowering variety, so far as known, was raised by Mr. Fyfe at Cothecay, and received the name of *G. Fyflana*; it is generally believed to have been a cross between a large-flowered *Gloxinia*, and *G. caulescens*, which we learn on authority was the first form having erect flowers. It will be noted that not only was the corolla raised from a pendent to an erect form, but it gradually lost its irregular form and became rounded, with equal-sized equi-distant lobes [regular peloria]. Here and there systematic attempts have been made to obtain increased size, substance, and marking, notably by Messrs. Sutton & Sons, of Reading; and so large in size and splendid in quality are the present-day strains, that one is disposed to ask, "How much further can improvement possibly go on?" The marbled and maculated varieties appear to be less stout in substance than the self and edged flowers, probably because a later development in time; but solidity of texture will no doubt come in course of time, as careful selection for seed purposes can accomplish much. R. D.

ORCHID NOTES AND GLEANINGS.

CATTLEYA SKINNERI ALBA.

ORIGINALLY introduced by Messrs. James Veitch & Sons from Costa Rica some twenty years ago, sufficient time has elapsed to admit of this chastely-

beautiful white Orchid being well represented in gardens, if it were other than a rare plant in its native habitat. But at the present day many orchidists are longing for it, and still more are lamenting the outlay of their money on what has turned out to be a spurious substitute. It is a pleasure to see a fine inflorescence of the best form (for even in the true plant, so far as colour is concerned, there is variation in size) from Mr. G. W. Cummins, gardener to W. H. Lumaden, Esq., Balmie, Aberdeen. The flowers are pure white, with a sulphur-yellow tint in the tube of the lip, and a slight purple mark at the base, where it is not visible unless the lip is expanded.

BRASSIA BRACHIATA.

There are signs that the *Brassias*, once leading favourites in Orchid collections, are again to be given the consideration which their elegant and easily-produced flowers deserve. The best form of *Brassia verrucosa* is a beautiful object, and the other, of the warted-lip section, is still more handsome, though unfortunately far from common in gardens. What may be termed a major form of it is flowering with Arthur S. Hargreaves, Esq., Gooden House, Harrow-on-the-Hill, an enthusiastic lover of uncommon plants of all kinds. The long yellowish sepals and shorter petals are quaintly spotted with brownish-purple; the lip, which is much larger than in the type, is cream-white, changing to yellow, and decorated with olive-green flattened warts, not so prominently displayed as in *B. verrucosa*. It is a very fine and effective plant.

LÆLIA JONGHEANA.

This charming *Lælia* has always been a mysterious plant, for although a great desire to possess it has been from time to time revived by the flowering of the now historical specimen in Baron Schroder's collection, it has persistently eluded the vigilance of the Orchid-collector, whose energies have been directed to obtaining it in equally as great a degree as was for years maintained in hunting after the true autumn-flowering *Cattleya labiata*. That its advent would give a fresh start to the hybridist is well shown by the lovely and unique *Lælia-Cattleya* × *Baroness Schroder* raised from it and *Cattleya Trianae* in Baron Schroder's collection.

Lælia Jongheana was sent from Southern Brazil about the year 1854 by Libon to M. de Jonghe, of Brussels, and unfortunately soon disappeared from cultivation, nothing more being heard of it until 1872, when a plant of it flowered with MM. Thibaut & Keteleer near Paris, and which furnished material for the late Professor Reichenbach's enthusiastic description and illustration in the *Gardeners' Chronicle*, Mar. 30, 1872, p. 425. It is a grand and distinct species, with brilliant amethyst-rose or bright pink flowers, the seven elevated, crimped, rich orange-coloured keels on the lip rendering it easily recognisable.

ABNORMAL FLOWERS.

From Sir Trevor Lawrence we have received flowers of *Cattleya gigas*, which, if not specially attractive, are at least interesting, as serving, like the puzzle-blocks of our childhood, to fill in the gaps and bind the structure of Orchids into a consistent whole. In one flower there is a reduction of parts owing to the absence of one of the lateral petals without other change. Another flower offers a similar reduction, two sepals only being present, and one of the lateral petals being adherent to the column. A third flower is likewise defective in two sepals, whilst one of the petals occupies a central position at the back of the flower, opposite to the lip, this lip being only lip-like as to one-half, the other portion being like a lateral petal. Lastly, there is a flower with no sepals, but two lateral petals, more or less lip-like, and a lip opposite the column. In each case the column was normal, but the ovary was more or less imperfect. It is possible these reversions, if they are reversions, may be due to cross-fertilisation in former generations.

Mr. J. Wilson Potter obligingly sends us a flower of *Cypripedium Lawrenceanum*, in which the

dorsal sepal or standard shows a few glandular warts along the nerves, similar to those on the petals, but smaller, and less hairy. What is the significance of these glands? Are they mere organs of excretion for the purpose of throwing off superfluous water or other undesirable product, or are they designed as insect-traps, or as insect deterrents?

From the garden of R. Morris, Esq., Beachfield, Doncaster, comes a "synanthic" flower of *Odontoglossum crispum*, in which two flowers are joined

has also similarly influenced the uncommon *S. Josikaea*, which is flowering very well this year. It is a true and distinct species of Lilac, native of the mountains of N. E. Hungary, and although inferior to the various forms of *S. vulgaris*, is of considerable value in extending the Lilac season. This year it was at its best in the second week of June. Its flower-spikes average 5 to 7 inches in length, and differ from those of the common Lilac in being much more slender, and in having the flowers arranged in distinctly separate tiers. The individual flowers are rather smaller than in the common

known at present. There is a specimen in the collection of Leguminosæ at Kew which has been this summer perhaps the most remarkable of all the hardy shrubs in the gardens. The chief difference between this species and the common *Wistaria* is in the shape of the raceme. In *W. chinensis* this is comparatively short and broad, with the flowers closely packed. In the present species they average 2 feet in length (occasional racemes are almost 3 feet), and the flowers are much further apart. On the plant at Kew I counted twenty-eight of these racemes on a branch 12 or 15 inches long, all in flower at the same time! But the whole plant was almost hidden by a curtain of pendent, pale lilac racemes. This *Wistaria* is worth growing because it flowers a fortnight or three weeks later than *W. chinensis*, and also because it can, although a climber, be easily kept as a bush by an annual pruning after the flowers are past. There is a picture in the *Gardeners' Chronicle*, February 25, 1893, p. 233, of a remarkable specimen of *W. multijuga* at Kameido in Japan. It is given as *W. chinensis*, but there is, I think, no doubt of its being this species, both from the picture itself and the description in the text, where the racemes are described as 3 to 4 feet long.

RHODODENDRON KAMSHATICUM.

This is one of the very rarest and most distinct of *Rhododendrons*, and according to Loudon was introduced as long ago as 1802. No doubt it has flowered at intervals since then, but, personally, I had not seen it in bloom till last week. There is a little group of plants in the rockery at Kew, and one of them is now flowering. The flowers are borne singly or in pairs on each stalk, and for a *Rhododendron*, are curiously flat and open—something like those of *R. chamæcistus*, or *R. lepidotum*. Each flower is about 1½ inch across, with the broad segments of the corolla of a distinct reddish-purple.

In many *Rhododendrons* the lobes of the calyx are scarcely discernible, but in this species they are large and almost leaf-like, and of lanceolate outline. The leaves are obovate, sessile, 1 to 2½ inches long, furnished beneath with bristly hairs, and still more so on the margin. The plant grows from 6 to 12 inches high only, and has a close tufted habit. Plants have been found most abundantly on the great peninsula of Kamshatka, but the species also occurs on the Aleutian Islands, in the Behring Strait region, and even in British dominion in the far north-west of Canada. Pallas figured it in his *Flora Rossica* in the year 1784, and another figure appeared a few years ago in *Gartenflora*, t. 1260. In nature the species is found in boggy ground, and similar conditions have to be provided for it under cultivation. *W. J. Bean.*

DR. FOCKE.

FOREMOST amongst those interested in cross-breeding we must place Dr. Focke, of Bremen. He had been selected by the committee to take a leading part in the forthcoming conference, but we learn with great regret that his numerous avocations will prevent him from being present on this occasion. His work, entitled *Die Pflanzen Mischlinge*, published in 1881, is the most complete list that we have of the natural and artificially-raised hybrids that we possess. It contains a brief summary of the history of the various hybrids known to him up to the date of publication. The labours of Kolreuter, Gaertner, Herbert, Knight, Naudin, and other labourers in the field, are condensed in a manner that renders his book invaluable to the student. May he be spared to give us a new edition, supplying the deficiencies of the first, and bringing the record up to date. Dr. Focke is also well known to botanists in this country for his studies in that intricate genus *Rubus*; and his assistance and opinion are eagerly sought by those who are endeavouring to reduce the endless variations of our common Brambles to something like system.



HERR DR. W. O. FOCKE.

together sideways like Siamese twins. Owing to the pressure of one flower on the other, some of the segments have been pushed out of place and slipped one behind the other, so as to give the appearance of a double flower.

TREES AND SHRUBS.

SYRINGA JOSIKÆA.

THE Lilac season, which so far as concerns the common species and its numerous varieties is now quite over, has been the best we have had for some years, the great wealth of blossom being, no doubt, primarily due to the splendid ripening weather of 1898. Whatever the cause, it

Lilac, but are equally fragrant and of true Lilac colour. The leaves are even more distinct than the racemes, being 2 to 4 inches long, lanceolate, tapering towards each end, and of a dull dark green. The species was named in honour of the Baroness von Josika, to whom was due its original discovery. This was about seventy years ago, and it has been cultivated in Britain since 1835.

WISTARIA MULTIJUGA.

With regard to *Wistarias* in gardens, it has hitherto been a case of *W. chinensis* first, "the rest nowhere." And there can be little doubt that the common *Wistaria* is not only the best in the genus, but in some respects the finest of all hardy flowering climbers. I now desire to say a word of praise for its ally, *W. multijuga*, which is scarcely

CHLOROSIS IN FRUIT TREES.

(Concluded from vol. xxv., p. 405.)

In 1889, an important series of experiments was commenced with chemical or artificial manures, and some extremely interesting results followed, though not always of a favourable character. The chief substances used were nitrate of soda, nitrate of potash, sulphate of potash, chloride of potash, kainit, sulphate of ammonia, bone-flour, superphosphates of various grades, basic-slag, and soot. As regards nitrate of soda and sulphate of ammonia, when either was employed alone on Plums, excessive growth followed, which could not be kept in check, and it was only arrested by the appearance of the too familiar disease; and in the case of Apple-trees, canker became very prevalent, similar results being noted where soot alone was used. These effects were general, but Pears and Apricots were especially unsatisfactory in fruit, foliage, and growth, both canker and gumming following. The addition of sulphate of potash, kainit, and chloride of potash alone to either of the two stimulants named did not effect any improvement, but when a mixture of nitrate of potash, superphosphate, and sulphate of iron was tried, the results were most marked, and highly satisfactory—cankered Apricots recovered, Pears and Apples became healthy and clean, the fruits ceased cracking, and heavy crops of fine fruits which ripened well, and proved of good flavour, were secured. These pleasing results might reasonably be attributed to the use of sulphate of iron, and no doubt it did produce an effect, but it is very remarkable that Mr. Wallis states: "We ceased using the sulphate of iron, as when left out the trees did not seem to suffer." The compound, which has now been employed for some years, consists of nitrate of potash one part by weight, and a high grade superphosphate (45 per cent.) two parts by weight, used at the rate of 12 ozs. per square yard, divided into three dressings, one applied during January, another when the buds begin to open, and a third when the fruits are set. This has been found particularly beneficial to Pears, and some trained trees against a wall comprising Glou Morceau, Doyenné du Comice, Pitmaston Duchess, Williams' Bon Chrétien, Louise Bonne of Jersey, and others, admirably demonstrate its effects, as the trees are mostly in pairs, one of each having had different treatment as regards the manurial supplies.

A satisfactory measure of success having thus attended the efforts to counteract the fell disease chlorosis, further experiments were devised to endeavour to find a cheaper mixture that would answer the same good purpose, and enable the expensive nitrate of potash to be dispensed with. Sulphate of ammonia, nitrate of soda, sulphate of potash and kainit, have been so used in conjunction with the high grade super-phosphate, and in some cases, especially with Apples, the results have been equally good. An endeavour has been made to ascertain in what form phosphoric acid gives the best results, and to effect this an experiment was undertaken with Apples, the varieties selected being Warner's King, King of the Pippins, Ribston Pippin, Lane's Prince Albert, Golden Noble, and Reinette du Canada. Six trees of each of these were planted in parallel lines, then, taking rows across the plot, so that one tree of each variety was included, the following manures have been applied:—

- | | | |
|--------------|-----|--|
| 1, six trees | ... | Bone-meal. |
| 2, " | ... | Chloride of potash. |
| 3, " | ... | Superphosphate of lime (26 per cent.). |
| 4, " | ... | Phosphate of potash. |
| 5, " | ... | Phosphate of soda. |
| 6, " | ... | Superphosphate of lime (45 per cent.). |

The amount of manure applied has been calculated, so that the same quantity of phosphoric acid has been given to each six trees (with the exception of No. 2). Except in 1 and 2 all the trees have succeeded well in this experiment, and have borne good fruit, though some differences have been observed in the colouring of the ripened fruit, particularly where the potassic manures are

used. This experiment is still being carried on, and three other varieties have been since added, namely, Blenheim Pippin, Peasgood's Nonsuch, and Cox's Orange, which show similar results. The importance of phosphoric acid in such a soil as this, and in the treatment of chlorosis, is conclusively shown; but there does not appear to be any certain evidence as to which form is the most efficacious or the cheapest, though general results seem to favour the high grade superphosphates.

Much more of interest to horticulturists might be recorded concerning the work on the Hamels Park Estate; and on a future occasion, perhaps, I may be enabled to add something to the facts set forth in these notes. Mr. Shepherd-Cross is commencing a new series of experiments with the assistance of Mr. T. B. Wood, M.A., of Cambridge, which may be expected to yield important results, and considerable care is being exercised in testing the hardness of the water supplied to various trees and plants. Many difficulties have had to be overcome and much expense incurred in the investigations at Hamels Park, but notwithstanding defects in the earlier methods, all records (of which those concerned are fully conscious), valuable work has been accomplished, that should be helpful to many who are similarly situated. *R. Lewis Castle.*

NURSERY NOTES.

THE ROYAL NURSERY, SLOUGH.

It can be said of the Carnations as is said of the poor—that they are always with us. There is scarcely a period of the year when there are no Carnations in bloom. Every type—Malmaison, perpetual or winter and summer-flowering varieties—have all been so increased of late that the round of the various seasons sees something in flower, and there have been so many splendid additions of strains and varieties, with so much of fragrance in the blossoms, that it is not to be wondered at that the Carnation increases in popularity.

Just now there can be seen at the Royal Nursery, Slough, a spacious span-roofed house containing on a central and side stages some 450 plants, one each in an 8-inch pot, carrying remarkable heads of bloom. They do not represent the ordinary winter-flowering varieties, but Mr. Martin R. Smith's summer-flowering varieties, potted the second week in January last, in the hope that they would be in bloom at the time of the Temple Show, which they missed only by a fortnight, and, remarkable statement, this large collection is the production of one enthusiastic raiser. It is a floricultural exploit, standing as a record in horticultural methods, and attesting to the quality of Mr. Martin Smith's strain.

As a matter of course, the flower-stems are rather tall, and the prolific "grass" drawn a little; but there is nothing to suggest that anything in the way of constitutional weakness will result from this spell of indoor culture. As soon as the flowering-time is over, the plants will be fully exposed in the open; this will serve the purpose of thoroughly hardening the shoots, and they will be layered at the usual time, and probably a little earlier. The number of varieties forming the collection is large, but the average is remarkably good. Mr. Smith's preference for varieties that do not split their calyx is abundantly shown; there are magnificent blooms full of large, smooth, shell-shaped petals; and there is decided novelty, especially among what are termed the Fancy varieties.

Of the maroon and shaded crimson shades there are Agnes Sorel, very rich dark-maroon, a variety of the highest quality, so smooth and rounded in petal, and perfect in shape; Comet, deep crimson, very fine; Triton, not so dark as Agnes Sorel; also Sir Bevis, dark crimson; those four can be appropriately grouped together, though they are quite distinct from each other.

Bright pale crimson and scarlet selfs are found in Mauxman, bright scarlet; Killigrow, having more of red than scarlet; Earl of Mercia, pale scarlet; and La Fleche, also pale scarlet, yet distinct from the foregoing, a flower of very great refinement.

Good purple selfs are not so numerous as some of the others, or else they do not show decided improvement, for there is only one in the collection, but it is a beauty, namely, Dick Turpin, bright purple, with large shell-like petals, very fine indeed.

Rose-shades include some flowers of first-class excellence: Chieftain, deep bright rose, extra fine; Ann Boleyn, differing in shade, but equal in quality; Flora, pale rose; Jack Cade, much the same shade, yet distinct; and Lady Hermione, delicate rose, a lovely variety. Pink, deep and pale, fine expression in several flowers, at the head of them I place Wynona, soft clear pink, a beautiful variety; Melita, pale pink; and Bridesmaid, soft clear pink. A little paler is Maid Marian, fleshy pink, a lovely flower, and is a charming companion to Lady Hermione.

There are some fine yellow selfs among them which will greatly strengthen this section, viz., Miss Judith Harbord, deep yellow, extra fine in colour and build; Goldfinch, Falcon, Zampa, and Rizzio are all yellow selfs of the finest quality, differing sufficiently to justify them in being classed as distinct varieties.

And there are grand white selfs too, with the Martin Smith build and petal, for it must be admitted that Mr. Smith has set present-day raisers, cultivators, and exhibitors a standard of approximate excellence. He has, no doubt, reached the ideal he set himself as a pattern; but it is ever thus that the ideal assumes higher shapes of possibility, and recedes as advance is made. Much the Miller is a very fine pure white; Lady Dartmouth, Chaucer, White Cockade, and Ethelwolf are all very fine indeed; and to these may be added Llewellyn, the most delicate blush-white, very pretty and winsome.

There are buff selfs, too, for there is ample room for them. The two best are Benbow, clear buff; and Lagadere, with a slight salmon shading in the centre. And when an estimate is made of the fancies, one sees what great accessions are made to this section, some of them presenting to view quite new combinations of colour. From a number, I selected the following as the gems of the collection:—Osian, buff ground, flaked with maroon and crimson, and striped and feathered with fiery rose; Goldylocks, yellow, with flakes of white on the main petals, with slight pencillings of purple in the centre; Heroine, primrose ground, edged and flushed with bright cherry; Guinivere, creamy-yellow, heavily flaked with pink; Charles Martel, yellow ground, heavily edged and marbled with scarlet and crimson; Eclair, sulphur ground, edge and pencillings of delicate rosy-purple; Desmoulins, white ground, heavily edged and marbled with maroon-crimson; Britomart, a very distinct variety, white ground, flaked with rosy-pink, maroon and purple; Pretorius, pale yellow, edged with pink and heliotrope; Renegade, yellow ground, heavily edged and striped with deep crimson, extra fine; Galileo, creamy yellow, flaked and edged with purple, the former reaching to the centre of the flower; and Persimmon, scarlet, flaked with purple.

One heliotrope self challenged attention, viz., Humbert, having a fine tint of heliotrope, and a decided improvement upon Garville Gem.

There yet remain some charming yellow Picotees which form useful additions to the few we already possess, and form helps toward the attainment of a section of true yellow Picotees, with their petal edges beaded with colour as perfectly as in the case of the white ground Picotees. Those of Mr. Smith's raising are, Lady Bristol, deep yellow, with medium edge of scarlet; Galatea, clear yellow, edged with a deeper scarlet than the preceding; Fashion, pale creamy yellow, edged with pink; Carloman, clear yellow edged

with deepscarlet, extra fine; Duke of Alva, yellow, edged with purple; and Edith, clear yellow edged with lively rose.

I have contented myself with selecting what I thought to be the very best in a large collection of new named varieties. I think some of them may be correctly regarded as epoch-making flowers. R. D.

PUBLICATIONS RECEIVED.—*Cactus Culture for Amateurs*, by W. Watson, Assistant-curator of the Royal Botanic Gardens, Kew (L. Upcott Gill, 170, Strand).—*Evolution by Atrophy in Biology and Sociology*, by Jean Demoor, Jean Massart, and Emile Vandervelde; translated by Mrs. Chalmers Mitchell (London: Kegan, Paul, Trench, Trübner & Co.).—*The Origin of the British Flora*, by Clement Reid, F.R.S. (London: Dulau & Co., 37, Soho Square, W.).—*The Art of Advertising: its Theory and Practice* fully described, by William Stead Jun. (published by T. B. Browne, Ltd., 163, Queen Victoria Street).—*Album des Orchidées de l'Europe Centrale et Septentrionale*, par H. Correvon (Genève: Librairie, Georg et Cie., 10, Corratier; Paris: Librairie O. Doin, 8, Place de l'Odéon).



MR. J. DOUGLAS.

AURICULAS, CARNATIONS, &c., &c.)

NOTES ON SOME QUEENSLAND ORCHIDS.

THE following is an extract from an interesting paper read before the Horticultural Society of Queensland, by Mr. J. F. Bailey:—

The Colony of Queensland is well off in genera and species of the Order, but cannot boast of a great number of showy ones, and the best of these cannot be compared with those of India, South America, or the Malay Archipelago; nevertheless, there are a goodly number of those enumerated in the following list that are well worthy of the attention of the Orchid cultivator.

DENDROBIUMS.

Pride of place among the Australian Orchids must be given to *Dendrobium bigibbum* and its many varieties, which inhabit North Queensland and the Islands of Torres Straits. The stems of the normal form are about a foot long, and bear a few leaves, about 4 inches long, at the top. The flowers measure about 1½ inch across, and are of a magenta-purple colour, the lip being a little deeper coloured, with a white crest. Mr. E. Grimley, of North Quay, the well-known grower of Orchids, had growing in the bush-house last June some plants of a variety with yellow crests instead of white. The variety *superbiens* has stems 3 to 4 feet high, and wavy flowers of a rich crimson-purple, bordered with white. It has the largest leaves of all the varieties.

The variety *Phalænopsis*, which is considered the best, has flowers about 3½ inches across, of a rosy-mauve colour.

The variety *albo-marginatum* has light pink-coloured flowers, the sepals of which have a well-marked white border; the plates on the lip are also white.

The variety *venosum* has flowers of an almost uniform dark pink colour, but distinct from all others by the very prominent venation.

The variety *macranthum* is one of the most showy of the varieties. The sepals and petals are of a heliotrope colour, and the lip of a rich mauve. A specimen of this, which was

received from Geraldton, is growing at the Acclimatisation Society's Gardens, Bowen Park. The foregoing usually flower during the months of April, May, and June.

One of the commonest throughout the colony is *Dendrobium speciosum* var. *Hilli*. This is a robust grower, which flowers during September and October, and will thrive well either in a bush-house or in the open. The racemes are about 15 inches long, and bear numerous fragrant flowers of a pale yellow colour, which remain open for a considerable time. A variety now growing at the Acclimatisation Society's Gardens, which was obtained at Lady Elliott Island, has curved stems, and has had the name *curvicaule* attached to it. The variety *delicatum*, which grows on the Main Range, has slender stems, only 6 to 9 inches high, swelling at the base into pseudo-bulbs. The racemes are from 7 to 8 inches long, bearing eight or nine fragrant white flowers exceeding an inch in diameter.

Dendrobium fusiforme.—Stems, as the name denotes, are spindle-shaped, also corrugated and of a dark colour. The flowers are somewhat similar to *D. speciosum*, but are of thinner texture, and are more fragrant.

D. undulatum, found growing on rocks on the north-east coast, is another very robust grower, having stems several feet high, and thick leaves about 8 to 6 inches long. Flower-raceme 1 to 2 feet long, bearing numerous wavy flowers of a bronze colour which remain out for several weeks, and are very hardy, and will stand watering better than any other species. Mr. Hugh Dixon, of Sydney, who has the finest collection of Australian Orchids, has a plant of this species which has stems 7 feet 6 inches to 8 feet in length, and one 9 feet 6 inches, which bore at one time 30 racemes, averaging 36 flowers, i.e., over 1,000 flowers.

The variety *Bloomfieldi*, only differs from the normal form in having the flowers canary yellow and the stems more angular.

D. Johannis has stems from 1 to 3 feet high; leaves narrow, and not very harsh. Flowers in form rather similar to *D. undulatum*, but of a brown colour and yellow lip. There are several forms of this, differing in size and colouring.

D. Toffi is a stout species resembling *D. undulatum*, but stems are prominently marked with purple ribs, and more compressed than that species. Flowers about 2½ inches across, nearly white, stained with violet inside. I have only seen one plant of this, viz., the one from which the published description was drawn up. Mr. Tofft, from whom it was received, stated that he found it at a creek off the Johnstone River.

D. Adæ, which is found in the Cairns district, is a most desirable species to grow, on account of the strong perfume of its flowers, which are white.

D. tetragonum, with its four-angled pendulous stems, is met with in our scrubs north and south. Flowers spider-like, pale yellow, suffused with green and red. The northern form has larger and brighter-coloured flowers. Flowers during August, September, and October.

D. emulum, a species abundant on box-trees in scrubs or South Queensland, has pretty white flowers about 1½ inch across, which, when they have been out a day or two, emit a sweet perfume. Flowers, which come out in August and September, last about a fortnight, but if exposed to a shower of rain or watering, fade away very quickly.

D. canaliculatum, with short stems, the bases of which are swollen into pseudo-bulbs, has rigid leaves, deeply channelled on the face, and numerous pretty flowers marked with white, yellow, and purple, which are rather fragrant. This is generally found on Tea-trees in North Queensland. Under cultivation it bears abundance of flowers the first year, but yields fewer afterwards. No doubt it would bloom better if given a more exposed situation than in a bush-house. Flowers during September, October, and November.

D. linguliforme, the Tongue Orchid, is met with throughout the Colony. In South Queensland it is generally found on Tea-trees, rocks, and other exposed situations. The flowers are small, white, and fragrant, but are delicate, and do not last long. In bloom during September and October.

D. teretifolium, the pencil Orchid, with its long branching stems and pencil-like leaves, forms large masses on trees in scrubs. The flowers are white and fragrant. There are two forms of this Orchid, one having quite slender leaves and fewer flowers than the other. Flowers from September to November. I discovered a variety with yellow flowers some years ago at Killarney. This has been called *aureum*. It flowers in November.

D. agrostophyllum is a neat-flowering species, with slender stems, which are leafy from the middle upwards. Flowers, which come out from August to October, are yellow. Habitat: ranges about Cairns.

D. Mortii is somewhat similar in appearance to *D. teretifolium*, but the leaves, instead of being terete, are channelled down one side. Flowers small, in pairs. In flower, April.

D. Beckleri has corrugated leaves of two forms, the lower ones on the stems being thick and somewhat spindle-shaped, while those in the upper part of the plant are quite slender. The flowers, which are yellowish with dark lines, are borne on the slender branches at the upper end of the stem, and come out during September.

D. monophyllum, which is very common in our Southern scrubs, as also are the two last-mentioned, has short, yellowish, corrugated pseudo-bulbs, which come out erect from a creeping rhizome, and at the end of each a single leaf is produced. The flowers are small and yellow, and in form remind one of the Lily of the Valley. Flowers July to November.

D. cucumerinum has leaves resembling small Gherkins, hence the name. The flowers are small, white, streaked with

reddish-yellow. It is found on the small branches of shrubs, &c., on the Southern ranges, and flowers in the months from February to May.

D. Smillie, a native of North Queensland, is unique among the Queensland Orchids. Its thick cluster of flowers, which are pinkish, tipped with green, and the swelled end of the lip a dark bluish-green and very glossy, lasting a long time. In its native habitat this is generally found in the forks of trees, and one would naturally suppose that it would require a deposit of decomposed matter, such as bark, &c., often found in such situations, for the ramification of the roots, but I have a plant thriving admirably off a naked board, without any covering to the roots. Flowers in October and November.

D. gracilicaule, a common species in the scrubs about Brisbane and elsewhere; makes plenty of stems, but the flowers, although numerous, are not of a good colour, which, by the way, is very variable. Flowers August and September.

Dendrobium pugioniforme has a very insignificant flower, but bears numerous dagger-like leaves. From the bright and unusual shape of the foliage it would be worthy of hanging basket cultivation. I obtained my plant from the Bunya Mountains, where it hung down in large masses from trees.



MR. J. MARTIN.

(CALCEOLARIAS, GLOXINIAS, CYCLAMENS, &c., &c.)

D. Kingianum, usually found on rocks on mountains in Southern Queensland, has stems 6 to 9 inches long, swollen towards the base, almost club-shaped. Racemes bearing a few purple flowers, which have a strong heliotrope-like scent. Flowers in October. The variety *pallidum* grows much smaller, and the flowers are white or lilac-stained. The clustered stems of this variety form large patches on the rocks of the Main Range.

BULBOPHYLLUMS.

Our *Bulbophyllums* are very small-growing species; the only one that could be recommended for growing on account of flower is *B. Baileyi*, of North Queensland. The flowers are cream to golden-yellow, spotted with purple, and are about 1½ inch in diameter, and very fragrant. In bloom November and December.

SARCOCHILUS.

The Queensland species of *Sarcochilus* are small-growing and, as a rule, are found clinging to branches of trees, also in crevices in rocks. They emit numerous strong, white roots. With the exception of *S. Cecillie* and *S. Hilli*, the foliage of those mentioned herein is very similar, the leaves being strap-like, varying in size from 2 to 4 inches. The two above-mentioned have erect, narrow leaves, from 1 to 3 inches in length. The former with pretty little pink flowers, and the latter, which is a rare species, with white. Both flower about November, and are found in rocks and trunks of trees respectively.

S. montanus.—Flowers about an inch across, white, striped with purple and red. Flowers August to November.

S. falcatus.—Very like the last-mentioned, but flowers are white, or only slightly spotted. The leaves are also much longer, generally found on Myrtles and Figs, and flowers from September to November. This and *S. montanus* are met with on the Main Range.

S. Fitzgeraldi is a very pretty species, having white flowers with maroon spots. Flowers in November on Darlington Range, South Queensland.

S. Hartmanni has white flowers, with red centre, and is found on the Main Range, where it flowers in the months of August and September.

S. divitiflorus is unique among the plants of this genus, and can be distinguished from all others by the roots alone, the top-sides of these being rough like a rasp. The racemes attain from a few inches up to 18 inches in length, and sometimes bear as many as sixty flowers, the segments of which are long and thread-like, and are of an old-gold colour, blotched with red. Flowers in October, in Southern scrubs.

ERIA AND CYMBIDIUMS.

Eria Fitzalani, a Northern Orchid, has short pseudo-bulbous stems, terminated by a solitary narrow leaf. The flowers, although not large, are fragrant, and remain out for a long time.

Cymbidium, the three Queensland species mentioned herein, are generally found in forest country, growing in the forks of live or dead trees, and frequently in the hollow branches of the latter. The roots attain a great length, and penetrate the hollow part of a tree for a great distance.

C. canaliculatum has pseudo-bulbs 2 to 4 inches long, and grey, rigid leaves. The flowers are the most showy of the three; but *C. albuciflorum*, the leaves of which are 2 or more feet long, has larger pseudo-bulbs, and also by far the longest racemes of flowers.

C. suave has long slender stems, often 1 to 2 feet long, which do not swell into pseudo-bulbs. All flower about October and November.

CLIMBING ORCHIDS.

In climbing Orchids, two species of *Galeola* are found in the scrubs of South Queensland, viz., *G. cassythoides* and *G. foliata*. Both are leafless climbers, although the bracts subtending the branches of the latter are enlarged almost into leaves, hence the name. The flowers of *G. foliata*, which is the more robust grower of the two, are yellow, with a white and maroon centre, 2 or more inches broad, and fragrant. The bracts are 1 to 2 inches long, whereas in *G. cassythoides* they scarcely exceed a quarter of an inch. The flowers of the latter species are also smaller, and brownish.

Many attempts have been made to cultivate these species, but hitherto with little or no success. They grow in old logs and stumps where much of the wood has decayed. I have seen the yellow stem of *G. foliata* almost covering an old culvert bridge at Eumundi, on the North Coast line, with the flowering portion, which is at the end of the growth, 5 or 6 feet long, and over 2 feet broad, and the flowers innumerable. I would recommend those desirous of cultivating these Orchids, and who have bush room for them, to obtain a quantity of decomposed and decomposing wood from some scrub-tree stump; place this partly in and partly above the ground (mixing a small quantity of sharp sand with it) near the side of the bush-house, so that when the plants start to grow they will have something to climb up. Or it would look well if given a central position in the house, in which event a good-sized branch of a dead tree, from which the bark has not been taken, should be put in position for it to climb up. Plants should be removed from their native habitat at the first period of their growth.

TERRESTRIAL ORCHIDS.

There is also much to be said in favour of the many terrestrial Orchids of the colony with regard to showiness, shape, or irritability of the flowers, but to speak of all would extend the paper to a great length. I will, therefore, confine myself to only a few of the larger kinds, leaving the others to form the subject for a paper on a future occasion. Those mentioned may either be grown in the ground or in pots. They should be given plenty of drainage, and a peaty soil with a good mixture of sand.

Phaius grandifolius is plentiful on Stradbroke, Moreton, and Fraser's Islands. The leaves are from 1 to 2 feet long, and the flower-scapes 1 to 6 feet high, and bearing a number of large flowers, which are brown outside, white inside, and the lip streaked with red. Flowers in October. Besides the other localities, it is met with in swamps near the coast both north and south. A variety with double flowers, obtained from Stradbroke Island, is growing at the Acclimatisation Society's Gardens at Bowen Park, and at Mr. Grimley's, North Quay. The variety *Bernaysii*, named after our worthy President, has pale yellow flowers, the lip being edged with white, and so far as at present known is only found on islands of Moreton Bay. Flowers in October.

Calanthe veratrifolia might, by seeing leaves only, be taken for the foregoing. The flowers, however, are white, and of a different shape, and stay out for many weeks.

Spathoglottis Paulina, which, in its native habitat, North Queensland, is generally found growing in peaty soil, accumulated on damp rocks, has purple flowers, borne on scapes 3 to 4 feet long. The leaves are about 2 or 3 feet long, and the tubers are small.

THE ROSARY.

TEA-ROSE BERYL.

OF late years what are now called button-hole Roses, mostly of the Tea sections, have very much come to the front. The blooms are small in com-

parison with ordinary Roses, and brightness of colour is always considered a requisite. It is easy to obtain small blooms of larger varieties, but they are not so desirable as the so-called button-hole Roses, which are, as it were, raised for the purpose. The varieties, William Allan Richardson and Gustave Regis, are amongst the prime favourites in this division, the latter with its long-pointed flower-bud seems the veriest ideal of a button-hole Tea-Rose; and of course, the colour is always an attraction when the Rose comes true, which is, unfortunately, not always the case, as in many situations it loses its distinctive character and becomes nearly white, and more especially is this the case when planted on a south wall. I have one large plant in this aspect, but it is so disappointing in its colour that I fear I shall have to remove it. Messrs. Alexander Dickson & Son, the famous raisers of pedigree Roses, have, however, come to our rescue with their beautiful Rose Beryl, a Tea Rose of vigorous growth, branching habit, very free flowering, and continuing in bloom during the whole season of Roses. The bud is of that distinctly pointed shape, which is so valued by those who have to do with Rose decoration; the colour is a deep golden yellow, reminding one of William Allan Richardson when in its best condition. I am sure it is likely to become very popular when well-known, both for its beautiful shape and charming colour. *Wild Rose*. [We must not lose sight, in praising the new comer, of Niphetos, Mrs. W. J. Grant, and Devonensis as button-hole Roses, for they are all excellent in the unexpanded state. Ed].

SCOTLAND.

APPLES AND PEARS.

THE unbroken sunshine makes us conclude that the fruit there is of the above, will this year be highly coloured. The show of blossom was, in the case of both, most abundant, but the set of fruit unfortunately meagre. The reason appears to me to have arisen from weather influences of a character directly opposite the one to the other. All the time Pears were blooming there was practically no sunshine, but cold weather, and often with rains. Several times the bloom was examined, but not once was there, even in the most favourable weather, any save the least discernible quantity of pollen on the anthers. The result was, that comparatively very few flowers were fertilised, and the necessity for thinning is largely obviated. Apple blossom was equally profuse, but results as regards a set of fruit has been equally adverse. The reason for this appears to have been attributable largely to the intense heat following the cold wet weather. An examination of the flowers showed that stamens and pistils were shrivelled, and the hope of an abundant crop crushed. The effect of continued sunless weather, and at the same time, cold or very hot weather, would therefore appear to be as disastrous to fruit setting as an occasional sharp frost.

STRAWBERRIES.

Not a few expected to see this an off-year with Strawberries. The heat, however, has brought these round wonderfully, and has no doubt gladdened market-growers by bringing the crop rapidly forward, and thus obviating a very late one, when, owing to the exodus of people from the cities, it does not realise so much.

DOUBLE LILACS.

These have flowered extremely well this year, and one has been able to pretty fairly estimate their merits. Of all those we grow, the only variety of real value is Madame Lemoine; it is pure white, the pips full, and the racemes large and standing boldly up. I estimate this as a standard plant. It may be added that as a cut flower it is finer than the single whites.

DIERVILLAS (WEIGELAS).

D. Looymansia aurea fully exposed to the sun is proving a splendidly effective shrub; the flowers harmonise so perfectly with the clear yellow leafage. In shaded positions it is of small value. Almost as fine, and quite distinct is *D. amabilis variegata*. When smothered under a load of its silvery looking blooms, with the green and cream variegation showing through among them, it is eminently attractive. Many of the hybrid rammed varieties are also in beautiful form. They range from pure white and cream to darkest maroon, the sorts most generally known being Candida, Eva Rathke and Dr Baillon; but in addition to these are many sorts of equal or enhanced value. When well grown, and weakly growths excised, some sorts make shoots annually, up to 5 feet in length, which in June are wreathed in bloom. *R. P. Bro'herston*.

SWEDEN.

FRUIT-SHOWS IN STOCKHOLM.

A SERIES of fruit-shows on a new plan is to be held in Stockholm this year. The object of the shows is to afford an impulse to improved fruit-growing and fruit-marketing. The fruit is to be exhibited packed in receptacles suitable for bringing to the markets, soft fruits, Cherries, and Plums, 10 to 20 litres, and the harder fruits, 20 to 100 litres in each package. In judging, not only is the quality of the fruit to be taken into consideration, but the mode of packing. There will be no competition between fruit-growers from different counties, but only between those of the same country, on account of the great differences of climatic conditions. The exhibits must be grown by the exhibitor. No money prizes or medals, only certificates (diplomas), will be given. The show will be at the same time a kind of central market.

Only one package of each kind of fruit may be exhibited, but this sample may be accompanied by a notice of how much of the same kind of fruit the exhibitor has to dispose of, and the price at which he will sell. The committee of the show will then give out a list of the fruit offered for sale, and the buyers can then get into direct communication with the grower.

The shows will be held once in each of the months of July, August, September, October, and December. If the results turn out well, the shows will be continued the following year. The costs are defrayed by the Gardeners' Society (*Gartner-sällskapet*) in Stockholm, and by *Hushallnings-sällskapen*, a kind of agricultural society of the different counties. The Government has granted free carriage of the exhibits on the state railways.

Pomological Exhibitions, with the object of ascertaining the most suitable kinds of fruit for the different localities, and for promoting the better naming of fruits, are to be held in the usual style at the same occasions.

A *Chrysanthemum Show*, open to exhibitors from the whole country, is to be held at Stockholm on November 10 to 12 this year. Besides Chrysanthemums, there will be classes for cut-flowers in general. *A. H. M.*

THE ROYAL SCOTTISH HORTICULTURAL ASSOCIATION'S VISIT TO "THE GLEN," INNERLEITHEN.

IN our last issue (p. 416) we made mention of the fact that the members of this body of Scottish gardeners had paid a visit to "The Glen," Sir C. Tennant's place, near Innerleithen, on May 27, and we now give our readers an account of the visit, kindly sent by our old friend and correspondent, D. T. Fish.

A pleasant journey by railway from the Waverley station to Peebles, and a drive by road to The Glen by Innerleithen through the valley of

the Tweed; and all the way the road on either hand thickly strewn with the beauties of the present, and ancient ruins with their memories of the past, brought the party to their destination.

We pull up for rest and refreshment at the Traquir Arms, Innerleithen, as we are still four miles from The Glen, though the entire valley of the Quair might well be called by that name. Glen House, for which we are bound, is on Quair Water, and the same water gives its name to the hostelry we have left, which was a favourite resort of tourists, sportsmen, anglers, and those in search of the beautiful, in mountains, wood, and stream.

We find that The Glen has a history that leads one back to the time of Robert Bruce; but in those days it seems there was not only one glen, but three—the East, West, and Northern Glen. Nor is this to be wondered at, for after plunging into the road, lightly labelled "To The Glen," the country became all glen, growing in beauty and in loveliness as we proceeded.

En route on the left we have rich and varied views of mountain, wood, pastoral meadows, and water. Among these a glimpse is got of a part of the old Ettrick forest of Birches, now almost

that "The Glen" came into possession of the present owner—so this well-known liberal patron of horticulture and fine arts has lost no time in building and improving his residence. The style of architecture, as will be seen from the illustration, is the old Scotch baronial, and Mr. Bryce the architect has been known to speak of "The Glen" as his model illustration of this style. As the party had the privilege later on of seeing the superb pictures, and chief rooms, it may be said that the former exceeded all expectation, and that the rooms and furnishing seemed in perfect harmony with the architecture. Several inscriptions over the front door, and on either side of an arch near, claims notice, the following two in old English, the other two in Latin :

Blessed be God,
And all his gifts.

They are welcome
Here who the
Lord do fear.

As you enter the arch the word "Welcome" greets you. As you leave the word "Farewell"—bids good-bye to "The Glen." Mr. McIntyre explained the merits of some fine specimen Hollies, used in excellent effect to clothe the square near the front door. They are about 20 feet through and well adapted for such purposes. It is a variety known as Hodgins. The Herr Späth's Irish Yew some 30 feet through, of a dense rather dwarf variety, seems but seldom grown. But fine old Scotch Firs, and other Conifers and deciduous trees and shrubs besides Rhododendrons abound in all directions; and Oaks, Elms, and some fine Beeches—one near Lucy's Barn has a bole of 14 feet in circumference 4 feet from the ground—a veritable giant. The trees on this lawn are broadened and expanded into denser clumps and groups in the park—and these again repeat themselves in larger and freer lines on the hills and mountains in the more distant background, converting "The Glen" into a sylvan retreat of endless variety and inexhaustible beauty.

Passing the waterfall with its rippling and leaping music on Lucy's Barn, which we have heard was one of Mr. McIntyre's earliest improvements at "The Glen," we came to the tennis-lawn and the bowling-green, the finest examples of velvet-piled turf yet seen by the writer. Here we had a view of the mansion, with the terrace beds furnished with flowering shrubs, Azaleas, Rhododendrons, Berberis, &c., just coming into bloom.

On the west a fine view is obtained of the rolling ground so richly and skillfully clothed with flowering shrubs, with Yews, Hollies, Rhododendrons, flanked with Beech, Ash, Birch, &c. Artistic use is also made of the striking and early rich tints of the Golden Corstorphine Plume. Possibly the abnormal lateness of the season was chiefly responsible for an apparent lack of crimson, gold, purple, and white in this pleasure ground in the last week of May; and the lack of flowers on Laburnums, Crataegus, Lilacs, Rhododendrons, Philadelphus, Deutzias, and Spiræas.

The best of the Penzance Briars were noted, which in time will fill "The Glen" with their fragrance, and enrich it with their coloured beauty. Later on, the choice terrace and flower garden, which very appropriately is a sort of multiple of the Prince of Wales' feathers, will add its finishing touches of colour, until the whole melt into the rich tints of autumn.

Casual observers, noting merely the robust health of shrubs, trees, grass, lawns, and vegetation in general, can imagine the amount of labour and foresight needed to sustain such a paradise of a garden, resting as it does on a thin layer of half-decayed basaltic rock. Of course, much of this material had to be removed or covered to a depth of from 1 to 2 or more feet of good soil, before permanent success was possible. But with good soil, freely and intelligently used, the apparently impossible is accomplished.

The Glass-houses.—The conservatory is 90 feet long, and it is furnished with large Palms, Tree-ferns, Orange-trees, Camellias, and Dracenas, and has, therefore, a tropical appearance. From this house branch three other houses, each 30 feet in length. The first we entered was filled with Palms, a very choice collection, most of which have won many honours abroad; and perhaps the finest specimen in the house is a Phoenix Roebelinii, perhaps the only, assuredly the best specimen of this rare variety in Scotland—a greatly improved variety of *P. humilis*.

We next entered the Codæum-house. Those who have seen Mr. McIntyre's plants at the great flower-shows or at home, will know how perfect they are in health, habit, and colour. To others no amount of description could give any adequate idea of the beauty and substance of the leaves. The collection was quite representative, and the whole was artistically arranged with rare new Caladiums. Among the Codæums, the more notable were Golden Ring, some 3 feet through; Queen Victoria, a grand plant, 5 feet through; a fine plant of *Russellianus*; another of *Newmanni*. Some of the more notable Caladiums were Botofogo, George Buyer, John Laing, Meyerbeer, and Alice Van Geert.



MR. W. WATSON.
(KEW HYBRIDS. SEE P. 1.)

environed with a fine plantation of Scots Firs. These are probably a part at least of Birch trees immortalised in the Song of the Bush, also in Traquir.

Entering by the East Lodge we were driven along an avenue a quarter of a mile or more in length through exquisite scenery, planted with good taste and in perfect keeping. Here were some Elms and other trees and shrubs, and a fine Oak planted by the late Wm. Ewart Gladstone when on a visit to Sir Charles Tennant, Bart., in 1890. Near here is also a lake, in a snug and charming position.

Entering the mansion on the north-east over the bridge, through the arch covered with Ivy, we were at the front door of The Glen, where Mr. McIntyre was ready to receive us, and show us the natural and artistic beauties of the garden and house. Before starting, however, several things seemed to rivet the party to the spot—one being the size and beauty of the mansion (see fig. 6, p. 11), which has been truly described as a "splendid edifice." The present house was built in 1852, and enlarged in 1873, and together with the surrounding grounds cost some £50,000. It was only in the former year



MR. J. HEALE.
(RHODODENDRONS, AMARYLLIS, &c., &c.)

The third was a show-house with a mixture of flowering plants and roof-climbers, rare Calceolarias and Cyclamens of choice strains, and select varieties of Pelargoniums, Chinese Primulas, and other plants. Passing the head gardener's house, and by an ivy-clothed wall to the flower-garden, we come to a rest built for visitors, who are free to visit The Glen on two days in the week—Tuesdays and Fridays. Near by we found plants of *Azalea indica*, making their growth and forming their flower-buds for next season; and hereabouts is a Pine-stove, 60 feet long, filled with promising fruiting plants, and an East Indian Orchid-house filled with fine plants of *Aerides*, *Vandas*, *Cypripediums*, *Anthuriums*, especially two fine specimens of *A. Wardi*, well furnished with spathes, one of which possessed nearly one hundred; some fine pieces of *Oncidium ampliatum majus*, and intermixed with these plants were *Cocos Weddelliana*, and over half-a-dozen nice plants of *Adiantum Farleyense*. In one of the vineries some fine plants of *Cymbidium eburneum* were found, as well as some very fine specimens of *Dracena Leonardi*.

In the Muscat vineries, too, the choice greenhouse Rhododendrons were making their wood and flower-buds for next year.

The next house entered was that in which the intermediate Orchids were grown, and a show-house 60 feet long. The first was filled with Cattleyas, Cælogynas, and fine baskets filled with Lælias, the plants being edged with a wonderfully good strain of Streptocarpus, Maidenhair Fern.

The cool Orchid-house contained Odontoglossums in perfect health, with a few spikes of blossom thereon, for we were following closely on the heels of his Royal Highness the Prince of Wales, and other distinguished visitors. On the back wall of the Odontoglossum-house the old Begonia Rex and the Selaginellas made a rich display. Here was also a greenhouse 30 feet long, with some good Australian and Cape plants, among them some fine specimens of Erica Cavendishii, and some fine batches of Lillium were also coming on. Another glass-house was devoted to growing successional Pelargoniums, to furnish the show-houses as wanted. The Carnation-house contained pink and white Malmaisons in pots, and these form a sight worth going a long way to enjoy. The Tomato-house is 50 feet long; the Melon-house is planted at the back with Melons, and the front is used for growing Dracænas. Near here were noted about 600 Chrysanthemums, and the succession Pine-pits some 70 feet long.

Returning to the vineries, we find about 80-feet run in the first series, divided into two classes or divisions, Hamburg and Muscat of Alexandria both carrying excellent crops, and looking prosperous in all points. At a much higher elevation, along the top of the old kitchen-garden, there is another most useful range of fruit-houses some 300 feet long. Here Mr. McIntyre had used an ingenious device to utilise old Vines, while running up young ones in front. This was done by adding some 6 or 8 feet to the width of the vineries in front, adapting the roofs to the new conditions, and leaving the old Vines on the back wall and up the rafters as before. The two latter form a pleasing arch of Vines over the main path, and the whole of the Vines are healthy and promising. The kitchen-garden forms a series covering some 5 acres on the sloping side of a hill at different elevations. We enter these beautiful and admirably-furnished gardens through an iron-gate of admirable workmanship, said to be 350 years old, presented to Sir Charles Tennant on his marriage by Sir Thos. Carmichael. It is a singular illustration of the taste and skill, the thoroughness of the technical education received in the olden times.

Each flight of steps commands fine views, which are so extensive and beautiful as to rather distract attention from the trees, fruit-bushes, admirably covered walls, and promising growing crops, that abound in all directions. Assisted greatly through the rolling ground, few of the fruits seemed to have suffered spring-frost. Neither has the scourge of Black Currant-mite been seen at The Glen. I also noted Cherries, Plums, Pears, and Apples, on the walls. The highest, and also the newest, kitchen-garden is planted with fruit-trees on the walls.

In a subsequent issue we shall give additional illustrations of this fine estate.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Celery.—The time has arrived when the forward batch of Celery should be planted in the trenches, choosing a showery day for the purpose. Should the nursery-beds be dryish, let water be afforded some hours previously to lifting the plants. These should be cut round about, and lifted with a garden-trowel, thereby preserving a good ball of soil and roots. They should be set out at 8 inches apart in the rows, water being afforded the soil previous to planting, and when a trench is planted throughout. The early varieties should be planted

altogether, so that when these are consumed, the land can be conveniently prepared for other crops. The Celery-fly, if troublesome, may be kept in check by dressing the leaves with fresh soot early in the morning; there will then be very little injury caused to the plants. If leaves get badly infested, remove the injured parts, and burn them forthwith, syringe the foliage with soap-suds, and dust it with soot. Successions should be kept thoroughly moist at the roots, and the nurse-beds free from weeds. Dryness at the roots now may cause the plants to bolt later on.

Coleworts.—No time should be lost in getting seeds of Coleworts sown. My rule is to sow the seeds about the first week in June, and again at about this date. Coleworts should be grown in quantity, the plants occupying very little space, and they come in handy for planting any spare piece of ground, besides the crop is usually a useful one. Sow in drills in an open spot, and plant-out direct from the seed-bed. The ground for Coleworts should be firm and compact, and need not be dug if in good heart.

Dwarf French Beans.—A large sowing of the Ne Plus Ultra or other fine large-podded variety, may be made on land that has carried the earliest Potato crop. Let all rows of Beans be moulded up early, and apply a good mulch of short dung if the soil be light, and in dry weather afford liquid-manure alternately with water. Remember that a regular removal of useable pods prolongs the bearing of the plants.

Lettuce may be sown on the Celery-ridges, sowing the seed thinly in drills at 1 foot apart. Spinach, or any other quick-growing vegetable that does not grow tall, may also be grown on these ridges.

Endive.—A sowing of Endive may now be made on a border, the plants to be transplanted later on if land is not yet available. The Green Curled and Digwell Prize are useful varieties, and should be grown in quantity. Other sowings may be made later.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen.

Dendrobiums.—Many of these will need attention during July. *D. chrysotoxum* and *D. suavisimum* may require larger pots, and in this case carefully break those in which they are at present, and drop the ball of roots with the adhering fragments of the pot into the new one; add more drainage-material, and surface with peat and a small quantity of sphagnum-moss. When the new growths have become mature, remove the plants from the East Indian-house to one where cooler and drier conditions prevail, and do not water them over much. *D. Parishii* grows well in suspended pans when treated like these, except that the plants should remain permanently in the warm-house. *D. formosum* is in very few instances long lived, but given careful treatment, the plants will retain a vigorous and floriferous character for several years. It seems to thrive best when grown in pans or baskets, suspended in a warm and light position, where the syringe may be plied amongst them on bright days, given ample supplies of water when rooting freely, and at other times only sufficient to prevent the pseudo-bulbs from greatly shrivelling. New roots are now being made from the base of the plants, and fresh rooting material consisting of good fibrous peat and a little moss, should be given. *D. Lowi*, *D. Draconis*, *D. scabrilingue*, &c., succeed fairly well under similar treatment. *D. Jamesianum*, *D. infundibulum* and *D. longicornu*, should be grown in pots placed in an exposed position in the Cattleya-house, and be syringed and watered frequently when growing, but kept moderately dry when at rest. Repotting or resurfacing may be done now, taking care to confine the plants to small receptacles. *D. Pierardi* should be grown in baskets suspended in the Cattleya-house, and the plants resurfaced at this season. *D. ochreatum* (Cambridgeanum) now in flower, grows best in a temperature considerably below that of the warm-house. Plant in well-drained baskets, and suspend them where the light is not very strong. As root-action seldom occurs until after the plants have flowered, repotting should not be done until then.

Dendrobium Deari.—If the blooms be removed soon after reaching development, the plants resurfaced with good peat and a little sphagnum-moss, it will benefit them greatly. This very

desirable species frequently deteriorates after introduction to our gardens. It should be grown in baskets suspended in more shade than is usually afforded Dendrobiums, and the rooting-material should consist almost exclusively of first-class peat. Afford an ample quantity of water when the plants are growing freely, but allow the compost to become fairly dry between each application.

Dendrobium M'Carthyi is another species that often fails. Imported plants should be fixed in shallow pans of just sufficient size to accommodate them, using a moderate amount of small drainage-material, and some good fibrous peat. Suspend them in the sunniest part of the East Indian-house, and keep them merely moist. When the thin stems have attained a height of about a foot, and roots are observed at the base, rather more water may be afforded; but, again, when the growths have matured, and during the winter months, very little will be required.

Epidendrum bicornutum is just making new growths, from which roots will soon emerge, and fresh rooting-materials may be afforded; remove as much of the old material as is convenient. Members of this species are best accommodated in baskets, so that large and frequent supplies of water may be safely applied. They should be suspended in the warmest and lightest part of the East Indian-house, or better still, in an ordinary plant-stove where shading is seldom necessary. The pseudo-bulbs being hollow, careful watch must be kept during the resting period, so that they do not suffer from lack of moisture, though an excess during that time is equally hurtful.

Cymbidium Devonianum having flowered, is now developing new growth; and if any of the plants require more root-room this may be afforded. Owing to the pendent character of the flower-spikes, it is a good plan to put it in a pan that can be suspended when in bloom, or permanently. A large quantity of drainage material is needed, and a compost of one-third each of peat, fibrous loam, and sphagnum-moss, sprinkling in some finely-broken crocks as the work proceeds is suitable. The temperature and other conditions usually prevailing in a Masdevallia-house suit this plant.

Masdevallias, such as *Sohlmi*, *macrura*, *Mooreana*, and *elephanticeps*, may be afforded new surface materials, or be repotted according to their needs. *M. tovarensis* will also need attention. Where possible, this species should be grown on a shelf, where drier conditions prevail, as it does not need large quantities of water, excepting when rooting freely.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

The Removal of Flowers and Seed-vessels.—The flowers of Rhododendron, mollis and Ghent Azaleas, and Syringas, also Decandolleas (Weigelas), should be removed as soon as faded, as if the plants form seeds they become impoverished, and in the case of Rhododendrons, the growth is hindered to a great extent. Care must be exercised in removing the remains of flowers, as damage will be done to the buds at the apex of the shoots. Usually three growths will start; but where the varieties are of a delicate constitution, only one should be allowed to extend, the result being fine flower-trusses next year.

Summer treatment of Rhododendrons.—Grafted plants should have every root-sucker and all shoots that are thrown out by the stem below the graft removed. If growth is not luxuriant, apply mild liquid-manure in quantity, and put around the plant a dressing of decayed cow-manure. *R. ponticum* and its varieties may be propagated this month by layering, or the plants strengthened by layering those branches which are near to the soil. The branches of this plant root readily if the under part is alit or tongued with a knife and then bent downwards, pegged firmly down 4 inches under the surface of the soil, and covered with peat. The choicer varieties of Rhododendrons make stronger growths if during hot and dry weather the foliage is moistened in the evening with rain or river water.

Bulbs.—All Tulips, Ranunculus, and Anemones, that have been lifted should be placed in a cold frame, kept quite dry, and exposed to the sun. When fully ripened they should be placed in trays in a cool fruit-room till planting time.

The Flower-beds.—The planting of beds and

borders having been completed by this date, all flowers should be removed from the plants till they have begun to make growth, a sign that they are re-established. The leading shoots of Coleus, Iresine, and other soft-wooded plants should be pinched back so that they may grow compactly and bushy. Afford water to annuals in order to keep them in a growing state and prevent premature flowering, thus weakening growth. Secure all weakly plants by affording them neat sticks and bast-ties; peg down Verbenas, Phlox Drummondii, Gaillardias, and other trailing plants so as to get them to cover the ground quickly. See that such plants as Helleborus, herbaceous Spiræas, Lobelia cardinalis, Salvia, Phloxes, &c., have plenty of moisture at the roots, and a slight mulch of manure.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORRESCUE, Esq., Dropmore, Maidenhead.

Layering Strawberries.—If the runners are sufficiently advanced, layering may commence forthwith. If young plants were put out last autumn specially for the production of runners, and the blossoms have been pinched out, there should be a quantity ready for layering at this date. The required number of clean 60-sized pots, and pegs for fixing the runners, should be in readiness before making a start. The soil used should be a heavy rather than a light loam, and that from a spent Melon-bed, with some rotten manure added, is as suitable as any. Let it be sifted through a $\frac{1}{2}$ -inch meshed sieve, the coarse siftings being used at the bottom of the pots, or a piece of partially-decayed leaf-mould or horse-dropping, no crocks being needed. The soil must be pressed firmly, and plenty of space left at the top for affording water. Before layering, plunge the pots to half their depth, it will prevent them being knocked over, and by thus keeping the soil moist reduce the labour of applying water. The first young plant on the string should be selected for the layer, and the rest should be pinched off. In dry weather afford water forthwith, and keep the soil in the pots moist, and roots will soon form. When well rooted, remove from the bed, and stand for a few days in a shady spot.

Plums.—The pruning of the Plum on walls may now be commenced, carrying out the operation gradually, so that no check be given. Where early disbudding of young growths was practised, there will be little of this kind of work to be done at this date. Surplus and foreright shoots should be cut back to the fourth leaf, and the long ones which will remain should be temporarily tacked in or otherwise secured to the wall. Although the Plum crop is generally light, it is good in some localities, and thinning of the fruits may be required. In some cases, where the crop of fruit is not heavy, there may be thick clusters that will require some slight degree of thinning to allow of full development to those that remain. Afford water plentifully to the borders if these are getting dry, which is very generally the case, more especially to such trees as are carrying large crops of fruit. An occasional washing of the foliage will keep the trees clean and free from insects; and where aphids infest the points of the Plum shoots, it will be advisable to dip them in Bentley's Quassia extract, used according to the directions sent with it.

Miscellaneous operations.—In most gardens the dry weather is causing birds to become troublesome, and the protection of the various kinds of fruit will require timely attention. The blackbirds and thrushes began to peck the fruits of the Strawberry when these were still green, and Currants are being carried off whilst they are unripe. The colonies of American-blight on Apple-trees may be dabbed with a brush dipped in a solution of carbolic soft soap, or Gishurst Compound-soap. Newly-made plantations of forced Strawberry-plants will need copious applications of water till established, and a mulch of short stable litter. These forced plants may still be planted.

PLANTS UNDER GLASS.

By C. R. FIELDER, Gardener to the DOWAGER LADY HOWARD DE WALDEN, St. James's House, Malvern.

Cumelias.—Any plants which require to be repotted may receive attention as soon as growth is completed, and before the flower-buds become

prominent. Loam and peat in equal proportions, together with some sharp silver-sand and a little broken charcoal, form a suitable compost for these plants. But loam which contains but very little lime is preferable; therefore, where the only sample obtainable is of such a nature that Rhododendrons will not succeed in it, it is advisable to reduce the quantity of loam to one part, adding three parts good peat, and sand and charcoal as above. The turf and peat should be broken by hand, and used in as lumpy a condition as the size of the shift will admit; and if at all dry, it should be well sprinkled with water from a rose watering-pot, and, after being repeatedly turned, allowed to remain in a heap for a few hours before using. The old balls should not be disturbed beyond what is necessary in removing the crocks, and as much of the old soil as is unoccupied by roots. Let the pots be well drained, and in potting ram the soil evenly round the old ball until the new soil is as firm as the old. If the plants are sufficiently moist at the root (and if not, they should be afforded water before being potted), a copious syringing morning and evening will supply all the water which will be necessary for several days. If the plants are grown in a house having a southern aspect, shade will be necessary during bright sunshine.

Miscellaneous.—Lapagerias planted in tubs, or pots, and growing freely, will require copious supplies of water, and an occasional application of liquid-manure. No time should be lost in ordering of the nurseryman the season requirements in Roman Hyacinths and Polyanthus Narcissus if it is desired to have these in bloom at the earliest possible date, for which purpose, only bulbs of the best quality should be purchased. Polyanthus Narcissus, "Early Snowflake" is a very desirable variety for early forcing. Crassula coccinea, C. delicata, &c., should be cut down to within a few inches of the top of the pot as soon as they go out of flower, and stood outside until the end of the summer. If large blooms of tuberous-rooted Begonias are desired, the female blooms must be removed as soon as they can be seen, and only one male bloom should be allowed to develop on a flower-stem.

FRUITS UNDER GLASS.

By W. STROUWELL, Gardener to the Right Hon. W. H. LONG, Rood Ashton, Trowbridge.

Shading Fruit-houses and Pits.—Melons up to the end of May stood bravely what sun there was, and were in robust health, but a few days of broiling heat in June rendered shading an immediate necessity. Cucumbers suffered similarly. These were cases where the system of ventilation provided is faulty, but it serves to show the necessity of promptly taking such measures as local conditions require. Peach-houses and vineries in some gardens need the same attention, or scorched leaves, red-spider, and hurried crops are some of the evils that will follow. Gros Colman Vine in some houses scorches badly unless a slight shading be given; while Peaches and Nectarines advance too rapidly when left to chance.

Late Melons.—A further sowing may be made with a view to providing ripe fruits at the end of September and in October. Use small pots and loamy soil, with a little leaf-mould or lime-rubble added. When these are ready for a shift, beds now carrying a maturing crop of fruits will probably be available for them, otherwise they can be put into larger pots to await transplantation at a convenient time.

Bananas.—Plants which are in bearing may be afforded large quantities of mild liquid-manure, more particularly those planted in confined spaces. Planted in large, well-drained beds the plants will take much water, though less than potted plants or those in confined spaces. Soot-water, prepared by immersing a bagful of fresh soot in a hoghead of water, is a good manure for the Banana, giving colour to the leaves when these assume a yellow cast, as is sometimes the case, when the roots are much restricted. Where a house is devoted to Bananas, a high temperature may be permitted with advantage, but as they more often find a place in the stove, their treatment cannot, then, be of a special character. Dry fertilisers may be used as alternatives to ordinary liquid-manure; or if the latter has alone been used for some time, it may be

discontinued for a week or so, and artificial manures used instead. Slight shading is beneficial in the brighter hours of the day, and so is frequent damping down.

The Orchard-house.—The stopping and thinning of the shoots and tying them to the trellis where this is necessary, causes much work; still, it must receive attention often. The management of the house and of individual trees, must be governed to some extent by circumstances. Where an assortment of Peaches, Plums, Apples, Pears, and Cherries are grown together in the same house, some care is necessary in the syringing—Plums crack, and become badly rusted if they are continually being syringed; and Cherries crack if syringing be carried far into the ripening season. When it is convenient, the pot-trees whose crops are gathered, may be placed at one end or side of the house so that they may be syringed heavily, or afforded a sulphur dressing in order to free them from insects. Flowers-of-sulphur is an effective remedy to use against red-spider or scale, but not against aphides or mealy-bug. Let no tree suffer lack of water at the root, much of next year's success being dependent on the proper treatment of the trees at this season. Pot-trees need water twice or thrice a day in bright weather when these are cropped heavily, or are in any way restricted in the size of the pots. Manure-water, too, in such cases may be afforded freely, but not to trees that are bare of fruit and growing strongly. Peaches, Nectarines, and Figs may have all their shoots stopped; Plums, Apples, and Pears which are later, must be treated according to the state of their shoots. In July, however, the first flush of summer growth is expended, and sub-laterals are not so freely produced after this date. A sufficient thinness in the crowns should be provided in all cases by timely disbudding and pruning, as trees which are allowed to form a thicket of growths cannot be expected to carry satisfactory crops of fruit. The ventilation of the house should be modified to suit requirements, and if fruit is required late in the autumn, it should be continuous night and day; on the other hand, if a succession of fruit is looked for, it must be modified to suit the varieties grown. Early, mid-season, and late fruits are best arranged in a large house in this order, so that air can be afforded freely at one end, and sparingly at the other. Pot-trees and those planted out are each benefited by a mulching of straw manure.

THE APIARY.

By EXPERT.

The Prevention of Swarming is unquestionably one of the most important points connected with the management of bees, and it arises from the fact of its being one of the strongest and most forward stocks that yield the surplus honey; while these from their condition at the time are the ones most apt to swarm. For years past makers of bee appliances have turned their thoughts to the manufacture of non-swarming hives, in order to solve this problem; but so far, the present-day bee-keeper has advanced very little beyond those who kept bees hundreds of years ago in the old-time straw skeps, and who adopted with various success the simple means of preventing increase by the use of "ekes" and "nadiris." The same idea, then, in one form or other, is, in principle, the best method yet known of preventing increase. It is also well known that certain seasons are more apt to start the swarming mania than others. When the weather is warm and showery, bees are kept just sufficiently employed in carrying-in stores for their every-day wants, without storing any appreciable quantity of surplus nectar. At such times the brood-nest increases largely, and bees hang outside the hive in clusters; should the weather then suddenly become bright and warm, such as will encourage swarming, the bee-man will have a busy time of it for some days to come, when all his extra bee-gear must be ready for use at a moment's notice. In my own experience I have had at various times seven swarms hanging around my apiary before 10 a.m. on a Sunday morning. The preventing of these several swarms from joining together requires some skill, and I have frequently on such occasions found it necessary to secure one swarm at a time as rapidly as the bees clustered, tie it up closely, and carry it indoors to some darkened room to allow the others time to settle down before living them.

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Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period June 18 to June 24, 1899. Height above sea-level 24 feet.

1899.	JUNE 18 TO JUNE 24.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			AT 9 A.M.		DAY.		At 1-foot deep.		At 2-feet deep.	
			Dry Bulb.	Wet Bulb.	Highest.	Lowest.	RAINFALL.	At 1-foot deep.	At 2-feet deep.	At 4-feet deep.
SUN.	18	S.S.W.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.
MON.	19	N.N.W.	62.8	59.2	71.1	45.3	0.08	61.5	59.0	56.1
TUE.	20	S.S.E.	57.9	53.0	68.9	50.5	0.25	62.4	59.9	56.3
WED.	21	S.E.	62.0	60.5	70.2	56.1	...	63.5	60.3	56.4
THU.	22	N.N.W.	64.1	60.0	60.3	53.1	0.15	63.5	60.6	56.7
FRI.	23	N.N.E.	59.1	55.9	64.1	54.5	...	61.9	60.4	56.8
SAT.	24	N.N.W.	61.5	57.9	69.6	54.1	...	61.8	60.1	56.9
MEANS...	...	...	61.7	57.9	68.6	52.9	Tot. 0.48	62.6	60.2	56.5

Remarks.—The weather during the week has been generally dull, with cool winds. No rain fell between May 24 and June 18.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—63.1°.

ACTUAL TEMPERATURES:—

LONDON.—June 28 (6 P.M.): Max. 77°; Min. 52°.

PROVINCES.—June 28 (6 P.M.): Max. 67°, Southern Counties; Min. 52°, Aberdeen. Thunder-storm; rain; fine.

The Next Fruit Show.

THE displays of British-grown fruits that the Royal Horticultural Society has been successful in making at the Crystal Palace for five years past, have such an educational value for the public, and exert so powerful a stimulus to excellence in cultivation amongst fruit-growers themselves, that we hope these exhibitions may now be regarded as annual events. The schedule for that to be held in the forthcoming autumn is now before us, and if there are few new features to be seen in it, it is very satisfactory to know that several desirable innovations that were adopted last year and previously, have been retained.

The special district County prizes in Division III., for instance, will again permit of exhibitors competing in certain classes, with others only whose locality offers much the same conditions from the cultivators' point of view as does their own. There is now no reason why there should not be collections of fruit from all the midland and northern counties, which would not be represented were the fruits to be unfairly placed in competition with produce from Kent, Worcester, Surrey, or other favoured counties. The classes for market-growers have been the means of bringing before gardeners who visit this show, the best of the methods at present employed by the trade in the packing of fruits for transit. It is interesting to note that at Stockholm there are to be held fruit shows this year, at which such market classes and district competitions will be introduced for the first time. Whether the hint has been taken from our own Crystal Palace shows matters little; the fact may be taken as affording some testimony to the useful purposes such competitions serve. It would appear from the present schedule that the idea of maintaining any interest in trade competitions at this show has been abandoned. In the nurserymen's classes there has never been sufficient competition to justify their retention; and last year we expressed the

opinion that greater inducements would need to be offered if the classes were to be made interesting ones. Here, again, the question of locality is largely concerned. Scarcely two of our fruit nurserymen, though they may grow excellent trees, have the same opportunities to obtain colour, size, and finish in their fruits.

At the forthcoming show, nurserymen may apply for any one of several stated areas of space for collections of fruit; and medals will be awarded to such exhibits at the discretion of the council—in place, we suppose, of first, second, or third prizes. Under certain limitations, nurserymen may adopt any method of arrangement they may desire; and it is very necessary that they should introduce as much originality in this matter as circumstances will permit.

The classes for gardeners and amateurs show little variation from those of last year, and the single dish classes for the choicest Apples and Pears are retained. A gardeners' luncheon will be provided on the first day of the exhibition, September 28, at which the council and judges will be present.

There is no doubt but that the display at the Crystal Palace will be the best exhibition of fruits generally during the year. Of Grapes, however, we shall be surprised if our Shrewsbury friends do not as usual obtain the best exhibition in the kingdom. The enterprise of the society is worthy of this.

T. W. Girdlestone.

THE announcement of the death of this gentleman on Sunday last at Sunningdale will be received with widespread regret. Rosarians and lovers of the Dahlia will especially miss his energy and zeal. Bright, intelligent, indefatigable, genial, his services to the National Rose Society and to the Dahlia Society contributed not a little to the success of those institutions. As an exhibitor he showed great taste, and as grower great skill and as great judgment, so that his opinion was eagerly sought, and as highly valued. His tastes were catholic, and his appreciation by no means confined to the objects displayed on the exhibition-table. He loved plants for the sake of the plants, and "garden-Roses" were as much beloved by him as the more formal artificialities which appeal to the florist. As a raiser of Dahlias he is known for his successful efforts to produce a dwarf race with relatively small, neat flowers, which make a more powerful appeal to the sympathies of many, than do the flaunting giants which furnish our exhibition-tables. A portrait of him appeared in the *Rosarians' Year-book* for 1892. His delicate frame was ill-adapted to the strain put upon it by his ceaseless energy and continued work; but withal, as he was still a young man, we might have looked forward to a prolonged career of usefulness. It was not to be; and we must console ourselves with the remembrance of a refined intelligence, a careful worker, and an esteemed friend.

THE GARDENERS' CHRONICLE (LIMITED).—The proprietorship of the *Gardeners' Chronicle* has been vested since June 30, 1899, in a limited liability company. This alteration, which is made for reasons of personal convenience only, will entail no change in the general management of the paper.

LINNEAN SOCIETY.—JUNE 15, Dr. A. GÜNTHER, F.R.S., President, in the chair. The President exhibited a living specimen of a Tree-Frog, *Polypedates quadrilineatus*, which was introduced

APPOINTMENTS FOR JULY.

SATURDAY,	JULY 1	National Rose Society's Exhibition at the Crystal Palace.
TUESDAY,	JULY 4	Scottish Horticultural Association, Meeting. Rose and Horticultural Shows at Gloucester and Harrow.
WEDNESDAY,	JULY 5	Hanley (Staffs) Floral Fête, in Hanley Park (two days). Rose and Horticultural Shows at Hitchin, Redhill (Reigate), Brockham, Tunbridge Wells, Ealing, and Bexley Heath.
THURSDAY,	JULY 6	Colchester Rose Show (National Rose Society's Prov. Exhibition). Rose and Horticultural Show at Farningham.
FRIDAY,	JULY 7	Rose and Horticultural Show at Hereford.
SATURDAY,	JULY 8	Rose and Horticultural Shows at Manchester and Wood Green. Royal Botanic Society, Meeting. National Amateur Gardeners' Association, Exhibition at Regent's Park.
TUESDAY,	JULY 11	Royal Horticultural Society's Conference on "Hybrids," and Exhibition at Chiswick. Wolverhampton Floral Fête (three days). Horticultural Show at Reading.
WEDNESDAY,	JULY 12	Continuation of Conference on Hybrids, at the Town Hall, Westminster. The Royal Horticultural Society's Dinner at the Hotel Métropole.
THURSDAY,	JULY 13	Rose and Horticultural Shows at Norwich, Woodbridge, Bedale, Brentwood, and Helensburgh.
FRIDAY,	JULY 14	Rose and Horticultural Show at Ulverston.
SATURDAY,	JULY 15	Rose and Horticultural Show at New Brighton.
TUESDAY,	JULY 18	Royal Gardeners' Orphan Fund Annual Dinner.
WEDNESDAY,	JULY 19	National Carnation and Picotee Society's Exhibition at Crystal Palace (?). Cardiff and County Horticultural Society's Show (two days). Newcastle-on-Tyne Great Horticultural Exhibition (three days).
THURSDAY,	JULY 20	Rose and Horticultural Show at Sidecup and Salterhebble.
SATURDAY,	JULY 22	Royal Botanic Society, Meeting. Rose and Horticultural Show at Newton Mearns.
TUESDAY,	JULY 25	Royal Horticultural Society's Committee. Rose and Horticultural Show at Tibshelf.
WEDNESDAY,	JULY 26	Beckenham Horticultural Society's Show.

SALES FOR THE ENSUING WEEK.

TUESDAY,	JULY 4	Imported and Established Orchids, at Protheroe & Morris' Rooms.
FRIDAY,	JULY 7	Imported and Established Orchids, at Protheroe & Morris' Rooms.

accidentally into Kew Gardens with a consignment of plants from Singapore. This is not the first instance of accidental introduction of a tropical frog into the Royal Gardens, Kew. Some five years ago a species of *Hylodes*, from Dominica, appeared in some numbers in several of the propagating-houses, and has evidently reproduced its species since arrival. Mr. W. WHITWELL, F.L.S., exhibited:—1. The only known British specimen of *Botrychium matricariæfolium*, A. Braun, gathered in July, 1887, on the seashore at Stevenston, Ayrshire (*Journ. Bot.*, 1898, pp. 291-297). 2. An undescribed variety of *Asplenium Ruta-muraria*, Linn., from an old wall on Dartmoor, about five miles from Plympton. Its chief peculiarities were stated to be the length (3 inches) and

ments. The head in question, that of an adult ram, unlike the typical *Ovis orientalis* found in Northern Persia and Armenia, more nearly approached that of *Ovis ophion*, the Mufflon of Cyprus, a curious and unexpected resemblance. Dr. A. B. RENDLE, F.L.S., read a paper entitled, "A Systematic Revision of the genus *Najas*," a primitive genus of Monocotyledons, containing about thirty known species, generally distributed in both Old and New Worlds, and consisting of submerged herbs, often of great delicacy, growing in mud in fresh or brackish water. The slender stem branches more or less profusely, and the laxity or density of branching determines the habit, which shows considerable variation. The leaves are in pairs at each node; one member

— The next session of the Society will commence on Thursday, November 2, at 8 P.M., particulars of which will be duly announced.

FACTS ABOUT BRITISH FRUIT GROWING.—The statistics published by the Board of Agriculture relative to the total area of land under cultivation in Great Britain, point to a marked decline in recent years, traceable, in many places, to the increase of building operations, railway extensions, the formation of open spaces, and so on. As regards the returns concerning small fruit in 1898 the figures are as follows—Arable section: acreage 46,503, per cent. 0.4. Grazing section: acreage 16,935, per cent. 0.1. Total of England: acreage 63,438, per cent. 0.3. It should be said that the



FIG. 6.—THE SOUTH-WEST FRONT OF "THE GLEN," INNERLEITHEN. (SEE P. 6.)

the narrowness ($\frac{1}{4}$ inch) of the lamina. The pinnae are closely set, expanded, and flabellate, partially subdivided, and placed on short stalks on alternate sides of the rachis; the contour of the whole thus differed entirely from that of the ordinary forms of *A. Ruta-muraria*. 3. A specimen of Rye with two ears on the same stalk, gathered at Romsey, Hants. Mr. ROBERT T. GÜNTHER, M.A., read a paper on the "Natural History of Lake Urmi, in N.W. Persia," the neighbourhood of which he had explored during the autumn of last year. In many of these groups (notably amongst the fishes) several new species were described; and a good deal of interest centred in the skull and horns of a wild sheep which had been picked up on Koyun Daghi, the largest island in Lake Urmi. Although no living wild sheep were observed there during the traveller's short visit, small herds were reported to exist, the island, with lofty and precipitous hills, being apparently well adapted to their require-

ments. The head in question, that of an adult ram, unlike the typical *Ovis orientalis* found in Northern Persia and Armenia, more nearly approached that of *Ovis ophion*, the Mufflon of Cyprus, a curious and unexpected resemblance. Dr. A. B. RENDLE, F.L.S., read a paper entitled, "A Systematic Revision of the genus *Najas*," a primitive genus of Monocotyledons, containing about thirty known species, generally distributed in both Old and New Worlds, and consisting of submerged herbs, often of great delicacy, growing in mud in fresh or brackish water. The slender stem branches more or less profusely, and the laxity or density of branching determines the habit, which shows considerable variation. The leaves are in pairs at each node; one member

arable section comprises the counties of Beds, Hunts, Cambs, Suffolk, Essex, Herts, Middlesex, London, Norfolk, Lincoln, Yorks E. R., Kent, Surrey, Sussex, Berks, Hants, Notts, Leicester, Rutland, Northampton, Bucks, Oxon, and Warwick. The grazing section comprises the counties of Salop, Worcester, Gloucester, Wilts, Monmouth, Hereford, Somerset, Devon, Cornwall, Northumberland, Durham, York N. R. and W. R., Cumberland, Westmoreland, Lancashire, Stafford, Chester, and Derby. The general summary of statistics for the three past years gives the returns of small fruits as follows—1896: acres 76,797; 1897: acres 70,245; 1898: acres 70,238. It is remarked that, although the total area returned as under small fruits remained practically the same in 1898 as in 1897, there was a good deal of alteration locally. Thus, of the forty-three English counties, twenty-one showed an increase, reaching in one case as much as 190 acres, and twenty-two showed decreases ranging from 4 to

193 acres. These changes, which, as will be observed, almost exactly balance, are to some extent attributable to corrections, or greater accuracy in the returns. The land returned as occupied by orchards in Great Britain showed a further extension of 1,943 acres, making the total 226,059 acres. The figures given below marks the estimated total acreage of orchards in 1898: England 220,220, Wales 3,690, Scotland 2,149, Isle of Man 424, Jersey 1,113, Guernsey, &c. 321.

THE ROYAL HORTICULTURAL SOCIETY'S EXAMINATION IN HORTICULTURE (April 11, 1899).

—The following questions were put at the last examination. Eight questions only had to be answered, four in each division:—

DIVISION A.

ELEMENTARY PRINCIPLES.

1. Compare the structure of a Bean with that of an Onion Seed. How do they differ in germination? Describe the peculiar movements which germinating seeds exhibit.
2. What differences exist between the manner and places where rootlets arise from roots, and branches from stems? Of what use are branches, and what trees have none?
3. What hinders the proper functions of leaves, and what should a cultivator attend to, in order to enable them to exercise their complete action?
4. Give any instances of failures, and state your opinion as to their causes, in crossing distinct species. What are the general characteristics of hybrids?
5. What is meant by "fixing" a new race, and how is it to be effected, if possible?
6. Describe the flower of the Pea, of a Primrose, of a Salvia, and of an Orchid, and explain how they are adapted to insect pollination.
7. What are the injurious effects of (i) too much water; of (ii) too great a heat; and of (iii) excessive drought, upon plants?
8. To what natural orders do the following plants belong, and why—Clematis, Malope, Geum, Gunnera, Fuchsia, Escabiosa, Cobaea, Amaranthus, Ixia, and Ruscus?

DIVISION B.

HORTICULTURAL PRACTICE.

9. What is generally understood in this country by an "American Garden"? Give the names of the most suitable plants for it, and the best kind of soil.
10. What is meant by a "Sub-Tropical Garden"? Describe the best position for such a Garden; also the most suitable plants, and how to cultivate them.
11. What is the right width for garden paths and carriage drives? Describe their formation, and the best materials to use.
12. Is it possible to obtain a supply of Roses all the year round from an English garden? Describe their propagation and culture under glass and in the open ground.
13. What are the most useful Fruit Trees (exclusive of Vines) to grow under glass? Describe the best form of glass structure for the purpose, and the method of culture.
14. How would you proceed to obtain a succession of Garden Peas and Dwarf Kidney Beans? Can they be obtained all the year round? If so, how?
15. What plants are generally grown for Salads in British Gardens? How may a supply be obtained all the year round?
16. What is the best aspect for a Flower Garden? How would you proceed to lay it out and stock it?

FRUIT PROTECTORS.—The Rev. E. DARNLEY SMITH sends us specimens of his celluloid protectors for fruit, to which we have already referred. Now that the fruit will shortly ripen, the wasps and the birds will perhaps be too intrusive in their attentions, so that protectors of this kind will be very serviceable, especially in the case of fruit required for exhibition or for special purposes. We fear for general use they are too much of a luxury, but they are so neat and effective that they will be welcome to the connoisseur.

FLOWERS IN SEASON.—*SALVIA CARDUACEA* is an attractive and beautiful species, fit for the garden of the "curious," as our predecessors would have said. The plant is more or less covered with white cottony hairs. The flowers are in dense terminal spikes, each spike being about 2 to 3 inches long, with many flowers thickly covered with white cotton hairs, and intermixed with leafy, reflexed, deltoid, lanceolate bracts, with long spiny teeth at the margin. The flowers are about 25 mill. or 1 inch long, the sepals ending in dark brown spines; the corolla double the length of the calyx, pale blue or white, the upper and especially the lower lip elegantly fringed; the stamens with the peculiar structure of the genus, with orange pollen, contrasting with the blue of the flowers. The plant is

a perennial, with Thistle-like leaves. It was described by BENTHAM from plants collected by HARTWEG in California, and is figured in the *Botanical Magazine*, t. 4874, but is still little known in gardens. Its woolly investment and bristly spines protect it from the consequences of undue evaporation or the assaults of unwelcome visitants, while its beautiful flowers and curious arrangement of the stamens facilitate cross-fertilisation.

EREMOSTACHYS LACINIATA is a tall-growing perennial, like a *Phlomis*, densely covered with down, the uppermost leaves sessile, pinnately lobed, the lobes themselves lanceolate and sharply toothed. The flowers are about 3 cent. (say 1½ in.) long, with a tubular cylindrical calyx bordered by fine minute teeth. The corolla is double the length of the corolla, bilabiate, and of a dull purplish-brown colour. The upper lip is hooded, the lower three-lobed. The plant is a native of Syria and the Holy Land, and is fully described in Boissier's *Flora Orientalis*, iv., 793. It is the *Phlomis laciniata* of Linnaeus, and therefore cannot be called a new plant; nevertheless, it is not seen in gardens, nor can we recommend it to those to whom beauty of colour or form are the only considerations. The connoisseur will be glad to give it a place in the herbaceous border.

LINARIA RETICULATA is always an attractive annual, the variety called *aureo-carminata* is specially so from its rich crimson flowers and the bright orange "palate."

CENTAUREA AMERICANA ALBA is a pretty white-flowered form of the "Sweet Sultan" category. It will be serviceable for aiding in the supply of cut flowers and for decorative purposes.

A FRUIT-GROWER'S VISIT TO GUERNSEY.

MR. WILLIAM BROOMHALL, of the Country Gentlemen's Association, 49, Bedford Street, Strand, is, as we learn, organising a visit to Guernsey on co-operative lines, to enable English Fruit-growers and others to see how the Tomato crop is raised. He has the entrée to most of the leading estates in the island, and a visit, especially at the present time when the Tomato-crop is at its best, should be full of interest. The cost of the trip, lasting four days, including rail and boat-ticket, accommodation at the best hotel, and driving expenses in the island, is six guineas.

BROCKWELL PARK.—We are informed that at the last meeting of the Lambeth Vestry, it was unanimously resolved, it being understood that a piece of land adjoining Brockwell Park is about to be developed for building purposes, that the London County Council should acquire the same for the purpose of enlarging the park for the use of the public. This plot is a fine piece of wooded-land, running from Dulwich Road to the old English gardens. It was noted that Lord Rosebery, in opening the park, remarked that it was a pity such a fine bit of land was permitted to remain in private hands. It now remains for the London County Council to take the necessary action—aided by the vestries on the "Surrey side of the water."

CROPS IN THE UNITED STATES.—From the report for May of the U.S. Department of Agriculture, we learn concerning winter Wheat that the average winter crop is about 25,900,000 acres, showing a fall (owing to winter killing) equal to 13.15, but exceeding by 160,000 acres, the area of winter Wheat harvested last year. The average condition is 76.2, as compared with 86.5 on May 1 last year, or 80.2 at the corresponding date in 1897. Concerning winter Rye, the average condition is 85.2, as compared with 84.9 one month previously, and 94.5 on May 1, 1898. Cotton indications point to a reduced average, but the acreage taken from Cotton is placed to the credit of food-producing crops suited to the various localities.

LEAF DISEASE IN COFFEE.—In a report of a visit paid to Coorg, Mr. J. CAMERON, Superintendent of the Mysore Government Botanical Gar-

dens, makes the following remarks concerning Coffee growing:—"Good cultivation is a *sine quâ non* of future management. The application of proper manure in correct quantity and at the most serviceable time, are things which should be assiduously learned from practical experience. A table showing quantities of different manures to be applied per acre for different crops is not of the slightest use to the planter, who possesses but one product on many different kinds of soil. Next in importance to hybridisation and proper culture, the interchange and special selection of seed must take a high place. The Coffee fields of the whole planet must be studied with a view to improvement being made by selection—a work which, I am glad to observe, is already being promoted by the editor of *Planting Opinion*. There are no magic remedies either for the prevention of pests or the improvement of Coffee, but if the methods recommended in this report are correctly and patiently practised, the results, in the long run, should be satisfactory."

SOME GERMAN GARDENING HANDBOOKS.

A useful series of gardening handbooks is issued by Herr KARL SIEGISMUND, of Berlin, under the editorship and superintendence of Dr. UDO DAMMER. Of this *Gartenbau-Bibliothek*, volume 1 is a *Monats-kalender* (Monthly Calendar), by Dr. Udo Dammer; 3, *Gewürzkräuter* (Pot-herbs), by Alexander Bode; 5, *Zimmerblüthenpflanzen* (Flowering Plants for Windows), by Dr. Udo Dammer; 8, *Farnpflanzen unserer Gärten* (Garden Ferns), by W. Mönkemeyer; and 10, *Staudengewächse* (Perennials, &c.), by Franz Goeschke. These books are appropriately illustrated, and have usually an index.

RARE LÆLIAS AND CATTLEYSAS.

Cultivators of Orchids will be interested to learn that the whole of the rare *Lælias* and *Cattleyas* belonging to W. Thompson, Esq., Walton Grange, Stone, Staffordshire, have passed into the hands of Messrs. Charlesworth & Co., Heaton, Bradford. The famous collection so admirably grown by Mr. W. Stevens, contains many remarkable and unique specimens. Mention may be made of the brilliant *Cattleya labiata* Peeteraii superba; the original plants of *C. × Victoria Regina*; a grand form of *C. Trianae alba*, *C. intermedia alba*, *C. Skinneri alba*, and *C. Schroderae alba*; *Cattleya × Massai-ana*, *C. Trianae Reine des Belges*; *Lælia Perrini alba*, *L. tenebrosa* Walton Grange var., and the magnificent *L. Charlesworthi*. The forms of *Lælia purpurata* also have been selected with great judgment, and comprise the best-known varieties, such as "Stevensii," "Thompsoni," "The Duchess," and "Victoria."

HYBRIDISTS AND CROSS-BREEDERS.

(See p. 1.) We propose to issue during this month a series of portraits of some of the leading raisers, in connection with the Hybridisation Conference, in which it is expected that most of them will take part. Many of these gentlemen are so well known that we need not dilate upon their services, but there are others less widely known out of their immediate circle, concerning whose career and work we shall give a short account. In our present issue we give a portrait of Dr. FOCKE (p. 3), the author of the leading work on the subject of Hybridisation; of Mr. DOUGLAS, so well known as a raiser of Auriculas, Carnations, and many other flowers (see p. 5); of Mr. J. MARTIN (p. 5), the energetic hybridiser in the employ of Messrs. SUTTON & Sons, of Reading, and noted for his success with Primulas, Cyclamens, Gloxinias, and many others; of Mr. WILLIAM WATSON, whose record is given on p. 1; and of Mr. JOHN HEALE, of Messrs. JAMES VEITCH & Sons' establishment, whose work among greenhouse Rhododendrons, Hippeastrums, and other groups too numerous to mention, are well appreciated by flower-lovers.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The annual dinner of the Institution took place on Wednesday evening, June 28, at the Whitehall Rooms, Hôtel Métropole, the Earl of

DERBY, G.C.B., taking the chair. The friends of the Institution assembled in considerable numbers from far and near. After the toasts of the Queen, and of the Prince of Wales, its patroness and patron, and the other members of the Royal Family, proposed by the chairman, had been duly honoured, the toast "Continued Success to the Gardeners' Royal Benevolent Institution," was proposed by his lordship, who remarked he had wished that Mr. Veitch and Mr. Ingram had called on anyone else, pleading that the practical knowledge failed, much of his time having been spent in military

HOLE, which had been received by Mr. INGRAM, the Secretary, which described the benefits accruing to his old gardener and the wife of the latter for a great number of years. The gardener, through age, became unable any longer to follow his calling, and having been a subscriber to the institution he became a pensioner, and with the help of a few shillings weekly from the Dean, he was able to live in comparative comfort for several years, and likewise his widow, to whom the pension was also granted. The chairman then gave a brief history of the charity, and described its aims and its work

Thirty candidates remained unelected in January last, and these were receiving assistance from the Victorian Era Fund until they could be elected. He asked for money to form a Good Samaritan Fund, stating that if a sum of £2000 was obtained, it would be devoted to the same good purpose. Allusion was made, in the course of his remarks, to the aid afforded by the auxiliary branches, especially to those of Reading and Worcester, and to the intention to found one in Edinburgh, and in this connection Mr. VEITCH feelingly alluded to the interest which the late MALCOLM DUNN took in this matter. He closed his speech by an earnest appeal for help. Other speakers were Sir Whittaker Ellis, Messrs. Atkinson (Handsworth Nurseries), W. A. Bilney, R. Piper (Uckfield), and N. N. Sherwood. The Donation List included Lord Derby 200 gs., Worcester 100 gs., Messrs. Rothschild 100 gs., Dicksons (Chester) 50 gs., H. J. Veitch 50 gs., Lord Mountstephen 50 gs., Milligan Hogg 10 gs., Sir Whittaker Ellis 20 gs., Thames Bank Iron Co. 10 gs., Mr. Lee 10 gs., N. N. Sherwood £25, and a further sum of 13 gs. from the Misses Sherwood, the total sum subscribed or promised exceeding £2500. The following gentlemen were amongst those present on the occasion:—Messrs. W. Oakshot, Esq., J.P.; P. Crowley, G. J. Brackeridge, James Lee, J. H. Veitch, H. Morgan Veitch, A. Hatchard, John G. Veitch, Arnold Moss, R. Lowe, H. W. Nutting, Whelpaine Nutting, W. Crump, Owen Thomas, Lieut.-Col. Pilkington, H. Williams, W. G. Weeks, G. May, Geo. Munro, J. Asbee, A. Watkins, W. J. James, Arthur Turner, W. L. Correy, and John A. Laing.

A TERRIFIC HAILSTORM IN HANTS.—Our correspondent, Mr. WM. SMYTHE, Basing Park Gardens, Alton, sends us the following telegram:—"A terrific hailstorm broke over this district last evening (Wednesday), effecting great destruction, and stripping all fruit-trees of their crops, doing irreparable damage to bedding and all other plants in the open for this season. The stones were large enough to break glass."

STORMY WEATHER GENERALLY.—The recent sultry weather was followed on Wednesday by a series of severe thunderstorms, which spread during the day right across the country, reaching London about 8 o'clock in the evening. They broke over the Isle of Man at 7 o'clock in the morning, and raged there with great fury for five hours. Several sheep were killed in the country districts, trees were uprooted, and great damage was done to growing crops. At Liverpool, in the afternoon, there was a storm, which is described as one of the most violent ever experienced there, the thunder being very heavy, and the lightning continuous. At Blandford very large hailstones fell during the height of the storm, but no great damage was done. At Cheltenham there was a terrific thunderstorm. At Pittville Park, where a school-treat was being held, six persons had taken refuge under a tree which was struck by lightning. Five of them were thrown to the ground, and of these a small boy was untouched. At Windsor the storm continued upwards of two hours, and was accompanied by a heavy downpour of rain. The storm commenced just as the QUEEN was returning from her drive to the Castle. From Woking it is reported that the lightning was most vivid, and that the rain fell in sheets. In South Berkshire and North Hampshire there was a succession of thunderstorms in the afternoon and evening, but the rainfall there was not very heavy. *Times.*

DENDROMECON RIGIDUM.

THE Tree Poppy is a Californian Poppy with a slender stem, and stiff, entire leaves. Its flowers are yellow, and exactly those of a Poppy. The plant flowers in the open at Kew every year. Our illustration (fig. 7) was taken in the Royal Gardens. It was originally described by Benthams in the *Journal of the Royal Horticultural Society*, and is included in the first volume of the *Botany of California*.



FIG. 7.—DENDROMECON RIGIDUM: FLOWERS YELLOW.

service. His lordship described in humorous terms some of his experiences of gardening in military cantonments, and he stated that it was late in life before he was brought into contact with gardening and gardeners. The interest from the funded property of the Institution amounted to about £900, but the sum actually required to meet their engagements was about £2500. Allusion was made to donations which ceased with the death of the donors, and to small subscriptions, preference being accorded the latter, for while they brought in a larger sum, they also spread the interest felt in the institution over a wider area. The chairman read a letter from the Rev. Dean

from its establishment. The toast was responded to by J. H. VEITCH, Esq. He was happy to say that the institution was progressing, and despite the smallness of the staff, which, as usual, consists of "a man and a boy," a great amount of work is done. The year, he said, began with 174 pensioners on the books of the institution; and he quoted, as evidence of what a good investment is reaped by a subscriber to the institution who becomes a recipient of a pension, the case of a gardener who had received the large sum of £568 for an outlay of about £20; and many other striking examples of this kind could be named. The total amount required for paying pensioners was £3200.

HOME CORRESPONDENCE.

SUPERPHOSPHATE AND NITRATE OF SODA.

—There was a rather serious slip in the article, "Chemical Manures for Pot Plants," *Gardeners' Chronicle*, June 17. The writer recommends a mixture of superphosphates and nitrate of soda "previous to using." This mixture is condemned by all the authorities as destroying the nitrate. Superphosphate and sulphate of ammonia form a safe mixture. *E. C., Belmarino, Kingstown.*

CLEMATIS FLAMMULA, ETC., IN KENSINGTON GARDENS.

—If not the largest and oldest of its kind in England, it is certainly a very remarkable plant. It extends for a distance of 20 yards, and is 15 inches in breadth, and about 15 feet in height. Close by on a plot of turf are planted about two dozen Birches. The borders along the main walk are more or less bright and gay at all seasons with hardy herbaceous plants, and at the present English and other species of Iris and Pyrethrum roseum in variety, Geranium Endresii and G. sanguineum, Lilies, Hemerocallis flava and H. fulva, Lupines, Hesperus, &c. That hardy plant, London Pride, does well here planted under the large spreading trees, and Sedum Sieboldi is very common. *G. A. Bromfield.*

A PLEA FOR THE PINE-APPLE.—The adoption of steam as a motive-power has revolutionised almost all industries and vocations. Amongst others, horticulture has been, to some extent, affected, whether beneficially or otherwise in Great Britain, I will not attempt to discuss; but that it should have, in the British Isles, almost driven out Pine-apple culture will doubtless be regretted by many a gardener. Its culture was considered, thirty years ago, one of the most important, in many private establishments. Manuals written by accomplished gardeners were numerous, and good prizes were offered at horticultural shows for specimens of the different varieties, and gardeners for good places were chosen for their experience in the cultivation of the plant. The dessert-tables of the wealthy were not considered complete without Pines. Among gardeners who obtained a reputation for Pines, the names of Barnes, D. Thomson, Murray, Miles, W. Speed, and Wilson come to mind. All this is changed, and to-day the Pine-apple takes an unimportant place in British gardens. Home-grown fruit is seldom seen upon a dinner-table, and only in exceptional cases are classes found for it in exhibitions, while it is usually excluded from collections of fruit. The chief cause for this change is the abundance of foreign fruit, combined with the erroneous opinion that the Pine is a very expensive plant to cultivate, and requires more than ordinary skill to grow it to perfection. No one can be blamed for discontinuing to grow anything that he does not require; at the same time, I am sorry to see the Pine going out of cultivation, and feel that it deserves better treatment. Good home-grown Queens are far superior in flavour to the imported, which are necessarily cut from the plant several weeks before they are ripe. With reference to the cost of cultivating Pine-apples at home, I believe that it does not exceed that of many other subjects commonly grown, and the weight of fruit that can be produced in a given time per cubic foot, will compare favourably with that of most other kinds of fruit. Its culture also entails but little labour and time—at least, that is my experience. Of course, as applies to all other subjects, in order to ensure success, its requirements must be understood, although these are far from being difficult, and a modest structure will suffice to accommodate it. As a proof of the truth of this, it may be observed that some grand Queens which were grown in the end of an ordinary Cucumber-house in a garden near Tunbridge Wells, once caused even Mr. Miles to take second place at South Kensington; and, moreover, another gardener took two first prizes with fine Queens that were cut from the first lot he had ever grown, or assisted to grow. In conclusion, I will note a few important points that should be observed in the management of the plants. As a compost, fibrous sandy loam, with a sprinkling of bone-meal and soot, answers its requirements; and in potting it should be used in a tolerably dry state, and be firmly rammed into the pots. 8-inch pots are a suitable size for suckers, and 12-inch for fruiting plants. Newly-potted suckers and plants need but very moderate supplies of water until some

sensible progress at the root has been made, as any error in this respect being fatal to success, and a knowledge of the requirements with respect to watering, is an essential point in the culture of the plant. As a stimulant, nothing is better than a small quantity of Peruvian-guano dissolved in water, and afforded after the plants have made considerable root progress. The plunging-material should be preserved in a firm and moist state, and the plants disturbed as little as possible—really, they only need it when repotted. Atmospheric temperature and moisture should be regulated according to external conditions, but extremes should be avoided, particularly when the temperature depends upon hot-water, steam, &c. Hard forcing is at all times hurtful, and especially whilst the fruits are swelling, not only preventing free swelling, but causing undue growth of their crowns, and thus marring the appearance of the fruit. *Thomas Coomber.*

IRIS RETICULATA DISEASE.—The description on p. 412, last vol., of the disease to which this Iris is liable in most gardens is of great interest to me, because I have for many years tried in vain to find it described, though it is an exception to find a garden free from it. I have always called it the "ink" mildew, because the bulbs attacked by it look in the first stage just as if they had been soaked in ink; but a month later, nothing is to be found but the empty tunic containing a little black powder. The natural increase of these Irises in my garden is about threefold annually, but nearly two-thirds are always destroyed by this disease. If planted in quite new soil it is sometimes three or four years before the mildew reaches them, but it always finds them out sooner or later. I grow many species of bulbous Iris, but have never noticed this black mildew on any other. If I have not sent specimens of the disease to the *Gardeners' Chronicle*, it is only because I thought it too well known. It is fully mentioned in Prof. Foster's "Notes on Bulbous Iris," published in the *Journal of the Royal Horticultural Society* some years ago, but no remedy is there suggested. Mr. W. Thompson, of Ipswich, once told me that he thought deep planting helped to preserve the bulbs from it. *C. Wolley-Dod, Edge Hall, Malpas.*

SHROPSHIRE COUNTY COUNCIL.—At the Cleobury Mortimer Agricultural College, we are carrying out some very interesting work in the way of vegetable and flower plots, and also Botanical (Agricultural) work. This is attracting a great deal of notice. Lately we had a visit from the Worcester and Hereford Chamber of Agriculture—they were delighted with it. We have a piece of ground about an acre, marked out in plots. Each boy formerly had a vegetable plot to work; during the last winter, I thought it would be useful to extend this, and gaining permission to do so, I arranged a certain piece in flower plots, and another large piece we marked off, according to the Natural Orders, and with the gratuitous assistance of some of my friends, we have planted these as far as we are able with collections of cultivated crops, both farm and garden, and also some of the weeds. Messrs. Dicksons, Chester, sent me good collections of Grasses, Clovers, Vetches, &c., and Pedigree Oats. Messrs. Webb, Stourbridge, sent me Wheat, Barley, and Rye. Mr. Eckford, of Wem, fifty vars. of sweet Peas, a good collection of culinary Peas and ornamental grasses. Messrs. Dicksons also kindly took the trouble to send specially to France for some Dodder-seed, a plant of which is now twining round Clover, and I notice one plant is twining round a Potato, which has come up in the plot. The students take very great interest in this part of the work, and it is most useful to them in their examinations. At Oswestry College I have a small arrangement of botanical orders, and Mr. Nicholson, of Kew, very kindly helped me much; but this is only the commencement, and scarcely worth notice yet, and I have to work (as yet) the best way I can, but no doubt there is a prospect of development. *Alfred Gaut.*

HOT WATER, MEALY-BUG, AND MILDEW.—Whilst agreeing that hot water is a dangerous remedy for mildew on Vines when injudiciously applied, I must admit that there is no danger if the method described in the *Gard. Chron.*, p. 335, last vol., is carefully followed out. Before I applied the hot water, the possibility of applying heat sufficiently of a high degree to destroy so small

a plant as mildew without destroying so large a plant as a Vine, was carefully thought out. The fact that the mycelium of the common edible Mushroom is easily destroyed by excess of heat, lent some weight to the idea. Water was considered to be the best means of conveying the heat to the fungus, as it would retain the heat when in volume and radiate it quickly in the immediate vicinity of the fungus or spores when syringed. It was also considered that the radiation would be too rapid and momentary to harm the Vines. The result obtained showed that the surmise was a correct one. The leaves were not harmed (examples were sent to the Editor), nor were the berries, whilst the mildew was killed. Better and safer methods of destroying mildew may exist, but whether hot water is dangerous as a fungicide depends on the care exercised in its application (do not boil the plants), and the volume of the spray. Whether hot water is efficacious as a fungicide would depend upon the thoroughness of the application. It has been proved to be such by the only correspondent (p. 383, ante) who records that he has tried it beside myself. The possibility that hot water may prove efficacious in destroying mildew affecting other plants, of course, exists; such experiments would require to be carefully carried out, and in a systematic manner. It occurs to me that the majority of fungicides, being poisons, are certainly more dangerous both to use and after use, than hot-water can be. With regard to hot-water as an insecticide, I may say that American-blight and the caterpillars of the Lackey-moth have been destroyed with water heated to 150° without harming the leaves of Apple-trees. Green-fly has been killed with water heated to 130° F. without harm accruing to the young shoots of Rose-trees. In no case was the syringe directed to one spot for any length of time. It is difficult to account for the tenacity of life exhibited by the mealy-bug when immersed in boiling water, as described by Mr. Godfrey on p. 414, ante; there can be but few living creatures which would stand that treatment unharmed! Anyway, they are the toughest bugs I have ever heard of. I have some much more tender ones here, which succumb to water heated to 175°, forcibly applied with a syringe; these were infesting *Mandevilla suaveolens*. *Geo. B. Mallett.*

—Your correspondent, Mr. Mallett, did good service in calling attention to the above remedy, and which, used with caution and care, as all insecticides should be used, is useful. It is not by any means a new remedy. As long ago as 1861 I can recollect, when in the Royal Exotic Nursery, Chelsea, assisting other young gardeners, under the direction of the foreman of the stove and greenhouse department, of going over entire houses and stove plants, plant by plant, syringing them, outside the house with water heated to 140°, more as a preventative than a cure, as some of us thought it was labour in vain as there was not much visible to wash off—but it was ours to obey. I have no doubt many men still in the gardening ranks could relate a similar experience. *R. M., Newbury.*

A BIRD'S NEST IN AN ORCHID.—In one of our Orchid-houses a robin has made its nest in the centre of a medium-sized plant of *Cypripedium Dominianum*, and has, further, hatched two young ones. We may add that the plant in question is not secluded, and we have never seen such a thing occur before. *Hugh Low & Co.*

THE SHADING OF GLASSHOUSES.—This interesting subject which is referred to in the *Gardeners' Chronicle*, p. 410, vol. xxv., opens up a wide field for discussion. It is undoubtedly one of the most important factors in successful plant culture. As mentioned in the notes referred to, the use of bast-mats for the purpose is almost a thing of the past, though for shading cuttings in a hot-bed frame, I know of no better material. Except for cuttings, all heavy shading should be avoided. My own experience is that many plants which are usually grown under shade, when, if started from the earlier stages, with more exposure, may be grown almost entirely without shade. As an example, I may mention that I once planted some seedling Gloxinias on some half-spent hot-beds, these had no shading whatever, except just as the blooms were opening, and they made sturdy growth with leaves of great substance. I have also experimented with many other subjects, and find that if taken from where they have grown under shade

they will, in most instances, suffer when exposed; but start them from the first and there will be little danger of the sun doing any mischief. When grown under more exposed conditions, plants naturally require more attention, but this is fully compensated for by seeing plants of dwarf sturdy growth which may be used for decorations without fear of seeing them flagging and looking generally miserable before they have been exposed many hours. I do not mean to suggest that shading can be dispensed with altogether; but that it has been generally overdone is an indisputable fact. Now with regard to material for shading. Blinds which can be removed are most desirable, but the expense of these does not admit of their use in the more extensive establishments devoted to plant culture, and the prices now realised in our markets. Thin lime-wash, put on with a syringe, is an expeditious method for large structures; but it has disadvan-

prevent the condensation of moisture on the glass, as it is often the globules of moisture which condense the sun's rays, and cause burning. Large globules of water on leaves may also have the same effect. While a large drop of water on a leaf may prove disastrous, it may be quite safe to syringe, and provided the whole surface is wetted, there will be no danger of burning from the sun. Although atmospheric conditions require careful study, root-moisture must also be looked to. Plants allowed to flag through want of water at the root will be more liable to suffer than from any other cause, hence the fallacy of the old notion that plants must not be watered while the sun is on them. The whole problem of shading rests in doing it judiciously. Blinds which may be drawn up are certainly preferable, but with these it often happens that they are left down much later in the day than is good or necessary; and with the permanent



FIG. 8.—*BARTHOLINA PECTINATA*: TERRESTRIAL ORCHID;
FLOWERS WHITISH.

tages, as it will either wash off with a heavy rain and before it can be replaced, the sun, whose rays are always brighter after rain, has cleared the air, may do mischief; or if it will withstand the rains, it will entail much labour to clean the glass in the autumn. I prefer the use of whiting; this may be used in various ways. Where the extent of glass is not great, it may be applied with a brush; it should be powdered up quite fine, and mixed into a stiff paste with boiling milk, and then thinned, taking care that the milk is as near at boiling point as possible; or if milk cannot be had, Linseed-oil may be used, but this is more difficult to remove in the autumn. There are also other methods, one being to use a portion of ground starch with the whiting, and mix with boiling water. This may be used with either brush or the syringe; and when used in proper proportions and well mixed, it will withstand ordinary heavy showers, but continual wet after it has become softened will render it necessary to reshade when bright sunshine returns. Now, to return to growing plants without any shading: the first point is to see that a little top ventilation is given early, to

shading, it is often put on too thick, or, worse still, some green colouring is added, either green glass, or green shading being one of the greatest errors ever committed in the culture of plants under glass. In glancing out of my window I can see a large market establishment where the only shading used is clay mixed with water, and applied with a syringe. This may be economical, but I hardly think it has any other advantage, though I should prefer it to green shading. *A. Hemaley.*

BARTHOLINA PECTINATA.

This is a Cape terrestrial Orchid with a single roundish leaf and a single flower on a slender, erect stalk (fig. 8). The flower is relatively large, with small, herbaceous sepals, small petals, and a large lip with a long spur, and the free edge deeply fringed. It is a charming plant, and was exhibited at one of the recent shows of the Royal Horticultural Society by Leopold de Rothschild, Esq., receiving a Botanical Certificate.

Obituary.

GEORGE FRY.—It is not long since we had occasion to mention the work of George Fry of Lewisham, and now it behoves us to announce his death, on Wednesday, June 28, at a good old age. Mr. Fry commenced his gardening career early in the thirties, and in 1837, when the first gardening journal appeared, he became a subscriber to it. The most interesting period of his life, as he declares in his autobiography, published in this journal on February 5, 1898, was whilst he was serving as an under-gardener in John Angerstein's garden, The Woodlands, Blackheath. It was here that he was induced to take the Fuchsia in hand, and improve its cultivation, and raise new varieties. He was very successful in both directions, and the impetus which was thus given to the cultivation of this pretty plant, nearly sixty years ago, is still felt. Many of Mr. Fry's varieties had, and have, many admirers. We would refer those of our readers who may desire to know more of his life to the issue of the *Gardeners' Chronicle* named above, where an account of this worthy gardener and nurseryman will be found.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 27.—ROSES:—The competitive Rose classes held in conjunction with the ordinary fortnightly meeting of the Committees on Tuesday last, in the usual Hall at Westminster, resulted in making the exhibition a very large one. At this season of the year, even when there is no such extra feature, the exhibits very rarely fail to fill the hall as full as is consistent with a due regard to convenience, and consequently on this occasion a great number of the exhibits were necessarily crowded, and suffered severely in effect from this cause. Notwithstanding that Mr. WRIGHT, who has the management, of these shows, communicated by telegraph on Monday, with would be exhibitors, with a view to decreasing the inevitable disappointment that is felt by them when a large proportion of their collections have to be placed under instead of upon the stages. We should imagine that the provision of a hall affording greater capacity than does the present one would be hailed by no one with greater satisfaction than the Chiswick superintendent, whose task at the Drill Hall is frequently a most unenviable one. It was no doubt owing to the crowded condition of the stages that one of these, that was laden with fruits, including Pines, Melons, Strawberries, &c., and with Messrs. FRED'S Begonias, and Messrs. W. PAUL & SON'S Roses, gave way about noon, and precipitated the exhibits upon the floor. The fruits escaped with little injury, but the Roses and Begonias were much damaged, and were practically rendered unfit for exhibition. Messrs. W. PAUL & SON'S Roses were chiefly of garden varieties, and included a nice collection of the "Moss" section.

ORCHIDS were numerous, and the Orchid Committee recommended the awards of four First-class Certificates, an equal number of Awards of Merit, and two Botanical Certificates.

The Floral Committee awarded two First-class Certificates and four Awards of Merit; it had before it a large number of exhibits, including some excellent groups. A group of specimen *Humeas* and *Codiums* from Sir CHAS. PIGOTT'S garden, Wexham Park, and a large group of miscellaneous plants from Lord ALDENHAM, were constant subjects of remark. There were magnificent collections of Sweet Peas *Paeonies*, *Stocks*, *Aquilegias*, *Delphiniums*, and hardly flowers generally, well cultivated, and of the finest strains.

The exhibits before the Fruit Committee included a dozen or so Pines from Lord LLANGATOCK'S garden, The Hendre, Monmouthshire. Amongst the visitors at the meeting was Mr. WEBBER, who will officially represent the United States Agricultural Department at the forthcoming Hybrid Conference.

In the afternoon a lecture upon "Some of the Plants Exhibited" was delivered by Professor HENBLOW.

Floral Committee.

Present: W. Marshall, Esq., chairman; and Messrs. JNO. FRASER, CHAS. T. DRURY, R. DEAN, THOS. PEED, JOHN JENNINGS, J. F. McLEOD, J. FRASER, CHAS. JEFFRIES, CHAS. E. SHEA, GEORGE GORDON, JAMES WALKER, HERBERT J. CUTBUSH, ED. BECKETT, E. T. COOK, E. H. JENKINS, C. J. SALTER, D. B. CRANE, ED. MAWLEY, and J. D. PAWLE.

One of the most attractive of the magnificent groups staged was one from Sir CHAS. PIGOTT, Bart., Wexham Park, Slough (gr., Mr. J. Fleming). It was composed of a score of plants of the scented *Humea elegans*, each of them in 10 to 12-inch or larger pots, and about 8 feet in height, just opening into bloom. They were perfect specimens of health and grace. Associated as they were with handsomely coloured *Codiums* of large dimensions, and a very freely-flowered pyramidal plant of *Ixora*, upwards of 8 feet high, the effect of these

Humas was as delightful as it was uncommon, whilst the fragrance could be appreciated throughout the hall (Silver-gilt Flora Medal).

Messrs. W. CURTIS & SON, Highgate Nurseries, London, N., showed a capital group of Malmesbury Carnations, backed with Bamboos in pots; some of the newer varieties with pretty tints were included, such as Lady Ulrica, Lord Welby (crimson), Mrs. de Saige (very bright crimson), and others. Better-known ones, such as Chas. Freeman, Churchwarden, Princess of Wales (pink), Calypso (very pale flesh), &c., were also noticed, and a fine crimson border Carnation, named Sundridge (Silver Banksian Medal).

Mr. J. RUSSELL, Kew Road, Richmond, staged a most interesting exhibit of hardy ornamental trees and shrubs, all of them in pots. *Andromeda* (*Zenobia*) speciosa, with fine inflorescences of giant Lily of the Valley like flowers; *Ptelea trifoliata aurea*, a plant not nearly common enough; Golden Oak*, many varieties of Japanese Acers, silver variegated Beech, *Cornus sibirica variegata*, *Catalpa syriensis* aurea, *Acer Negundo variegatum*, *Robinia pseudo-Acacia aurea*, *Cornus Spathul*, a golden variegated tree of much value, were noticed in the group. Also a purple-leaved *Catalpa*, *C. purpurea*, and a fine crimson border Carnation, named Sundridge (Silver Banksian Medal).

The most extensive group in the hall was composed of flowering and ornamental-leaved plants, from Lord ALDENHAM's garden, at Aldenham House, Elstree (gr., Mr. E. Beckett). It was arranged upon the floor, there being in it some handsome Palms, 8 or 10 feet high, with an undergrowth of highly-coloured *Codiaeums*, *Cordylines*, varieties of *Lilium speciosum* and *L. longiflorum* in flower, *Hydrangeas*, *Crasulads*, *Ericas*, *Gladiolus* The Bride, *Caladiums*, *Carnations*, *Odontoglossum cirrosum*, *Astilbes*, *Crimson Rambler Roses*, &c. The plants showed the effect of good cultivation, and together produced a very pretty effect indeed (Silver gilt Flora Medal).

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, showed *Selaginellas*, their exhibit comprising as many as fifty species and varieties, and including such divergent forms as the broad fronded *S. grandis*, and the tiny dense growing light-green coloured *S. apoda*. Many uncommon varieties were shown, but the very popular and common *S. Kraussiana* was not excluded. This is sometimes called *S. denticulata*, but is quite distinct and much more serviceable, though less valuable (Silver Banksian Medal).

Mr. MAURICE PRITCHARD, Christchurch Nurseries, Hants, in a collection of hardy flowers, showed a number of flower-spikes of *Brodiea coccinea*, with its long, tubular, deep-red flowers tipped with green, *Calochortus venustus citrinus*, one of the larger yellow-flowered varieties; *Nepeta Mussini*, with long, densely-flowered spikes of lavender-tinted blossoms; *Lilium Martagon album*, *L. umbellatum* Cloth of Gold, a very showy variety; *Clematis integrifolia Durandi*, with deep blue, much recurved flowers; *Kniphofia canescens*, *Philadelphus Lemoinei* erectus, and some extra fine spikes of the purple-flowered *Orchis* (*O. foliosa*), &c. (Silver Banksian Medal).

Messrs. B. S. WILLIAMS & SON, Upper Holloway, London, N., staged a group of Carnations in pots, of such popular varieties as R. H. Measures (reddish-scarlet), Queen of the Yellows, Prime Minister, &c., and a few novelties.

Mr. JAS. DOUGLAS, Edenlode Nursery, Great Bookham, Surrey, showed some new border Carnations of merit, one of which is described under "Awards."

Messrs. PAUL & SON, The Old Nurseries, Chessington, made a very gay exhibit of *Paeonies* and *Delphiniums* (Bronze Banksian Medal).

Messrs. GEO. JACKMAN & SON, Woking, had a very meritorious exhibit of hardy flowers, including *Delphinium Belladonna*, varieties of their *Clematis coccinea* hybrids, a nice lot of *Roses*, *Coreopsis grandiflora*, and other species (Bronze Flora Medal).

Messrs. H. CANNELL & SONS, Swanley, Kent, had an exceedingly gay exhibit, composed of a great variety of *Aquilegias* in pots, lifted from the open ground probably. They were smothered with blooms, and the beauty of most of the varieties was surpassing. There were tints of lavender, brown, lemon, purple, pink, white, and some almost red. They had a good display of blooms of Ten-week Stocks also, the strain being one of great excellence. These were of various colours, including majenta, white, creamy-pink, purple, plum, light rose suffused with white, bright lavender, canary yellow, deep rose, &c. A variety named *Camelliaeflora*, fl.-pl., has extra fine blooms upon a sparsely-flowered spike; Princess Alice being of the same strain, and pure white (Bronze Banksian Medal).

Messrs. DOBBIE & CO., Rothsay, N.B., made a charming exhibit of Sweet Peas, showing some seventy varieties; but they were much too crowded, through no fault of the exhibitors. We noticed some fine novelties, as Lady Grisell Hamilton, very large, pale-blue in colour; Lady M. Currie, Rose colour; Sadie Burpee, pure white; an improvement upon *Blanche Burpee*. *Sacplan* was the best red, and Princess of Wales is still a first-class rose-coloured variety. Black Knight will meet with favour from those who admire the deepest-coloured forms (Bronze Banksian Medal).

Another very beautiful display of Sweet Peas was one from Mr. F. G. FOSTER, Brockhampton Nurseries, Surrey. He had eighty-six varieties, and some of the best of these are varieties raised by himself. Snowdrift for instance, as a pure white variety, has claims almost equal to *Sadie Burpee*, and is quite distinct. Navy Blue is a deep blue flower from New Zealand. Golden Gleam is a lovely shade of pale yellow; Pink Friar (American), is pink and white. Princess of Wales very similar to Grey Friar (Bronze Flora Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, made a fine exhibit of hardy flowers, including some very beautiful lilies and herbaceous *Paeonies*, *Potentillas*, and the first herbaceous *Phlox* we have observed this season; also Shirley and Iceland Poppies, *Ixias*, &c. (Silver Banksian Medal).

Messrs. WALLACE & CO., Kilmfield Gardens, Colchester, had cut flowers of *Incarvillea Delavayi*, of *Ixias*, including *I. viridiflora*, the green-coloured flowers of which always attract attention; *Paeonies*, including a highly coloured one of great merit, but unnamed; *Lilium Thunbergianum* in great variety, some of the best of which were marmoratum aureum, Orange Queen, Alice Wilson, and the deeply coloured Van Houttei. The distinct flowers of *L. Washingtonianum* were observed, and other *Lilies* that we must forbear to mention; *Browallias* and *Calochorti*, including the dwarf and pretty *C. pulchellus*, and varieties of *C. venustus*, &c. (Silver Flora Medal).

Messrs. WATKINS & SIMPSON, Exeter Street, Strand, London, were awarded a Bronze Flora Medal for a nice group of hybrid *Lantanas* in great variety. All of the plants were of dwarf habit, and very freely flowered.

Messrs. JAS. VITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, exhibited a large group of *Campanula Medium calycanthema roseum*, pink Canterbury Bells, very finely grown in 9-inch flower-pots. They also showed a great number of cut blooms of herbaceous *Paeonies*, in striking variety. Very pretty were those of *Vicomte de Fonceville*, magenta-rose; *Falstaff*, a semi-double flower of a deep crimson tint, with prominent golden-yellow anthers; *Souvenir d'Auguste Meillier*, light rose and blue, a double flower with confused petals; *Rosa Rendatier*, rosy crimson, double and full; *Lady Carrington*, pale flesh, double; *Leone*, a still paler flesh-tinted flower, large and full; *Gen. MacMahon*, of a deep crimson full bloom; and *Lachesis*, the stamens of which are white, with yellow tips, these being developed in great numbers, and in some cases petaloid; guard petals lilac, running out to pale flesh tint at the margin. The same firm showed a number of English *Iris*, charming in the variety and richness of their tints. We call attention to the gentian-blue-flowered *Raphael*, to *Poupre bleuâtre*, *Blue Celeste*, and *Rembrandt*. The exhibit contained a number of varieties of *Gladiolus venosus*, *insignis*, and *cardinalis* varieties, early-flowering *Ixia*, *Babiaras*, &c. The pretty *Escalonia Langleyensis* x, a plant 5 feet high, and furnished abundantly with pink blooms on pendulous shoots, was a conspicuous object from this nursery. Other plants were *Delphinium Sultan*, a flower of a rich metallic dark blue, a showy, hardy perennial.

Mr. H. WALTERS, gr., Eastwell Park, Ashford, showed a large-sized creamy-white Carnation, named *Lady Gerard*, an almost scentless flower (Award of Merit).

A nice white *Pink*, of regular form, and fairly full, came from Mr. J. LAMB, florist, Burton Joyce, Notts.

Mr. G. FOSTER, gr., Glendarragh, Teignmouth, showed a big yellow Carnation, but no Award was made by the committee. Shoots and flowers of *Lonicera Hildebrandt* were exhibited from Glasnevin, and various *Gladiolus cardinalis* and *Carnations* were noted.

A plant of *Anthurium Andreanum*, with two large spathes, was shown by Messrs. H. LOW & CO.

Messrs. W. PAUL & SON, Waltham Cross, had a fine and extensive collection of Garden *Roses*, inclusive of about forty varieties of Moss *Rose*, all of which, in the mishap that occurred with the table on which these and other exhibits had been arranged, were a good deal mixed and shaken up. *R. robusta* is a dark crimson Bourbon, as is *H.P. Triomphe de Caen*, a very fine, full flower; *Madame Engel* is a pink and yellow China *Rose*, very pretty in bud; *Duke of York* is another China of the same tint as the old China or monthly *Rose*, but with more numerous petals. A quantity of the now seldom seen *Maiden's Blush* (*Celestial*), of Mrs. G. Bruant, a French white in hue, large, and with but few petals; *Noisette*, *Blanche Moreau*, a pretty, white pillar or garland, *Rose*, with a full flower, and the old Red Damask, carmine, with the stamens showing plainly (Silver Flora Medal).

Messrs. KELWAY & SON, Langport, Somerset, had an extensive exhibit of hardy perennial flowers, chiefly consisting of *Paeonies*; and of these, King of the Thistles is a remarkable single-flowered variety of a crimson colour, and with prominent stamens; *Gaillardia grandiflora* in much variety, of which the fine yellow-coloured Langport Wonder and Sir John Millais were the more striking; *Delphiniums* in great variety, and well grown and flowered as these plants always are at Langport. Dr. Sir Walter Scott, a flower of deep cobalt-blue tint, and possessing a long flower-spike, received an Award of Merit (Silver Banksian Medal).

ROSES.

COMPETITIVE OPEN CLASSES.

The quality of the blooms staged was moderately good, and being one of the earliest exhibitions, satisfactory, but the general quality should be better at the Palace on Saturday, and at Colchester it should be better still. *Roses* are generally late this year; garden varieties, however, were capital at the Drill Hall, and there was a very fine display.

In the principal class, which asked for twenty-four blooms distinct, the winner was Mr. B. R. CANT, Colchester. He had a very handsome flower of Mrs. W. J. Grant, and other very remarkable flowers were *Helen Keller*, *Madame Cadeau Ramey*, Mrs. John Laing, Ulrich Brunner, Mrs. Cocker, Dr. Sewell, *Gustave Pignoneau*, &c. Another Colchester firm, Messrs. D. PRIOR & SON, of the Myland Nurseries, exhibited with success, and included some very pretty blooms; and the 3rd place was taken by yet another Colchester exhibit, one from Messrs. F. CANT & CO., Braiswick Nurseries.

The winner of the 1st prize for eighteen single trusses was Mr. CHAS. TURNER, Royal Nurseries, Slough, who deserves much praise for the excellent blooms shown. Those most striking were Mrs. J. Laing, *François Michelon*, *Clio*, *Gustave Pignoneau*, Mrs. W. J. Grant, and *Antoine Rivoire*. For 2nd place, Messrs. J. BURRELL & CO., Howe House Nurseries, Cambridge, were successful, and their collection included several blooms of much merit. Messrs. GEO. COOLING & SONS, Bath, were 3rd; and there were two other exhibitors.

Teas and Noisettes.—Messrs. D. PRIOR & SON made a very commendable exhibit in the class for eighteen single trusses, distinct, the varieties being very choice, but somewhat deficient in highly-coloured ones. There were beautiful specimens of *Maman Cochet*, *The Bride*, *Cleopatra*, *Madame de Watteville*, *Catherine Mermet*, *Madame Cusin*, *Souvenir d'Elise Vardon*, &c. The 2nd prize was won by Mr. GEO. PRINCE, Oxford, whose premier bloom was one of *Comtesse de Nadailac*, and he had good blooms of *Catherine Mermet*, and others. There were four collections.

Garden Roses.—The garden *Roses* made much the finer display, and there was competition in each of the two classes. The premier class for thirty-six distinct varieties was won by Messrs. G. COOLING & SONS, Bath, a firm who have a fine reputation for the successful cultivation of this type of *Rose*. It was a very representative collection, and remained fresh in appearance throughout the day. A white *Rose* with smooth foliage in this exhibit looked like a large mock-Orange. *Marquis of Salisbury*, *Bardon Job*, and *Cooling's Single Crimson Bedder* were the darkest-coloured ones in the group; whilst of pink, white, and rose-coloured varieties, including some of Lord Penzance's hybrid Sweet Briars, there were splendid specimens in large, neatly-arranged bunches. Messrs. PAUL & SON, The Old Nurseries, Chessington, who won 2nd prize, also made a really excellent exhibit. *Royal Scarlet*, and *Paul's Carmine Pillar* were noticeable varieties in this exhibit.

AMATEUR CLASSES.

The best amateur class was that for eighteen single trusses, and the premier honour was obtained by Mr. A. G. ORPEN, West Bergholt, Colchester. His best blooms were *White Lady*, *Maréchal Niel*, Mrs. W. J. Grant, *Souvenir d'Elise Vardon*, and *Maman Cochet*. The 2nd place was taken by T. B. HAYWOOD, Esq., Woodlatch Lodge, Reigate (gr., Mr. C. J. Salter); and the 3rd by E. M. BIRNTHUM, Esq., Denne Park, Horsham, Sussex. There were eight competitors in this class.

There were five collections of twelve blooms, distinct, and the winner proved to be G. W. COOK, Esq., The Briars, North Finchley. There were in his stand superior blooms of Mrs. W. J. Grant, and *Souvenir de President Carnot*. The 2nd prize was won by Wm. KINGSTON, Esq., 52, Guy Street, Bedford; and the 3rd by R. W. BOWYER, Esq., Haileybury College, Hertford.

The class for six single trusses was won by Miss B. H. LANGTON, Raymead, Hendon, showing *Gustave Pignoneau*, *La France*, *Charlotte Gillett*, Capt. Hayward, Mrs. W. J. Grant, and Capt. Christy. Of eight additional competitors JOHN BATEMAN, Esq., Rosevale, Archway Road, N., won 2nd place; and G. H. BLAXTON, Esq., Hutton Park, Brentwood (gr., Mr. H. Holloway), 3rd prize.

Mrs. SHARMAN G. CRAWFORD was the variety staged by PERCY BURNARD, Esq., Hill Grange, Reigate, who was best exhibitor in a class for nine blooms of one variety of H.P., H.T., or H.B. The 2nd prize was taken by T. B. HAYWOOD, Esq., who had rather small blooms of Mrs. J. Laing; and the 3rd prize fell to Rev. F. PAOR ROBERTS, The Rectory, Scole, Norfolk, who had *Gabrielle Luliet*.

The best collection of six single trusses was from G. W. COOK, Esq., with rather small blooms of the new and very popular variety Mrs. W. J. Grant.

Teas and Noisettes.—For eighteen single trusses, of not fewer than twelve varieties, or more than two trusses of any one variety, there were four competitors. The best collection was from the Rev. F. PAOR ROBERTS. The varieties most remarkable were *The Bride*, *Comtesse de Nadailac*, *Muriel Grahame*, *Maman Cochet*, *Golden Gate*, *Niphetos*, and others. The 2nd prize was won by O. G. ORPEN, Esq.

The best collection of twelve single trusses, not fewer than nine varieties, was from CONWAY JONES, Esq., Blenheim House, Hucclescott, Gloucester. This was a very fine lot, all the varieties being good. They were *Niphetos*, *Catherine Mermet*, *Maréchal Niel*, *Ethel Brownlow*, *Madame de Watteville*, *Golden Gate*, *Maman Cochet*, *The Bride*, *Souvenir d'Elise Vardon*, *The Bride*, and *Jean Ducher*. The Rev. A. FOSTER MELLIER, Sproughton Rectory, Ipswich, was a capital 2nd prize exhibitor.

The Rev. F. R. BURNSIDE, St. Margaret's Bay, Dover, had the best collection of six blooms in four varieties, his best blooms being of *Madame de Watteville*.

The variety that won in the class for nine blooms was *Maréchal Niel*, staged by O. G. ORPEN, Esq.; and in the class for six blooms, the winning variety was *Anna Olivier*, from H. P. LONDON, Esq., The Lodge, Shenfield, Brentwood.

Garden Roses.—The Amateur's Class for eighteen distinct varieties was won by H. TATE, Esq., Downside, Leatherhead. *Paul's Carmine Pillar*, *Crimson Rambler*, *Bardon Job*, *Safrano*, *Hebe's Lip* (white single), W. A. Richardson, *Marquis of Salisbury*, *Homer*, and *Réve d'Or* were some of the most remarkable varieties. For 2nd prize the most successful exhibitor was F. W. CAMPION, Esq., Colley Manor, Reigate (gr., Mr. J. Pitt). The Rev. J. H. PEMBERTON, Havering, Essex, was 3rd.

Orchid Committee.

Present: H. J. Veitch, Esq., in the chair; and Messrs. S. Courtland, J. Colman, De B. Crawshaw, A. H. Smee, C. Winn, H. Ballantine, W. Cobb, H. T. Pitt, E. Hill, J. G. Fowler, H. M. Pollett, W. H. Young, W. H. White, H. J. Chapman, J. Douglas, H. Little, A. Outram, J. T. Gabriel, T. B. Haywood, and Jas. O'Brien (Hon. Sec.).

An excellent display was made of Orchids. Owing to the abundance of out-of-doors flowers staged, there was a difficulty in finding space for the exhibits, which were intended by the senders to be brought to the notice of the committee.

Sir Trevor Lawrence, Bt., Burford (gr., Mr. W. H. White), showed four remarkable and distinct varieties in *Lælia tenebrosa atrata*, a dark, rich-coloured form allied to the one known as "Tring Park variety;" *Catasetum fimbriatum* superbum, with fringed-lipped, cream-coloured flowers, densely spotted with purple; *Cattleya Mossie Lawrencei*, a charming white flower; and *Odontoglossum crispum purpurascens*, both of the last named securing Awards (see Awards).

Mrs. Briggs-Bury, Bank House, Accrington (gr., Mr. Wilkinson), exhibited three superb Orchids, viz. *Lælio-Cattleya* × *Dominiana*, "Fire King;" *L. C.* × *Canhamiana* alba, with pure white sepals and petals and rosy purple lip; and a fine plant of the famous *Lælia purpurata*, "Walton Grange Variety," which had previously received a First-class Certificate.

Sir Frederick Wigan, Clare Lawn, East Sheen (gr., Mr. W. H. Young), showed in fine condition *Odontoglossum* × *Harryano-crispum*, said to be the reverse cross to that previously certificated; a grand variety of *Lælio-Cattleya* × *eximia*, with intense claret-purple front to the lip; *Cattleya Mossie* excellens, a very handsome form, remarkably well-grown, and carrying six flowers on one spike (Cultural Commendation), and the small, pretty *Eria acervata*.

In regard to groups of Orchids, Messrs. J. Veitch & Sons made an effective display, and were awarded a Silver Banksian Medal. The different forms of *Lælio-Cattleya* × *Aphrodite*, *L. C.* × *Canhamiana*, and other hybrids, gave a showy and distinct character to the group. There were also *Cattleya Mossie Arnoldiana*, a white-petalled variety with delicate pink base to the segments, and ruby-purple blotch on the lip. Some good panfuls of the dark rose-coloured *Dia* × *Veitchii*, the distinct *Cattleya* × *Juliet* (*Mossie* × *labiata*); five forms of *Lælia tenebrosa*, *L. purpurata*, *Cattleya Mendellii*, and *C. Gaskelliana*, of which the handsome bluish-white *C. G. formosa* was a very chaste beauty.

J. Bradshaw, Esq., The Grange, Southgate (gr., Mr. Whiffen), was awarded a Silver Banksian Medal for a pretty group, in which were the fine fringed-lipped *Lælio-Cattleya* × *Thorntoni* (*C. Gaskelliana* × *L. Digbyana*), a good example of *Lælio-Cattleya* × *exoniensis*, an excellent example of *Odontoglossum* × *excellens*, besides some of *Cattleya Mendellii*, *C. Mossie*, *Odontoglossum crispum*, *O. cordatum*, *O. constrictum*, &c.

Messrs. Hugh Low & Co., Bush Hill Park, had a large group of their fine type of *Cattleya Mossie*, of *C. Mendellii*, and *Odontoglossum crispum*, together with two plants of the fringed-lipped, fragrant *Lælia Digbyana*, which is always a striking object when in flower; *Cypripedium Rothschildianum*, *Dendrobium Lowi*, and in the centre of the exhibit a fine plant of the rare *Cypripedium callosum* Sanders. Two specially distinct things in this group were the *Cattleya Gaskelliana cærulea* and *Odontoglossum Hunnewellianum* superbum (Silver Banksian Medal).

Messrs. Stanley-Morris & Ash ton, Southgate, had a good group, that consisted of *Odontoglossum crispum*, *Cattleya Mossie*, including *C. M. Newtoni*, a superb flower, with rich dark orange-tinted lip, having a resemblance to the variety, *C. M. aurantiaca*; *C. Mendellii*, *Lælia tenebrosa*, the singular-looking *Oncidium unicorn*, *Lælio-Cattleya* × *Schilleriana*, *Cattleya Forbesii*, *Phalaenopsis grandiflora*, *Miltonia vexillaria*, and *Cypripedium Curtisii* (Bronze Banksian Medal).

Messrs. B. S. Williams & Son, Holloway, staged an excellent group, in which were good varieties of *Cattleya Gaskelliana*, the best and most distinct of which were *amœna*, *plumata*, and *purpurea*. The forms of *C. Mendellii* were also distinct. Other plants remarked were *Dendrobium nobile*, *Epidendrum vitellinum majus*, *Lælia tenebrosa*, and the orange-red-coloured hybrid of it, *L. C. cinnabrosa*, *L. purpurata*, *Odontoglossum crispum* of fine quality, *Oncidium lamelligerum*, *O. macranthum*, *Thunia Bensonii*, *T. Marshalliana*, *Aerides multiflorum* Lobbi, *A. m. roseum*, *Vanda savis*, and a number of fine *Cypripediums*.

Messrs. Charlesworth & Co., Heaton, Bradford, showed *Cattleya Mendellii* Princess Victoria, a charmingly formed white flower with a very faint tinge of pink; *Cattleya dolosa*, *Lælia* × *cinnabrosa*, a fine *Lælio-Cattleya* × *Aphrodite*, and a grand example of the pure white *Cattleya Mossie Wagneri*, having numerous flowers (Cultural Commendation).

De B. Crawshaw, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed *Odontoglossum crispum* "Seraphim," and *O. C. "Cherubim,"* two superb white forms, excellently grown.

The Right Hon. Lord Burton, Rangoon Hall, Burlington-Trent (gr., Mr. W. Bennett), showed a fine *Cattleya Mendellii*, with five flowers on a spike; and *C. labiata* Warneri.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr., Mr. H. J. Chapman), showed *Madevalla angulata*, a fine species, with large purple-tinted flowers.

W. P. Burkinshaw, Esq., Hesse, Hull, showed *Odontoglossum crispum* *Amelia*, a good flower tinted with rose, and bearing effective blotches. W. A. Bilney, Esq., The Grange, Weybridge (gr., Mr. C. Whitlock), showed *Cattleya Gas-*

kelliana Mrs. W. A. Bilney, a grand flower, with the dark bright colouring usually seen in *C. labiata* Warneri. Mrs. Temple, Layswood, Groombridge (gr., Mr. Bristow), sent a fine example of *Coleogyne Dayana*, with many long drooping spikes of flowers. W. C. Walker, Esq., Winchmore Hill (gr., Mr. Geo. Cragg), showed *Burlingtonia fragrans* major, with several spikes of large white flowers.

Lieut.-Col. Shipway, Grove House, Chiswick (gr., Mr. Walters), staged a group, in which were *Cattleya Mendellii* Mrs. Shipway, a charming white flower with claret-crimson lip, and a feather of purple-crimson on the petals—very distinct; good *Lælia purpurata*, *Madevalla Schlimi*, *Cypripedium Chamberlainianum*, *Brassia verrucosa*, &c. Mrs. J. T. Holmes, Beechen Cliff, Bath, sent a peculiar form of *Cattleya Warscewiczii*. F. W. Moore, Esq., Royal Botanic Gardens, Glasnevin, Dublin, sent the scarlet *Epidendrum prietes*, and *Gongora gratulabunda*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Carnation Lady Gerard.—See p. 16.

Carnation Trojan.—A first-class border variety, with large white blooms of fine form, smooth-petalled, and excellent calyx. From Mr. Jas. Douglas, Great Bookham (Award of Merit).

Delphinium Sir Walter Scott.—A very fine purple-and-blue single-flowered variety, each bloom being about 2 inches across, and the spike long, stout, and densely flowered. From Kelway & Son, Langport (Award of Merit).

Pelargonium Fire King.—A scarlet-flowered zonal variety, with curious stellate-like flowers, due in some measure to the petals being reflexed longitudinally, or fluted reversely. It is, therefore, described by some as "Cactus" flowered, and was figured in the *Gardeners' Chronicle*, June 3, p. 863, as seen at the Temple Show. From Mr. E. S. Towell, Llewellyn, Hampton Hill (Award of Merit).

Dasylia illustris.—A handsome Fern with dense, overarching fronds, pinnae finely cut, and of a pleasing light-green hue. As seen, the fronds in some instances, measured 8 feet in length by 1½ foot in width. The rachis is dark-brown approaching black. Shown by Messrs. J. Veitch & Sons (First-class Certificate).

Draena indirisa Schneideri.—A dwarf form, with narrow, channelled, rigid leaves of a dark-green tint. Shown by Messrs. J. Veitch & Sons (First-class Certificate).

Lælio-Cattleya × *Dominiana* "Fire King" (*L. purpurata* × *C. Dowiana*), from Mrs. Briggs-Bury, Bank House, Accrington (gr., Mr. Wilkinson). This is one of the finest of the *Lælio-Cattleyas*; sepals and petals bright purplish-rose, lip very large and broad, the front dark, velvety, ruby-red; the orange colour in the tube and fine reddish-purple veining, showing marked characters of *Cattleya Dowiana*.

Lælio-Cattleya × *Aphrodite eximia* (*L. purpurata* × *C. Mendellii*), from Messrs. Jas. Veitch & Sons, Chelsea, sepals and petals dark rose, lip elongated and crimped, dark claret, crimson with narrow whitish margin.

Odontoglossum crispum "Sera yhim," from De B. Crawshaw, Esq., Sevenoaks (gr., Mr. S. Cooke). A grand white flower, all the parts broad, a peculiar feature being the clear yellow disc to the lip.

Odontoglossum × *Harryano-crispum*, from Sir Frederick Wigan, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young). A distinctly intermediate form, with French-white flowers, prettily marked with purplish rose-flush and blotches.

AWARD OF MERIT.

Lælia ten-brosa, "Victor Warburton" from A. Warburton, Esq., Vine House, Haslingden (gr., Mr. Lofthouse). A very distinct form allied to *L. t.* "Walton Grange," sepals and petals lemon-yellow, faintly tinged with purple. Lip bluish-white, with pure rose-coloured markings in front.

Cattleya Mossie Lawrencei, from Sir Trevor Lawrence, Bart. (gr., Mr. W. H. White). A beautiful pure white form, nearest to *C. M. Wagneri*, but with a slight pencilling of rose over a small area in the front of the lip.

Odontoglossum crispum purpurascens, from Sir Trevor Lawrence, Bart. Allied to *O. C.* "Starlight." Flower fine in form, white, tinged with rose, and having many rose-purple spots, and a few larger brownish blotches.

Cattleya Gaskelliana Formosa, from Messrs. Jas. Veitch & Sons. Flowers fine in form, white, with faint bluish tint; disc of lip cowslip-yellow, the front having a tinge of rose colour.

Madevalla × *Rushtonii* (*racemosa* × *ignea* Eckhautel), from Captain T. C. Hinxton, Richmond, Yorks. A pretty hybrid, with the general characters of *M. racemosa* (Crossii), but more robust. Flowers orange, tinted scarlet.

BOTANICAL CERTIFICATES.

Gongora gratulabunda, from F. W. Moore, Esq., Glasnevin, Dublin. Flowers whitish, with rose-purple spots.

Eria acervata, from Sir Frederick Wigan, Bart. (gr., Mr. W. H. Young). An elegant white-flowered species.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. Jos. Cheal, G. Reynolds, W. Poupert, A. F. Barron, E. Shaw Blaker, Jas. H. Veitch, A. H. Pearson, Alex. Dean, S. Mortimer, H. Balderson, Geo. Wyther, Geo. Th. Miles, J. W. Bates, F. Q. Lane, J. Willard, Robt. Fife, J. Wright, and M. Gleason.

Messrs. J. Veitch & Sons, Chelsea, showed a plant of their new Strawberry, *Prolific*, bearing numerous fruits in all stages of development (Vote of Thanks).

Mr. Taylor, gr. at Penbrw, Nannerck, showed Tomato Klondike—Ham Green × Early Ruby, a seemingly prolific variety, with solid, smooth globose fruits, of a deep crimson tint when quite ripe.

C. A. Pearson, Esq., Frensham Court (gr., Mr. J. Perwitt), showed a collection of fruit, consisting of Royal Sovereign Strawberry, fine and large; Hale's Early Peach, extremely well coloured, even for this variety; a dish of very fine Early Rivers' Nectarines, Royal Jubilee Melon, an oval fruit of a creamy colour, and with fine netted rind; and very nice bunches of Black Hamburgh and Foster's Seedling Grapes (Silver Banksian Medal).

Mr. Haynes, The Gardens, Carlton, R.S.O., Yorkshire, showed a new Cucumber, named Sir Roger, smooth, spineless and short necked.

Several exhibits of Melons were remarked, but no award was made.

Mr. T. Coomber, gr. to Lord Llangattock, The Hendre, Monmouth, showed fifteen Queen Pineapples, some of them being very creditable specimens, the crowns in every instance being small, a feature showing good culture. One sees such exhibits all too seldom at these meetings (Silver Knightian Medal).

Big baskets filled with extremely fine fruits of Monarch and Mentmore Strawberries came from Messrs. Laxton Brothers, Bedford.

Messrs. T. Rivers & Sons, Sawbridgeworth, Herts, exhibited a quantity of extremely fine fruits from trees grown under glass, viz., Rivers' Gladstone, Thomas Rivers, Princess of Wales, Groses Mignonne Peaches; Victoria and Byron Nectarines; Stint and the Czar Plums; Elton Early Rivers and Frogmore Bigarreau Cherries. The Peaches were of enormous size, and the other fruit most appetising in appearance. This firm likewise showed six trees in pots of the Thomas Rivers and Sea Eagle Peaches, three trees of each. These were stated to have been forced for eight years in succession. The crop in each instance was a heavy one, and may have been more so, and the fruits were above the average size, and of high colour (Silver-gilt Banksian Medal).

SHIRLEY AND SURROUNDING DISTRICTS.

JUNE 19.—The monthly meeting of the above Society was held at the Parish Rooms, Shirley, Southampton, on the above date, the president, W. F. G. SPRANGER, Esq., J.P., presiding. The lecturer was Mr. W. Wheeler, of Messrs. Hugh Low & Co.'s Nurseries, Clapton, and was under the auspices of the Southampton County Council, Technical Education Committee. The subject of Mr. Wheeler's lecture was "Ferns and Palms." Ferns, Mr. Wheeler considers the most useful and beautiful plants for various decorative purposes, and gave valuable hints on the cultivation of the former from spores, or the latter from seeds, and growing on into useful plants, grouping the varieties for decorative uses; the best kinds of Ferns for cutting purposes, for indoor decoration, or for the conservatory; and lastly, British Ferns for growing outdoors, and in frames or sheltered nooks and corners where nothing else would succeed so well. Palms were treated in the same style, and the best kinds for general purposes of decoration were mentioned.

The exhibits included Roses from Messrs. W. H. Rogers & Son, Limited, Red Lodge Nursery; and from Messrs. Hullet, Curtis, Mankelov, Tidridge, and Gardener; Ferns and Palms, Messrs. Curtis & Biggs; a grand bit of *Cattleya Mendellii* by Mrs. A. J. Keates, Rownham House; seedling *Pelargonium* by Mr. F. Cozens; and herbaceous perennial plants by Mr. B. Ladham, of the Shirley Nurseries.

ISLE OF WIGHT ROSE.

JUNE 21.—The annual exhibition of Roses took place at Shanklin, at the date given. Entries were many, and the quality excellent.

In the open classes the prizes fell to outsiders, viz., the veteran growers, B. R. CANT, J. PRINCE, D. PRIOR & SON, F. CANT, and PAUL & SON.

For sprays, bouquets, and buttonholes, C. PRINCE, Mrs. J. KENT, and the Rev. A. T. RICHARDSON were the most successful. In the amateur classes, open to all, the Rev. J. E. JEANS, Miss CARTER, and R. E. WEST, were the most successful.

In the Isle of Wight classes there was keen competition for the Isle of Wight Silver Challenge Cup, which was won by Mr. J. LEE-WHITE, East Cowes, with a splendid stand of twenty-four Roses, distinct varieties. The same exhibitor was also successful in winning the Queen's Gold Medal for twelve distinct Roses; and a Silver Medal for the best H. P. from the Island exhibits with Mrs. Sharnan Crawford; and a Silver Medal for the best Tea, with Medea, which also secured the exhibitor the Isle of Wight Certificate for Cultural Merit. Mrs. CHORR-MURRAY secured the Silver-gilt Medal for twelve distinct Teas.

The show was the most successful one ever held by this Society, a fact that reflected much credit upon the honorary secretaries, the Rev. J. E. JEANS and Mr. E. V. MATTHEWS.

Mr. G. W. PIPER, of Uckfield, showed his new Rose Sunrise; and Mr. J. PRINCE showed Alexander Hill Gray, a Rose which will probably be found an acquisition to the exhibition table.

On Thursday, June 22, the members of the Isle of Wight Horticultural Improvement Association had a most pleasant

and enjoyable outing, at the invitation of the Rev. J. E. Jeans, to visit his gardens at Shorwell Vicarage, which proved a very agreeable one.

WINDSOR ROSE AND HORTICULTURAL.

JUNE 24.—The eighth annual exhibition of the Windsor Rose and Horticultural Society was held in the private grounds around Windsor Castle on the above date, the weather being very favourable for the holding of a show of this kind.

The Queen, accompanied by H.R.H. Princess Christian and H.H. Princess Victoria of Schleswig-Holstein, honoured the show with her presence during the afternoon, and drove through the principal tent, where the displays of the chief prize-winners had been arranged for Her Majesty's inspection. Several of the stands of cut Roses were afterwards taken to the Castle, and were graciously accepted by the Queen. Although not very numerous, the plants, fruits, and flowers generally were a high order of excellence. One end of the centre of the large tent was occupied by an imposing group of stove plants, sent by Messrs. SANDER, including many of their recent introductions.

GROUPS.

At the opposite end, Mr. Ballantyne, gr. to Baron Schroder, Tue Dell, Egham, had arranged a group of choice Orchids, conspicuous amongst them being *Cattleya gigas*, *Thunia Veitchii superba*, *Diss. Veitchii*, and *Cypripedium Mastersianum*. The middle of the table was filled with splendidly coloured specimens of *Crotons* from the Royal Gardens, Frogmore. Messrs. Veitch were represented by an exceedingly bright display of hardy herbaceous flowers from Langley. An attractive group of well-grown fancy *Pelargoniums*, and a group of Roses in pots, from Mr. C. TURNER, of Slough, was much admired.

Messrs. CUTBUSH's Carnations were in evidence; and Messrs. WALLACE, of Colchester, showed a beautiful lot of *Ixias*, *Liliums*, *Calceolitis*, &c. Messrs. FITT, of Windsor, and JACKMAN, of Woking, were other exhibitors, the former of some charming cut flower decorations, the latter of Roses, Sweet Peas, *Pyrethrums*, &c. Mr. CANNELL, of Swanley, had a nicely-arranged circular group of *Cannas*, containing several fine varieties.

The best group of plants in the competitive class was that staged by Sir CHAS. PIGOTT, Bart., who was deservedly given 1st honours. A very pretty effect was obtained by using the flowering shoots of *Humea elegans*, *Fraxinea ramosa*, and *Oncidium*, which fell gracefully over the *Codiaeums*, *Liliums*, *Clerodendron fallax*, *Caladiums*, and *Gloxinias*. A. F. GOVETT, Esq., gained the 2nd prize.

SPECIMEN PLANTS.

The competition in the class for specimen plants was keen, and some excellent *Cyathas*, *Davallias*, *Platyneriums*, *Ixias*, and *Crotons* were exhibited.

The pleasing colours in the displays of Sweet Peas added not a little to the beauty of the show. For twelve bunches of Eckford's varieties, Lady MARIE CURRIE took premier place.

ROSES.

Mr. B. R. CANT, of Colchester, was very successful with cut Roses, being 1st in the class for forty-eight blooms, distinct; the blooms of Hon. E. Gifford, Mrs. J. Laing, and Marchioness of Downshire being among his finest. To the first-mentioned, the Silver Medal of the Society was awarded, as being the best Rose in the show. Messrs. PRIOR & SON, Colchester, also had some excellent flowers in their stand, to which a 2nd prize was awarded. Mr. G. PRINCE, of Oxford, had the best eighteen Teas or Noisettes. Messrs. F. CANT & Co., Colchester, following closely with fine, deep blooms.

A beautiful stand of Mrs. J. Laing won for Mr. C. TURNER, the 1st prize in the class for twelve H.P.'s or H.T.'s in one variety; whilst Mrs. W. J. Grant, finely-coloured, took 2nd place for Mr. B. CANT.

Comtesse de Nadailiac was well shown by Mr. G. PRINCE, Oxford, his exhibit securing for him the 1st prize for twelve single trusses, Teas or Noisettes. Messrs. PAUL & SON, Chessington, showed eighteen bunches of garden Roses, including the striped *Rosa mundi*, *Carmine Pillar*, *Royal Scarlet*, &c., and were awarded the 1st prize. For twenty-four distinct, single trusses, R. E. WEST, Esq., was 1st; and C. ROMAINE, Esq., 2nd.

Mr. J. W. PIPER, Uckfield, showed his Tea-scented Rose Sunrise, and also Carnation flowers in variety. Mr. E. SUGG, Maidenhead, contributed a large collection of bunched Roses and herbaceous flowers. One tent was devoted wholly to table decorations, and the entries were very numerous. *Aquilegias*, Sweet Peas, and *Poppies*, *Emilax*, *Asparagus*, and various grasses were chiefly made use of in the embellishment of the tables.

FRUIT

exhibits were few, nevertheless very creditable Black Hamburgh Grapes and Strawberries were staged. Lord BOSTON, L. J. BAKER, Esq., and Miss RIDGE, were the principal prize-winners.

For a collection of vegetables grown from seeds supplied by Messrs. FITT, Hon. C. JOLI took 1st prize. The Duke of Albany Peas and Cauliflowers were here uncommonly good.

The same exhibitor also gained the 1st prize for vegetables grown from Messrs. CARTER's seeds. H. H. T.

CROYDON HORTICULTURAL.

JUNE 28.—The thirty-second annual show of this Society was held on the above date in a meadow at Broad Green, West Croydon. As usual at this exhibition most of the interest was centred in the competitive Rose classes. Somehow or other the Croydon Society generally manages to get some good Roses, always as good as the average of the season, and there was no exception to this rule on Wednesday last. The quality generally we hope to see beaten at the Palace on Saturday, but having said this much the blooms may be described as very satisfactory. In the premier class there was a collection of beautiful Roses from Messrs. PRIOR & SON, who were disqualified for duplication. This was the best exhibit in the Rose classes.

In the amateurs section there were competing Mr. T. B. HAYWOOD and Mr. PHILIP CROWLEY, both of whom gentlemen are well known to horticulturists in connection with the finances of two important Societies. Apart from the Roses there were good specimen plants shown, and groups of miscellaneous plants, *Fuchsias*, *Pelargoniums*, *Gloxinias*, *Ferns*, &c. There were few exhibits of Fruits or of Vegetables. Table decorations were very pretty, the Shirley Poppies being appropriately a distinguished feature in these arrangements.

ROSES.

OPEN CLASSES.

The most important class was for forty-eight Roses, distinct, and the 1st prize, including the National Rose Society's Silver Medal, was won by Messrs. F. CANT & Co., Braiswick Nursery, Colchester. Varieties that had most effect in this stand were Ethel Brownlow, Rev. Allan Cheales, Marie Van Houtte, Comtesse de Nadailiac, Duke of Teck, La France de 1899, Catherine Mermet, Auguste Rigotard, Captain Hayward, Helen Keller, Charles Lamb, Madame Cusin, Souvenir d'Elise, and Marchioness of Downshire. In the second place, Messrs. G. & W. H. BURCH, Peterborough, were successful, and included nice specimens of General Jacqueminot, Ulrich Brunner, and Jeannie Dickson.

The exhibit in this class from Messrs. D. PRIOR & SON, Colchester, was unfortunately not in accordance with the schedule. Thus was lost a 1st prize.

The best exhibit of twenty-four varieties in triplets was from Messrs. D. PRIOR & SON, the Roses being very fresh, and some of the triplets really very fine. Such were Pinco Camille de Rohan, Mrs. John Laing, Catherine Mermet, Capt. Hayward, Kaiserin A. Victoria, Ulrich Brunner, Duchess of Bedford, Mrs. W. J. Grant, Marquise Litta, and Duchess of Bedford. Messrs. G. & W. H. BURCH were 2nd, and FRANK CANT & Co., 3rd.

Twenty-four Roses distinct were best shown by Mr. A. C. GREEN, Gt. Horkeley, Colchester. 2nd Mr. THOS. BUTCHER, Shirley.

Teas and Noisettes.—Messrs. D. PRIOR & SON showed capitally in a class for eighteen Teas or Noisettes, distinct, all of the flowers possessing quality. The varieties were Innocent Pirola, Marie Van Houtte, Souvenir de S. A. Prince, Souvenir d'un Ami, Niphetos, Maman Cochet, Cleopatra, Caroline Kuster, Bridesmaid, Bride, Comtesse de Nadailiac, Madame Hoste, Alba roses, Jean Ducher, Catherine Mermet, Maréchal Niel, Ernest Metz, and Amazona. Messrs. FRANK CANT & Co.'s blooms were too far expanded—these were 2nd; and Mr. A. G. GREEN, whose flowers were very small, 3rd.

Mrs. Jno. Laing was the best H.P. shown in dozens, and the exhibitors were Messrs. D. PRIOR & SON; Messrs. F. CANT & Co. were 2nd, with Mrs. W. J. Grant; and Mr. A. G. GREEN 3rd, with Mrs. Jno. Laing.

Messrs. PRIOR & SON were 1st also for the best Tea in dozens, showing Souvenir de S. A. Prince; Miss Edith Gifford, from Messrs. BURCH, being 2nd.

The only collection of twelve bunches of garden or decorative Roses was a collection from Mr. FRANK CANT, Braiswick Nursery, Colchester.

AMATEURS CLASSES.

The Challenge Cup, value 25 guineas, was won by F. W. CAMPION, Esq., Colley Manse, Reigate, who had a collection of thirty-six distinct Roses of much merit. The best in the group were Souvenir d'Elise Vardon, La France, Mrs. P. Morgan, a very pretty Tea; Mrs. John Laing, Cleopatra, François Michelon, Catherine Mermet, Marial Grahame, Madame Cusin, Hon. E. Gifford, Maman Cochet, Madame de Watteville, Bridesmaid, Marquise Litta, and Francisca Kruger. The collection was a very fine amateurs' exhibit. The 1st prize was won by E. M. BETHUNE, Esq., Deane Park, Hornham; 3rd, R. E. WEST, Esq., Reigate, and there were two other competitors.

The only collection of twelve Teas or Noisettes, distinct, was shown by E. MAWLEY, Esq., Rosebank, Berkhamsted, his varieties being The Bride, Anna Olivier, Souvenir de S. A. Prince, Souvenir d'un Ami, Bridesmaid, Caroline Kuster, Comtesse de Nadailiac, Hon. Edith Gifford, Madame Willermot, Maréchal Niel, Madame Bravy and Mrs. E. Mawley.

E. M. BETHUNE, Esq., won the class for eighteen Teas or Noisettes in not fewer than twelve varieties, and showed some pretty blooms of moderate size; 2nd, T. P. HAYWOOD, Esq., Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter). The last-named exhibitor was the only exhibitor of six Roses in triplets, and won 1st prize for the best Rose shown in dozens, having some very commendable blooms of Mrs. J. Laing. The same variety was shown by F. W. CAMPION, Esq., who was 2nd.

Twelve Roses, distinct, were capital from Mr. E. MAWLEY, who was well in front of Mr. ALFRED SLAUGHTER, Jarvis Villa, Steyning.

G. W. COOK, Esq., The Briars, North Finchley, won the class for four trebles, with excellent blooms of Mrs. J. Laing, Captain Hayward, Marquise Litta, and Mrs. W. J. Grant. The same exhibitor won for nine Roses, distinct, an 1st of these being Mrs. J. Laing, was awarded the Silver Medal for the premier bloom in the amateurs' classes; 2nd, D. FAIRFIELD, Esq., The Wilderness, Reigate.

The best exhibit of six bunches of garden Roses was one from F. W. CAMPION, Esq., his varieties being Gloire de Polyantha, L'Idéal, Réve d'Or, Reine Olga d. Wurtemberg, Crimson Rambler, and Polyantha grandiflora. There were two other collections.

MISCELLANEOUS CLASSES.

The 1st prize for a group of miscellaneous plants, arranged for effect, was won by Mr. J. Harris, gr. to the popular treasurer of the Royal Horticultural Society, Philip CROWLEY, Esq., and from the same garden came the best collection of six specimen Ferns; and the best specimen of an ornamental foliage plant and a flowering plant.

At Croydon there exists a class for a table of plants arranged according to the taste of the exhibitor. Mr. J. Slater, gr. to F. LINK, Esq., Park Hill Road, won 1st prize, principally for the choicer description of the plants employed. Some *Odontoglossums* were effective, and half-a-dozen or so plants of *Celsia* were as pretty in effect as *Oncidiums* would have been. 2nd, Mr. F. Bishop, gr. to E. D. MORRIS, Esq., Hayling Park Road, Croydon.

Vegetables were not shown in large quantity. The class for nine dishes was won by Mr. J. JOHNSON, gr. to Mrs. CROWLEY, Bramley Oaks, who had very nice Tomatoes, Peas (Exonian), Cauliflowers, Turnips, Carrots, and Cabbage.

Mr. C. Perrett, gr. to Mrs. FULLER, Duppas Hill, beat Mr. G. Kales, gr. to J. GLAISHER, Esq., Heathfield Road, Croydon, for six dishes.

T. B. HAYWOOD, Esq., won 1st prize for twenty-four varieties of cut flowers, and the exhibit was a very choice one, being composed almost exclusively of Orchids and *Cannas*.

The best plants suitable for table decoration was shown by J. GLAISHER, Esq., Heathfield Road, Croydon.

ALFRED SLAUGHTER, Esq., won 1st prize for a collection of twenty-four Roses, distinct, but had no rivals in the class.

The best collection of twenty-four bunches of hardy cut flowers was shown by H. G. FILLIS, Esq., Penantrey, Bramley Hill, Croydon.

Among other prize-winners were Mr. C. Perrett, gr. to Mrs. FULLER, Duppas Hill, who won for *Gloxinias*, *Fuchsias*, &c.; Mr. G. LEWY, gr. to Mrs. BLAKE, Duppas Hill, who had excellent *Gloxinias*; Mr. J. GALVIN, gr. to H. BUTCHER, Esq., Russell Lane, Purley (Farns), &c.

HONORARY EXHIBITS.

Messrs. WALLACE & CO., Colchester, had an exhibit of hardy flowers; Messrs. JOHN LAING & SONS, Forest Hill Nurseries, showed a collection of cut Roses, giving a prominent place to the most popular Mrs. Jno. Laing. The same firm contributed an imposing group of stove and greenhouse plants, tuberous Begonias, and a group of hardy trees and shrubs in pots.

Hardy flowers were shown by Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley. A group of small *Cacti* and other succulents in pots, were from Mr. C. A. BLOOM, Brighton Road, Croydon. Messrs. H. CANNELL & SONS, Swanley, again displayed the glory of *Cannas*.

Mr. Jno. B. BOX, West Wickham and Croydon, showed some very good tuberous Begonias, in association with stove and greenhouse plants.

RICHMOND HORTICULTURAL.

JUNE 28.—Richmond, the gayest of suburban towns, held its twenty-fifth annual horticultural exhibition on Wednesday last, in the Old Deer Park, and, as usual, it was visited by a very large and fashionable company. The show was opened by Sir W. T. THRELKELLY DYER, Director of the Royal Gardens, Kew, who was accompanied by Lady Dyer, and the exhibition was graced during the afternoon by the presence of H.R.H. the Duchess of York.

The exhibition was a very satisfactory one, and the accommodation provided by four spacious marquees was sufficiently adequate to allow everything to be well displayed. Roses were extremely fine. Several of the premier classes invited trebles, and the veteran Mr. B. R. CANT, who won in the largest class, and Messrs. D. PRIOR & SON, particularly had really fine collections. Plants, and arranged groups of plants, were also a good feature, many of the non-competitive groups being uncommonly interesting. Orchids were rather better than we have previously observed them at Richmond; in fact, most creditable to a suburban society. Fruits, including Grapes, were of the highest quality. Vegetables were shown in considerable quantity. The local florists, assisted by a number of amateurs, made a splendid display of table decorations and other florists' devices, and these were a source of great interest to the visitors, and filled the whole of the centre of one tent.

ROSES.

The premier open class was for forty-eight varieties in trebles, and Mr. BENI. H. CANT of Colchester won for the second time the handsome Challenge Cup, value 25 guineas. It was a fine collection, the varieties being Helen Keller, Ulrich Brunner, Lady Mary Fitzwilliam, Duchess de Monny, Duke of Fife, Madame Cusin, A. K. Williams, Madame de Watteville, Comte de Rainbaud, Mrs. Shaiman Crawford, Rev. Allen Cheales, Kaiserin Augusta Victoria, Marie Verdier, La France, Tom Wood, Bridesmaid, Madame Gabrielle Luisit,

Dr. Andry, Marquise Litta, Maréchal Niel, Madame Eugénie Verdier, Le Havre, Souvenir d'un Ami, Dupuy-Jamain, Mrs. Cocker, Auguste Rigout, Souvenir Madame Eugénie Verdier, White Lady, Countess of Rosebery, Fisher Holmes, Souvenir de S. A. Prince, Gustave Pigeau, Mrs. John Laing, Suzanne-Marie Rodocanachi, Duke of Edinburgh, The Bride, Marchioness of Downshire, Catherine Mermel, Capt. Hayward, François Michelin, Mrs. W. J. Grant, Camille Bernardin, Crown Prince, Muriel Grahame, Madame Cadeau Ramey, Caroline Testout, Duke of Wellington, Duke of Edinburgh, and Golden Gate. Messrs. PRIOR & SON, Colchester, were excellent as 2nd winners; and Messrs. F. CANT & CO., Bralwick Nurseries, Colchester, 3rd.

Messrs. PRIOR & SON won the class for twenty-four trebles, distinct, and we noticed in the exhibit very fine specimens of Madame Gabrielle Luisset, Captain Hayward, La France, Helen Kaller, Duchesse de Morny, Ulrich Brunner, Mrs. John Laing, Marquise Litta, &c.; Mr. BENJAMIN R. CANT was a good 2nd prize-winner, and exhibited a collection of even, bright-looking trebles; Messrs. F. CANT & CO., were 3rd.

Mr. B. R. CANT won for twelve trebles, but was closely followed by Messrs. D. PRIOR & SON, and Mr. CHAS. TURNER, Royal Nurseries, Slough. There were several other exhibitors. The best H.P. in dozens was Mrs. John Laing, shown by Mr. CHAS. TURNER in splendid condition, large, full, and of good colour. The same variety was placed 2nd from Mr. B. R. CANT; and Prince Arthur, from Messrs. D. PRIOR & SON, was 3rd.

Marie Van Houtte, from Messrs. D. PRIOR & SON, was the best Tre in dozens, and is really a very charming variety; 2nd, Madame de Watteville, from Messrs. FRANK CANT & CO.; and 3rd, The Bride, from Mr. W. VAUSE, Leamington Spa.

In the amateurs' class for twenty-four distinct single trusses, the most successful exhibitor was J. P. KITCHEN, Esq., Manor House, Hampton (gr., Mr. C. Warwick), the specimens shown being of moderate size, but pretty. W. C. ROMANINE, Esq., The Priory, Old Windsor (gr., Mr. J. Guttridge), was 2nd.

The 1st prize for twelve single trusses, distinct, was won by W. C. ROMANINE, Esq., his best blooms being Kaiserin A. Victoria, Madame Cusin, and Madame G. Luisset; 2nd, J. P. KITCHEN, Esq.

In the local classes, JAMES WIGAN, Esq., Cromwell House, Mortlake (gr., Mr. Wm. Jones), won a class for eighteen blooms, distinct, very easily; and likewise a class for twelve single trusses.

ORCHIDS.

The best collection of six exotic Orchids, was from H. LITTLE, Esq., Baronshill, E. Twickenham (grower, Mr. A. Howard). He had Cattleya Warneri superba, a very fine plant of Vanda teres, Cattleya Mendellii, well bloomed, C. Mossiae, a good variety, as well as being freely bloomed; Vanda suavis Veitchii, and Dendrobium avasiumum. The 2nd place was taken by Sir F. WIGAN, Bart., Clare Lawn, East Sheen. He had a nice plant of Cypripedium Rothschildianum, Cattleya gigas Sanderiana, Miltonia vexillaria, Phalaenopsis grandiflora, &c.

H. LITTLE, Esq., had a gorgeous group of Cattleyas, Cypripediums, Dendrobiums, Odontoglossums, &c.

PLANTS.

A collection of Stove and Greenhouse plants in flower was shown finely by Mr. VAUSE, Leamington. He had Bougainvillea Sanderi and Cypheri, Erica ventricosa grandis, Apheloxia macrantha Barnesii, Anthurium Scherzerianum, &c. Mr. VAUSE was also successful for six fine foliage plants.

Sir FRED. WIGAN, Bt. (gr., Mr. Want), had a splendid collection of six exotic Ferns, the plants being of considerable size, and including Davallia Mooreana in a very pretty specimen. From the same garden came the best group of miscellaneous plants in a special class; the Orchids and Carnations adding much to the effect of the group; 2nd, J. W. HARKER, Esq.

The best Coleus were from W. CUNARD, Esq., Orleans House, Twickenham (gr., Mr. J. Allsop). These were pyramidal specimens, about 3 feet to 4 feet high. The best Caladiums were also from this garden.

Six magnificent Palms were shown by W. CUNARD, Esq., Twickenham, specimens 10 to 12 feet high. These and others in the same and similar classes helped greatly to furnish the centre of the large marquee.

A grand collection of eight Exotic Ferns was shown by A. PRANS, Esq., Spring Grove, Isleworth (gr., Mr. W. Farr). His plants were Davallia bullata, D. filicoides, Alsophila australis, Nephrolepis exaltata, Phlebodium aureum, Asplenium bulbiferum, &c.

Six specimen Pelargoniums (zonal) were shown in grand form by H. LITTLE, Esq.; plants from 3 to 4 feet across, and very abundantly bloomed. His varieties were Model (white), Constance (pink), Alfred Ware (salmon scarlet), J. Miller (crimson), Mrs. Gordon (scarlet), and J. Pearson (pink). Also a 2nd prize for six plants of Ivy-leaved Pelargoniums.

Mr. C. TURNER, of Slough, showed beautiful collections of show, decorative and fancy Pelargoniums.

Nine Gloxinias were shown best by Mr. H. E. FORDHAM, Twickenham; and also by J. W. HARKER, Esq., The Elms, Ham (gr., Mr. W. Castle), who won 2nd prize.

Mr. FARR, gr. to A. PRANS, Esq., won 1st prize with a group of Malmalson Carnations.

Messrs. PAUL & SON, Cheshunt, won a 1st prize for twenty-four bunches of hardy herbaceous or bulbous cut flowers, having beautiful specimens; and the 2nd prize was well won by an amateur, Rev. R. HAMILTON, Cranbourne Vicarage, Windsor Forest.

FRUITS AND VEGETABLES.

The best collection of six dishes of fruit was from W. H.

ELLIS, Esq., Clovelly, Hounslow, showing Grapes, black and white; Strawberries, Peaches, a Melon, and Sweet Cherries. C. E. STRACHAN, Esq., Gaddesden Place, Hemel Hempstead (gr., Mr. H. Folkes), was a close 2nd.

The best three bunches of Black Grapes were of Madresfield Court, from Mr. H. W. Blake, gr. to the Earl of Onslow, Clendon Park, Guildford. These were very remarkable for so early in the season, being very beautifully finished. Mrs. TULK, Cowley House, Chertsey (gr., Mr. A. Sadler), was 2nd, with Black Hamburg.

White Grapes were best from Mr. THOS. OSMAN, Ottershaw Park Gardens, Chertsey, the variety being Buckland Sweetwater. The same variety, but not so ripe, was 2nd, being shown by Mr. G. Lane, gr. to Miss A. S. RIDGE, Highfield, Englefield Green.

The best local exhibitors of Grapes were Mr. W. FARR, who had 1st prize for Black Grapes, and Mr. A. Meaton, gr. to J. B. HILDITCH, Esq., Asgill House, Richmond, who had 1st for Whites.

Mr. J. Allsop, gr. to W. CUNARD, Esq., exhibited two dozen fruits of Early Rivers' Nectarine, and an equal number of Lord Napier.

The 1st of the special prizes offered by Messrs. SUTTON & SONS, Reading, for a collection of VEGETABLES was won by J. B. JOHNSTONE, Esq., Coombe Cottage, Kingston (gr., Mr. David Gibson). All of the produce was of very fine quality, the Duke of Albany Peas, also Magnum Bonum Cauliflowers. The Rev. O. L. POWELL, Woburn Park, Weybridge (gr., Mr. A. Basile), was a wonderfully close 2nd, his Duke of Albany Peas being very exceptional. The same exhibitor won Messrs. Carter & Co.'s prize as was successful in Messrs. Sutton's competitions; and the Rev. O. L. POWELL was 2nd.

The Society's class for a collection of twelve varieties of vegetables, was won by Rev. O. L. POWELL; and he was followed by J. B. JOHNSTONE, Esq.

NON-COMPETITIVE EXHIBITS.

There are always a fine lot of groups at Richmond exhibited by the trade and others. Mr. H. J. JONES, Ryecroft Nursery, Lewisham, had a very pretty ground group of Begonias and excellent Gloxinias; Messrs. T. S. WARE, Ltd., Hale Farm Nurseries, Tottenham, a group of their excellent Begonias, such as exhibited at the Temple Show; Messrs. HILL & SON, Lower Edmonton, made a splendid exhibit of Ferns; Messrs. RIVERS & SON, Sawbridgeworth, had Peach and Nectarines similar to those noticed at the Drill Hall on the previous day; Mr. J. RUSSELL, Kew Road Nurseries, Richmond, a group of Ivies in pots, a group of hardy trees and shrubs, and other exhibits; Messrs. PEED & SONS, West Norwood, a fine display of Gloxinias, Carnations, and Caladiums, the last-named forming a very large group; Messrs. FAOMON & SONS, Chiswick, a group of Acers; Mr. W. IOSTON, Grand Nurseries, Putney, a group of fine-foliated plants; Messrs. CUTBUSH & SON, Highgate, a group of Malmalson Carnations; Messrs. VEITCH & SONS, Royal Exotic Nurseries, Chelsea, cut Roses and hardy flowers; Messrs. J. CARTER & CO., High Holborn, a miscellaneous group of plants; Mr. N. THOMPSON, Sheen Nursery, Richmond, Hydrangeas, &c.; Messrs. H. CANNELL & SONS, Swanley, Stocks and Aquilegias; Messrs. PAUL & SON, Cheshunt, Poppies and Roses; Messrs. Geo. JACKMAN & SON, Woking, hardy flowers, &c.

An interesting group of hardy Lillies, in pots, were shown by A. W. WOOTEN, Esq., Amyard Park Gardens, Twickenham. Lillium Henryi was upwards of 8 feet in height, and varieties of L. Thunbergianum one foot in height.

MARKETS.

COVENT GARDEN, JUNE 29.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Anemones, dozen bunches	— —	Marguerites, p. doz.	— —
Arum Lilies, dozen blooms	— 8 0	Maidenhair Fern, per doz. bunches	3 0-4 0
Asparagus "Fern," bunch	2 0-8 0	Narcissus, White, dozen bunches	1 6-2 0
Azalea, white, 12 bunches	2 0-8 0	Orchids, per dozen blooms	6 0-12 0
Azalea mollis, per dozen bunches	6 0-9 0	Paeonies, doz. bun.	6 0-12 0
Bouvardias, per bun.	0 4-0 6	Pelargoniums, doz. bunches	4 0-6 0
Carnations, per doz. blooms	1 6-8 0	— scarlet, doz. bun.	6 0-8 0
Cornflowers, dozen bunches	— —	Roses (indoor), per dozen	1 6-2 0
Daffodils, per dozen bunches	— —	— Pink, per dozen	4 0-6 0
Eucharis, per dozen	2 0-8 0	— Tea, white, per dozen	2 0-8 0
Gardenias, per doz.	1 0-3 0	— Perle, per doz.	1 0-2 0
Iris, p. doz. bunches	6 0-9 0	— Safrano, p. doz.	1 6-2 0
Lilium longiflorum, per dozen	4 0-6 0	Similar, per bunch	8 0-6 0
Lily of the Valley, per doz. bunches	4 0-12 0	Spiraea, doz. bun.	4 0-6 0
Mignonette, doz. bun.	2 0-8 0	Stock, doz. bunches	2 0-8 0
		Sweet Peas, dozen bunches	6 0-8 0
		Tuberose, 12 blms.	0 8-1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Fuchsias, per dozen	6 0-10 0
Aspidistra, p. doz.	18 0-86 0	Hydrangeas, p. doz.	6 0-10 0
— specimen, each	5 0-10 0	— paniculata, doz.	18 0-24 0
Bouvardias, p. doz.	18 0-42 0	Lycopodiums, doz.	8 0-4 0
Calceolarias, p. doz.	5 0-9 0	Marguerite Daisy, per dozen	6 0-8 0
Enonymus, various, per dozen	6 0-18 0	Mignonette, p. doz.	4 0-8 0
Ferns, in variety, per dozen	4 0-12 0	Palms, various, ea.	1 0-15 0
— small, per 100.	4 0-6 0	— specimen, ea.	21 0-68 0
Ficus elastica, each	1 0-5 0	Pelargoniums, var.	6 0-10 0
Foliage plants, var., each	1 0-5 0	— Zonals, per doz.	6 0-8 0
		Roses, per dozen	6 0-9 0
		Spiraea, per dozen	4 0-6 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian and Victorian, French Crabs, Pearmain, New York Pippin, Sturmer, &c., per case	8 0-10 0	Grapes Channel Isles Hamburgs, lb.	0 10-1 8
Apricots, box of 12 or 15, good	1 8-1 6	— Muscats, A., lb.	1 8-2 6
— in sieve	8 0-10 0	Lemons, Naples, per case of 300.	18 0 —
— basket, about 10 lb.	3 0 —	Lyches, Chinese, packet, 1 lb.	1 8 —
Bananas, per bunch	7 0-10 0	Melons, each	1 6-2 0
Cherries, Eng. Bilka, sieve	9 0-11 0	— Foreign Rock...	1 6-2 6
— white, sieve.	6 0-8 6	Nectarines, A., per dozen	10 0-15 0
— Dukes, sieve.	9 0-10 0	— B., per dozen...	4 0-8 0
— Foreign, sieve.	8 0-14 0	Oranges, Murcia, various numbers, from 96 to 150	—
Figs, per dozen	5 0-8 0	Peaches, A., per dozen	10 0-15 0
Gooseberries, sieve	2 6-3 0	— B., per doz.	4 0-8 0
Grapes, English, Hamburgs, A., per lb.	2 0-2 6	— Foreign, box of 12	1 6 —
— B., per lb.	0 10-1 3	Pines, St. Michaels, each	8 0-6 0
— Muscats, A., per lb.	2 6-3 0	Plum, box...	1 6-2 0
— B., per lb.	1 9-2 3	Strawberries, in punnets, dozen	4 6-9 0
— Belgian, per lb., new	0 5-0 6	— Southampton, baskets	1 0-3 0
		— Kent & Middx. in pecks, from...	4 0-6 0
		Royal Sovereign	4 0 —

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	1 0-2 0	Mushrooms, house, per lb.	0 8-1 0
Asparagus, Spruce Eng., bundle	0 4-0 6	Onions, Egyptian, cwt. bag	3 6-4 0
Beans, English, Dwarf, per lb.	0 6-10	— Oporto and Valencia, cases	6 6-7 6
— Longpods, in sieves	1 0 —	— new, bunches	4 0-6 0
— Dwarf, Channel Islands, lb.	0 6-9 0	Parley, new, dozen bunches	4 0-6 0
Beetroots, per doz.	1 0-1 6	— sieve	1 0-2 0
— bushel	8 0-8 6	Peas, blues, per bushel	2 6-6 6
Cabbage, tally	3 0-8 0	— bags	5 0-6 6
— per bushel	1 6 —	— white, per bus.	2 0-8 6
— dozen	1 0-2 0	— bags	3 6-5 6
Carrots, new French, per bunch	0 5-0 6	Potatoes, new Jersey Kidneys, cwt.	6 6-7 0
— English, per dozen bunches	1 6-4 0	— Jersey, cwt.	6 6-7 0
Celery, new, per bundle	1 6 —	— Lincoln, cwt.	6 6 —
Cress, per dozen punnets	1 6 —	— Kent, pr. bush	4 0 —
Cucumbers, per dozen	2 6-3 6	— Cherbourg, per cwt.	5 0 5 6
Eggs, new French, per dozen	1 0-2 0	Radishes, round, breakfast, per dozen bunches	1 6-1 9
Garlic, per lb.	0 8 —	Rhubarb natural, per dozen bundle	1 0 —
Horseradish, English, bundle	2 0 2 6	Salad, small, punnets, per dozen	1 8 —
— loose per doz. fine	1 6 —	Shallots, new, doz. bunches	1 6 —
— foreign, per bundle	1 0-1 8	Spinach, per bush.	2 0-3 0
Leeks, per dozen bunches	1 6 —	— New Zealand, per peck	1 6 —
Lettuce, English, Cabbage, dozen	0 9-1 0	Tomatoes, new English, per lb.	0 5-0 6
— Cos, per score	1 0-1 6	— Channel Islands, p. lb.	—
Martrows, Veg., doz.	4 0 —	— Valencia, p. box	10 —
Mint, per dozen bunches	4 0-6 0	— French, crates 1 c.	—
		Turnips, new, bun.	0 5-0 6
		Watercress, p. doz. bunches	0 4-0 6

POTATOES.

Jersey, new, 6s. to 6s. 6d. per cwt.; Cherbourg, cwt., 5s. to 6s. John Bath, 23 and 24, Wellington Street, Covent Garden.

REMARKS.—New Carrots from Essex and Bedfordshire are now coming in, also Potatoes from Kent and Lincoln. Asparagus is nearly over for this year, most of our home producers ceasing to cut about June 24. Strawberries now coming freely to market, some Royal Sovereigns being very good. The price fluctuates greatly even in the course of a single day. Some Apricots sent to market in sieves to-day appeared to be of good quality; Cucumbers are easier in price, and English Cherries are now coming in fast.

CORN.

AVERAGE PRICES OF British Corn (per Imperial qr.), for the week ending June 24, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	40 8	25 7	- 15 1
Barley	24 8	28 2	+ 1 6
Oats	30 7	17 11	- 2 8

FRUIT AND VEGETABLES.

GLASGOW: June 28.—The following are the averages of the prices recorded since our last report:—Cherries, 6½d. to 7½d. per lb.; quarters, 7d. to 8d. do.; boxes, 2s. 6d. to 3s. each; Apricots, 1s. 2d. to 1s. 4d. per box; and 3s. 6d. per basket; Gooseberries, 12s. to 14s. per cwt.; do., Dutch, 10s. to 11s. per cwt.; Grapes, Belgian, 1s. per lb.; do., Guernsey, 1s. 6d. to 1s. 9d. do.; English do., 1s. 6d. to 1s. 9d.; Strawberries, Cornish, 5s. to 7s. per dozen punnets; do., Southampton, 4s. to 4s. 6d. per basket; Melons, Guernsey, 2s. to 2s. 9d. each; Tomatos, Scotch, 10d. to 1s. 4d. per lb.; do., English, 8d. to 9d. do.; do., Guernsey, 7d. to 8d. do.; Cucumbers, 3s. 6d. to 4s. per dozen; Turnips, Dutch, 5s. per mud; Carrots, do., 1s. 3d. to 1s. 4d. per dozen bunches; Cabbages, 7d. to 1s. 6d. per dozen; Cauliflowers, Edinburgh, 2s. 6d. to 4s. do.; Mint, green, 6d. to 9d. per bunch; Onions, 4s. 6d. to 5s. per cwt.; Parsley, 2s. to 4s. per stone; Lettuce, round, 1s. 3d. to 1s. 6d. per dozen; do., Cos, 1s. to 1s. 3d. do.; Radishes, round, 9d. to 1s. 6d. per dozen bunches; Mushrooms, 1s. to 1s. 3d. per lb.; Beetroot, 6d. to 7d. per dozen; Rhubarb, 1s. 3d. to 1s. 6d. per cwt.; French White Turnips, 8d. to 9d. per bunch; new Carrots, round, 9d. per bunch.

LIVERPOOL: June 28. — Wholesale Vegetable Market. — Potatoes, per cwt., Early Regents, 5s. 6d. to 7s.; Jersey, 5s. 6d. to 9s. 6d.; Main Crop, 2s. to 3s. 6d.; Kidneys, 10s. to 13s.; Bruce, 1s. 8d. to 2s.; Turnips, 6d. to 10d. per dozen bunches; Carrots, 10d. to 1s. do.; Parsley, 6d. to 8d. do.; Onions, foreign, 2s. 6d. to 3s. 6d. per cwt.; Lettuce, 4d. to 8d. per doz.; Cucumbers, 1s. 8d. to 3s. do.; Cabbages, 6d. to 1s. do.; Peas, 2s. to 3s. per bushel. St. John's.—Potatoes, 1s. per peck; do., new, 1d. to 2d. per lb.; Grapes, English, 1s. 6d. to 3s. do.; Pines, English, 4s. to 6s. each; Currants, red and white, 6d. per lb.; Strawberries, 4d. to 8d. per lb.; Gooseberries, 3d. per quart; Peas, 1s. to 1s. 4d. per peck; Cherries, 6d. to 8d. per lb.; Cob Nuts, 6d. do.; Apricots, 1s. per dozen; Asparagus, 2s. to 3s. per 100, and 1s. 6d. to 1s. 8d. per bundle; Cucumbers, 3d. to 4d. each; Mushrooms, 1s. 4d. per pound and basket. Birkenhead.—Potatoes, 1s. per peck; do., new, 1d. to 2d. per lb.; Peas, 10d. to 1s. 6d. per peck; Asparagus, 2s. 6d. to 3s. per 100; Cucumbers, 2d. to 6d. each; Strawberries, 6d. to 10d. per lb.; Cherries, 6d. to 8d. do.; Currants, 8d. do.; Apricots, 1s. per dozen; Gooseberries, 3d. per lb.; Grapes, English, 1s. 6d. to 3s. per lb.; Mushrooms, 1s. to 1s. 6d. do.



[The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.					10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
	Above (+) or below (−) the Mean for the week ending June 24.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since January 1, 1899.	Below 42° difference from Mean since January 1, 1899.				
0	2 +	92	0	+ 85	— 50	aver	107	22.1	13
1	1 +	97	0	+ 87	— 20	aver	99	15.5	12
2	1 +	107	0	+ 136	— 93	4 +	90	11.0	15
3	1 +	118	0	+ 121	— 196	1 +	82	9.7	28
4	1 +	114	0	+ 117	— 141	4 +	82	12.5	23
5	1 +	127	0	+ 193	— 133	1 +	71	10.4	30
6	0 aver	98	0	+ 67	— 49	aver	103	23.1	19
7	1 +	113	0	+ 163	— 146	6 +	94	16.0	28
8	1 +	113	0	+ 208	— 121	3 +	89	19.7	39
9	2 —	88	0	+ 80	— 72	1 —	108	17.2	23
10	2 —	93	0	+ 186	— 54	1 +	92	20.3	24
* 0 aver	120	0	+ 380	— 67	4 +		80	14.1	42

The districts indicated by number in the first column are the following:—

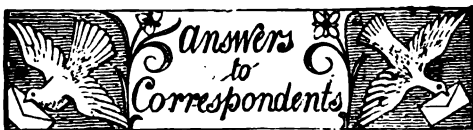
- 0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, E.; Principal Graving, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

GARDENING APPOINTMENTS.

MR. DANIEL CRUDEN, Foreman, Ballikilrain Castle, Balfon, Stirlingshire, as Gardener to R. REID, Esq., Killellan, Campbellton, N.B.
MR. H. T. WILSON, as Head Gardener to H. A. PORTER, Esq., Cranbourne Court, Windsor Forest.

TRADE NOTES.

WE understand that Mr. G. Bethell, who has had the management of Mr. William Whiteley's nursery at Hillingdon Heath for the last seven years, has resigned, with the intention of going into business on his own account.



A "SINGLE-HANDED" GARDENER'S SITUATION: F. S. Have nothing to do with a man who has such a multiplicity of jobs for his gardener, many of them outside his strict business, and who pays a wage not much higher than that of a day-labourer. We do not consider that any good purpose would be served by publishing your letter.

BOOKS: W. B. *My Gardener* was written by Mr. H. W. Ward, gardener for many years at Longford Castle, Salisbury. The publishers were Eyre & Spottiswoode, East Harding Street, E.C., and not Walter Scott, Limited, as you suggest.—C. A. F. *The Nature, Uses, &c., of Fungi*, by Cooke; published at 5s. (International Scientific Series).—G. D. 1. The book you mention, published in 1801, will be of no service to you now; 2. We do not know the book; get Bentham's *Illustrations of the British Flora*, which is within the price you mention. It may be had of Lovell, Reeve & Co., Henrietta Street, Covent Garden; 3. The true *Juniperus bermudiana* is not, so far as we can make out, in cultivation now, unless, perhaps, at Kew. Several things are grown under the name.

FIGS IN UNHEATED HOUSE: E. S. G. Mouldiness attacks the fruits because the house has not sufficient ventilation afforded to rid it of the dampness arising from the border. Do not ply the syringe on the trees over-much whilst ripening fruits are hanging upon them—once a day, about 3.30 P.M., being sufficiently frequent even in bright weather; and in dull weather, merely damp the path. About 7 P.M. open the upper sashes or ventilators a little.

FRUIT TREES: W. H. M. We can only suppose that the nurserymen's land suits the trees in all respects, and the cultural treatment is correct. A great deal depends on the proper use of insecticides and fungicides, and the nursery trees being small, both pests are easily seen, and readily dressed with these things.

MOSS ON FLOWER POTS: F. de L. The growth of moss or of *Marchantia* on the soil in flower-pots may generally be taken as an indication of excess of moisture and deficient aeration, due to insufficient drainage. If the soil be heated before use, or if boiling water be thrown upon it, the germs would probably be killed.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—G. P. A variety of *Pyrus Aria*.—W. C. Z. The specimen seems to be *Tecoma (Bignonia) grandiflora*, although this plant does not grow into a bush unless compelled to do so.—W. F. *Gunn*. 1, *Carex ovalis*; 2, *C. hirta*; 3, *C. sylvatica*; 4, *C. vulgaris*; all these plants are known as Sedges.—C. A. F. *Agaricus campestris*. One of the numerous varieties of the edible Mushroom. See also "Books."—A. F. C. 1, *Ranunculus Lingua*; 2, *Salix repens*; 3, *Orchis maculata*; 4, *Spergula arvensis*.—G. H. S. 1, *Alstremaria pelegria*; 2, *Hyacinthus comosus*; 3, *Veronica stricta*; 4, *Syringa Josikaea*; 5, *Picea Clanbrassiliana*; 6, *Juniperus communis*.—*Palmata*. 1, *Campanula glomerata*; 2, *Dictamnus fraxinella*, white; 3, not found; 4, *Tradescantia virginica*; 5, *Epilobium montanum*, withered; 5, *Silene maritima*, double-flowered.—A. D. W. *Marchantia polymorpha*.

—J. W. *Syringa Josikaea*.—J. Symon. *Cytisus Laburnum Adami*, a graft variety of the common *Laburnum* worked with *Cytisus purpureus*.—E. M. 1, *Metrosideros floribunda*; 2, *Pernettya mucronata*; 3, *Diplopappus chrysophyllus*; 4, *Cornus (Benthamia) fragifera*.—*Rockwork*. 1, *Saxifraga umbrosa*, but no leaf sent; 2, *Sedum rupestre*; 3, *Senecio Doronicum*; 4, *Doronicum plantagineum*; 5, *Hieracium aurantiacum*; 6, *Cratogeomys cordata*.—K. B. 1, *Geranium pratense*; 2, *Lychnis vespertina*.—D. C. *Chimonanthus occidentalis*, in fruit.—G. B. 1, *Lilium pomponium*; 2, *Philadelphus grandiflorus*; 3, *Geranium pratense*.—Map. *Astrantia major*.—G. C. 1, *Picea Alcockiana*; 2, *Citrus myrtifolia*; 3, *Philadelphus coronarius variegatus*; 4, *Escallonia macrantha*.—*Junco*. *Philomis fruticosa*.—*Kylemore Castle*. *Pernettya mucronata*.—D. Y. L. C. 1, *Tilia americana*; 2, *Fraxinus excelsior* var. *monophylla*; 3, *Rhamnus alpinus*; 4, *Gaultheria Shallon*.—R. A. *Rubus nutkanus*.

NOTICE TO QUIT: H. G. and E. G. G. We think that you are entitled to a month's notice, or money in lieu thereof, notwithstanding you do not live on the premises, and there is no agreement. Gardeners are, in law, classed with domestic servants, and the employer has to pay male servant's tax for them, precisely as he must do in the case of the latter.

ODONTOGLOSSUM CRISPUM: F. de L. The spotting is not sufficient to render the variety of any particular commercial value.

PEARS CRACKED IN THE SKIN: W. H. M. Caused by a fungus, *Cladosporium dendriticum*; see *Gardeners' Chronicle*, November 5, 1898, for figures and description of this fungus. Try weak solutions of the Bordeaux Mixture twice or thrice during the summer as a preventative.

ROSE: G. S. Probably the effect of frost on the growing shoot.

SOLANUM DISEASED: W. W. The blisters along the veins of leaves bear a fungus resembling those which cause the "Anthracoses" on many plants. The position of the blisters is, however, just in the places where insects might harbour, although no insects were found. The plants might be thoroughly sprayed, especially on the under surface of the leaves, with potassium sulphide (½ oz. in each gallon of water). This will check the fungus, which is not a very serious one.

TOMATO: G. W. G. Probably the sleepy disease, but we cannot be sure without seeing the leaves.

TOMATOS DISEASED: S. H. The yellowish spots resemble those caused during the early stages of attack by certain fungi, although no fungus is yet evident. A good many greenflies were present. The leaves look robust, and the check might easily be caused by a slight mistake in cultivation. A thorough spraying with dilute Bordeaux Mixture would do no harm; at the same time it looks as if ventilation (without draught), and less moisture on the foliage, would do much to help.

COMMUNICATIONS RECEIVED.—F. S. & Co.—R. B.—H. C.—Laxton Bros.—W. T. T.—W. G. S.—D. T. F.—L. L.—W. P.—T. F. Jones.—Blackie & Sons.—Hawkins.—E. M., show report, unavoidably delayed.—N. W. P.—A. C.—A. O'N.—J. O.—F. S.—J. H. B.—R. P. B.—W. Early.—E. W. D.—J. Hughes.—A. H.—W. S.—J. Seden.—E. C.—T. B.—J. O'G.—R. D.—B. W.—G. Massee.—G. A. B.—R. M.—Cowie & Co.—J. H. B.—Ben. Reid & Co.—F. Stenl.—U. D.—A. A. F.—H. C.—M. F.—E. D. S.—Comte de K.—E. H.—E. S.—J. W. P.—F. de L.—R. B.—C. H. M.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—F. D. H.—F. S. & Co.—H. C. & Sons.—Bart & Sons.—R. J. L.—J. V., Ghent.—R. L.—R. A. R.—W. P.—F. D. H.

DIED.—On June 21, at his residence, Houns-low, WILLIAM, eldest son of the late STEPHEN SPOONER, of the Houns-low Nurseries, in the forty-seventh year of his age.

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS, AND GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION and that it is preserved for reference in all the principal libraries.



THE Gardeners' Chronicle

No. 654.—SATURDAY, JULY 8, 1899.

HYBRIDS AND THEIR RAISERS.

(Continued from vol. xzv, p. 292.)

THE HARDY AZALEAS.—Nearly all the really hardy Azaleas are deciduous, and with the exception of *A. pontica*, from the Levant, the few species which formed the parents of the great majority of the now numerous varieties, are natives of North America, and though introduced into Europe at intervals between the years 1734 and 1818, little was done for a long time by way of producing new varieties by hybridisation.

It would appear that the first person to attempt crossing the American Azaleas was a M. Mortier, a baker residing in Belgium. He commenced with the species *A. pontica* and *A. calendulacea*, and also impregnated the pollen of the former with that of *A. viscosa*. These attempts afforded this enterprising amateur a greater result than he anticipated, and the produce was the foundation of a new and very distinct section denominated *tardives*. In this class was displayed, it is said, all the variations of which the Azalea is capable. It appears quite certain that the Azalea became very popular in Belgium before it was so in this country, but the work of improvement has been carried on with great success in both countries. *A. viscosum* ♀, and *A. calendulaceum* ♂, were crossed by Herbert, with the result that several varieties differing in colour were obtained. Gowen, of Highclere, crossed *A. viscosum* ♀ and *A. flavum* ♂, raising many new varieties.

In later years the Chinese *A. sinensis* and the Californian *occidentalis* have been judiciously mingled with the hardy sorts, the result being increased size, improved form, and clearer colours of the flowers, as well as prolonged duration. With not a few very handsome and attractive double varieties, Mr. Anthony Waterer proved highly successful in raising new forms at the Knap Hill Nursery, which are being much employed for forcing purposes. His son (see p. 27) is continuing the work of the father.

Belgian raisers are really too numerous to mention specifically. No one who has seen the magnificent displays at Ghent of the mollis and sinensis sections, can doubt the skill of our Belgian friends. *R. D.*

THE RHODODENDRON.

Probably *R. ponticum*, *R. catawbiense*, *R. caucasicum*, and a form known as *R. maximum* were the only hardy Rhododendrons cultivated in this country about seventy years ago which were deserving of being named. The marvellous improvement which has been effected in the hardy Rhododendron came chiefly through crossing the hardy, late-flowering species with the early Indian types, particularly the crimson *R. arboreum*; and it is no doubt to this species we are indebted for most of the shades of scarlet, crimson, and pink which are so much admired to-day. Of hardy varieties, the first results of hybridising in this direction was *R. altaclarensis* ×. [According to Dr. Focke, in *Die Pflanzen Mischlinge*, J. R. Gowen, of Highclere, Hants, in 1826, was the first to obtain seeds by crossing a hardy species with the pollen of *R. arboreum*, and from the seeds resulting he

raised 1800 seedlings, of which Lord Carnarvon retained a portion, the remainder being distributed among numerous English and Scottish gardeners, and possessors of gardens. The first correctly described and illustrated form of Gowen's crossings was *R. × altaclarensis*; and about the same date several English nurserymen obtained similar hybrids. Ed.] *R. Smithi* was raised by Smith of Norbiton, from *R. ponticum* × *R. arboreum*; and *R. Nobleanum* from *R. caucasicum* and *R. arboreum*. This latter cross produced dwarfier plants than the other hybrids of *R. arboreum*, and the flowers were chiefly crimson and red with purple spotting.

R. Russellianum × was first raised by Russell, of Battersea, and described by Sweet. Herbert raised seedlings from the same cross, viz., *R. catawbiense* and *R. arboreum*, giving it the name of *R. Haylocki*, a form which he described as being distinct, and easily recognised by means of the foliage.

It would be difficult to trace the various acts of hybridisation in exact chronological order, but among the first to make the attempt were Smith, of Norbiton; Russell, Battersea; Burn, Tottenham Park, Wilts; Mr. Carton and his employer, J. R. Gowen; Messrs. Anthony, John & Hosea Waterer, of Bagshot and Knap Hill; Messrs. Standish & Noble, of Bagshot; Messrs. Lee, of Hammer-smith; Baker, of Windlesham, and many others.

Mr. F. Burbidge, in his work on the *Improvement of Cultivated Plants*, points out that "as a rule, the sorts which have arboreum blood in their veins perish—generally root and branch. [If *R. arboreum* is the seed-bearer, but they are hardy if arboreum is used as the pollen-parent; and for this reason raisers have ceased to use it as the seed-bearer. Focke, in "*Die Mischlinge*." Ed.] Those of the *R. ponticum* strain are apt to sustain much injury to their blossoms. It is only those bred from *R. catawbiense* that escape with impunity, and these in a greater or lesser degree, in accordance with the influence of their ancestors, in cases where intermixture of blood has taken place."

In all the various crosses made during the last half century, attention has been paid both to the hardihood and habit of the parents, *R. catawbiense* being much employed as seed parent. From *R. caucasicum* appear to have been derived the early-flowering dwarf varieties, which are generally numerous in collections.

In a comprehensive sketch of the various crosses made with the Rhododendron, Mr. Burbidge states that Mr. John Standish, while gardener to the Duchess of Gloucester, at Bagshot Park, was one of the first to improve the hardy Rhododendrons with the Indian species, commencing soon after the introduction of *R. arboreum*, and one of his first hybrids was *altaclarensis* × (see above). Mention may here be made of *R. campanulatum* (D. Don) × *R. arboreum*, nearly allied species of which twelve examples were raised at Preston Hall. The crosses are hardy in the milder parts of these islands. Other crosses were *R. c.* and *R. cinnamomeum*, *R. glaucum*, and *R. ciliatum*; and further, a number of greenhouse hybrids. Another race came from the North American species; *R. maximum*, fertilised by pollen from *R. arboreum*, raised among others by Herbert, and in the second generation, a numerous and varied progeny was produced. *R. altaclarensis* was employed to fertilise varieties of this race with great success. A purple form of *R. ponticum* crossed with *R. altaclarensis* gave a series of beautiful varieties, and so on with other crosses. Work of this character was also carried on by MM. Lemichez on the Continent with considerable success.

Scarcely less satisfactory have been the series of crosses made with the Indian species, many glorious varieties of which are to be found in various parts of the country. The earliest-known forms, such as *R. arboreum*, *R. Nuttalli*, *R. Aucklandi*, *R. Edgeworthi*, &c., were crossed to some purpose, and among the progeny were *Sesterianum* = *R. formosum* ♀, *R. Edgeworthi* ♂, *R. Fortunei*

× *R. Thomsoni* (Luscombe); the well-known Countess of Haddington, raised by Mr. Lees, gr. to the Earl of Haddington, at Tynninghame. Mr. Fraser, Leith Walk Nurseries, obtained Duques of Buccleuch; and Messrs. Isaac Davies & Son, of Ormskirk, obtained a new race by crossing the Himalayan species with hybrids of dwarf growth—such varieties as Countess of Sefton, Lady Skelmersdale, and others, resulting. J. Anderson Henry possessed a triple bastard from *R. Dalhousiae*, *R. ciliatum*, and *R. Nuttalli*. These require cold-house culture, and bloom early, freely, and finely.

Quite a new section of greenhouse Rhododendrons has been obtained by Messrs. James Veitch & Sons through a cross between the Javanese *R. javanicum* and *R. jasminiflorum*; from this originated a variety named *Princess Royal*; and the last-named, crossed with *R. Lobbi*, have given a numerous progeny of varied colours and sizes, including very fine double varieties. The name of Mr. John Heale (see p. 7, ante), of the Chelsea Nurseries, should be mentioned in connection with this race, the varieties of which require a warmer temperature than the Himalayan species, in which to flower.

Among German raisers the Messrs. Seidel, of Dresden, take a prominent place; and the Belgians have raised a distinct group which they call *Azaleodendron*, a name which recalls their origin. *R. D.*

THE PINK.

Mr. F. W. Burbidge is not alone in holding the opinion that "it is difficult to say with any degree of certainty exactly what plants were the parents of these old garden flowers," though some say it is a progenitor of *Dianthus plumarius*; while others assert that, like the Carnation, it originated from *D. caryophyllus*, or Clove-scented Pink. One of the latest raisers of laced Pinks is Mr. James Thurstan, and his experience in rearing seedlings, extending over many years, led him to the conclusion, from the variable character of the progeny, that the Carnation and Pink proceeded from one common parentage.

Thos. Fairchild, a gardener in London, raised, according to R. Bradley, at the commencement of the seventeenth century, a bastard *Dianthus* from *D. caryophyllus* ♀, and *D. barbatus* ♂, which since that time has gone under various names—Fairchild's Sweet William, The Mule, *D. hybridus*, hort., &c. Gaertner says, however, that such a cross is not successful.

It is recorded that previous to 1772 there were but four sorts of Pinks, and these of little note, being cultivated only as common garden flowers. A Mr. James Major, at the time gardener to the Duchess of Lancaster, in the South of England, saved some seed in 1771, and from it reared several plants, which, blooming the next season, one out of the number proved to be a double flower, with laced petals, at which he was agreeably surprised. He was advised to increase the stock on one variety, and sold plants to the public under the name of Major's Duchess of Lancaster, the orders for which amounted to the sum of £80. It is probable that no new Pink raised since made such a sum as that. A Pink named *Lady Stoverdale* is said by Maddock to have been the first laced Pink; but there is on record the testimony of Mr. Major that *Lady Stoverdale* was not raised by him till two years after his Duchess of Lancaster, it being a seedling from it.

Our laced Pinks of the past forty years have originated, in many instances, from careful fertilisation of varieties either to obtain a perfect red or perfect purple lacing, these being the two shades of colour on the edge. Those who have mostly contributed to the lists of named sorts have been Looker, Dr. Maclean, of Pea fame; Hale, Bragg, Norman, Turner, Hooper, the Rev. Charles Folwell, Paul, &c. But this fragrant subject, as an exhibition flower, has fallen upon evil days, and is now rarely seen in complete laced character.

There are now many distinct and showy border varieties of considerable merit which are much

grown for cutting purposes, raised by Messrs. Hooper, Dean, Ladhams, Lakin and others, generally compact in growth, and very free of bloom. R. D.

THE CARNATION.

Dethyoke, in his *Gardeners' Labyrinth*, published in 1586, and Parkinson in his *Paradiseus*, published in 1629, divided Carnations as then grown into two classes, viz., Carnations, being the largest in flower and leaf; and Gilloflowers, the latter being of less size in both cases. Parkinson says they were then "the chiefest flowers of account in all our English gardens." It is held that the first improved varieties were brought to this country from Flanders by the Protestant worsted manufacturers, driven thence by the persecution of Philip the Second, and settled in Norwich in 1567. The Orange Tawney, or Yellow Gilloflower, was not introduced until about thirty years after, for Gerard in 1597 says:—"A worshipful merchant of London, Master Nicholas Lete, procured it from Poland, and gave me thereof for my garden, which before that time was never seen or heard of in these countries."

All the colours we now find in the Carnation appear to have been known to the older florists, and the varieties had so largely increased in number, that in 1702 Rea enumerated 360. Then some attempts at classification were made, and we find them arranged as *Flake Carnations*, having only two principal colours, disposed in broad flakes or stripes quite through the petals. *Bizarre Carnations*, having three or four different colours, red, purple, scarlet, &c., in different shades, irregularly disposed in spots and stripes. *Piquette Carnations*, having always a white ground, pounced or finely spotted with red, scarlet, purple, or other colours; and *Painted Lady Carnations*, having the petals a bright red or purple above, and entirely white beneath.

According to Maddock (1792), the varieties of Carnations cultivated in this country, up to about 1740, were bursters, i.e., being possessed of a great number of petals, by their swelling caused the calyx to burst, but by the introduction from France at that time of a strain denominated Whole-blowers, in which the calyx was preserved in an entire state, they soon obtained a decided preference. Maddock, at this time, informs us that the smooth edge to the petals of the flowers had largely taken the place of those with serrated edges.

Neither Maddock nor Thomas Hogg throw light upon the names of those who were the raisers of their day. W. B. Page, in his *Prodromus* (1817), divides *Dianthus caryophyllus* into two sections, viz., "Clove Carnations," and "flor. variegatus, variegated flowers, of these there are forty fine sorts, with named flowers."

Hogg in his *Treatise on the Carnation*, said that "A florist who raises six new Carnations in his lifetime may be considered fortunate." The two principal raisers of Carnations fifty and sixty years ago, were a Mr. May, of Sonning, and a Mr. Puxley, of South Wales, the latter earliest in the field. By 1850, Mr. Puxley had raised nearly six times six varieties; and Mr. May, who began about 1846, had raised some sixteen varieties in about three years, and he made a point of naming all his flowers (he raised Picotees also) after Shakspearian characters; an older raiser was Ely, also Holloway, Milwood, Brabbin, and others.

The names which pre-eminently stand out as raisers during the past twenty-five years are the late Mr. E. S. Dodwell, Mr. James Douglas (ante, p. 5), and Mr. Martin R. Smith (see p. 23). Mr. Dodwell, first at Derby, then at Clapham, and finally at Oxford, spent a lifetime in improving his favourite flower, and enriched collections with varieties of high merit. Mr. Smith is still at work. He has raised the standard of quality in a remarkable degree, enriching the self, fancy, and yellow-ground sections with varieties as superb in quality as many of them are distinct in character. Nor must the labours of Turner, Douglas, Simonite, Abercrombie, Lord, Payne, and others be forgotten.

If Mr. Ernest Benary, of Erfurt, had done nothing else but raise Germania and Stadthaus Bail, with the delicate but beautiful heliotrope-tinted Theodore, he would have laid the Carnation growers of to-day under obligation to him. All those whose names have been mentioned were, and are, systematic cross-breeders, working by scientific methods to reach certain desired ends.

THE TREE OR WINTER-FLOWERING CARNATION, doubtless originated as a sport from the ordinary summer-flowering type, and has been perpetuated by florists because blooming in winter and spring. The Malmaison type, which flowers in the spring, is so distinct in character, owing to its larger foliage and robustness of growth, as to form a distinct race. It is said to have originated in the gardens of the Empress Josephine at Malmaison—hence its name. By means of cross-fertilisation and selection, Mr. Martin R. Smith has been able to produce several varieties varying in colour from white to deep crimson. R. D.

THE CINERARIA.

In volume iv. of the *Cottage Gardener* for 1850, it is stated that the earliest raisers of varieties of the Cineraria was Mr. James Drummond, curator of the Botanic Gardens, Cork, in 1827, and he then stated that he annually cultivated many. Cinerarias were his great greenhouse favourites, and he says, "Except in cases when it becomes desirable to preserve any particular variety for its superior beauty, I prefer raising the Cineraria cruenta every year from seeds which the plant perfects with me in the months of April and May. Care should be taken to select the finest varieties, and those which produce the finest heads of flowers." It will be thus seen that Mr. Drummond had already commenced selecting the very finest varieties for seed purposes.

One of the earliest recorded varieties was C. Waterhouseana, raised by Mr. James Tate, gardener to John Waterhouse, Esq., Well Head, Halifax, "by intermixing and hybridising the various species." This being so, it would seem that Mr. Tate commenced as early, if not actually earlier than Mr. Kelway, the work of improving the Cineraria. The record states: "It flowers in March, and continues in bloom towards the end of June or July."

It has been claimed for the late Mr. James Kelway, whose portrait we gave on p. 343 of our previous volume, that he was one of the first to raise improved forms of the Cineraria from C. cruenta, commencing this work in 1837, but he was forestalled by both Mr. Drummond and Mr. Tate. Still, he deserves credit for what he did in this direction: from his seedlings he selected two of the most distinct, one dwarf in growth, the other tall. From these he raised others, and so gradually selected until the Langport strain became famous. It has been stated that the woolly-leaved C. lanata and an old slender-habited C. aurita were also employed as seed-parents, but no results of their productiveness have, so far as we know, been placed on record; and the hybrid origin of these plants is questioned by no less an authority than Sir William Thiselton-Dyer. Mr. R. Irwin Lynch (p. 27) is one of those who is endeavouring to solve the question by direct experiment.

From this point onwards, it may be assumed that our modern strains of Cinerarias are the result of careful selection. The *Florist's Guide* for 1850 gives an excellent coloured illustration of four named varieties, in which we can see the flower emerging from the star-shaped type of C. cruenta, and gradually becoming quite smooth and circular on the edges of the ray florets. The leading raisers in those days were Ivery of Peckham, Kendall of Stoke Newington, Henderson of St. John's Wood, Gaines of Battersea, and others. During the next ten years the Cineraria was very popular, and varieties were named for some years after, until the strains grown became of such high quality, that naming became unnecessary. Foremost among the raisers may be mentioned Mr. James and his son, W. J. James (p. 23).

The introduction of a dwarf strain from the Continent helped to reduce the height of growth, and some new colours were obtained from the same source. Then came the re-introduction of C. cruenta, and now raisers are proceeding along much the same lines as Drummond, Tate, and Kelway did a half century or more ago. So floricultural history repeats itself.

Double varieties of Cinerarias, some of them having large, symmetrical, and handsome flowers, have appeared from time to time, but it can scarcely be said they have become popular. It is recorded that the first double varieties came from Germany about 1874, and in alluding to them the late Mr. Thomas Moore said in the *Florist*, "Double-flowered Cinerarias are not absolute novelties, for we remember having seen exhibited in London, in 1861, by Mr. Kendall, of Stoke Newington, a variety called C. rosea plena, to which a commendation was then awarded, and which was a very pretty, compact-growing, double-flowered variety, with the flower heads of a magenta-rose. Whether that was lost or not, or did not perpetuate itself, we do not know, but it was not seen again in public, nor has a double-flowered Cineraria appeared since that time, so far as we are aware, till this year, 1874." Some fine varieties were exhibited in 1876-77 by Messrs. E. G. Henderson & Son, plants generally of dwarf growth, very free blooming, the blossoms large, full, and rounded, varying in colour from blush to rose and lavender. Occasionally, plants put in an appearance, and at the spring show of the Royal Botanic Society in the present year, a really magnificently-bloomed batch of varieties was exhibited by Messrs. James Carter & Co., of Holborn, which emphasised the value of the double forms as decorative plants. R. D.

THE FUCHSIA.

One of the earliest to attempt the improvement of the Fuchsia was Mr. W. H. Story, of Newton-Abbot, Devon. [The gardeners about the year 1825 began to hybridise the Fuchsia, namely, F. coccinea ♀, and F. arborescens ♂; and F. macrostemma ♀, and F. arborescens ♂; and Beaton believed that the cultivated varieties conica, gracilis, tenella, and virgata were the result of the first-named of these crosses. F. globosa came from F. macrostemma and conica. Ed.] Seedlings were being raised in those days by various persons, but no records of systematic crossing appear to have come down to us until Mr. Story made use of a reputed species, named F. radicans, or affinis, and selected to cross with it seedlings of the highest colour, having expanding sepals, and freedom of blooming. It was Mr. Story more than any other raiser, who laboured to make the sepals first horizontal, and finally recurved. In 1843 Pince's Exoniensis appeared, and Mr. Story made use of this for crossing purposes, but the results were failures for some reason.

About this time Mr. Lobb sent home to Messrs. Veitch & Sons some fine species from Peru; such as serratifolia, apetal, decussata, pendula, macrantha, &c., and pollen from these was used by Mr. Story; while Messrs. Veitch & Sons had some curious hybrids from F. macrantha and F. serratifolia, and these were employed by Mr. Story upon some of his best seedlings. The *Florist* for March, 1850, contains a coloured plate of Mr. Story's seedlings, in which can be traced the gradually lengthening of the tube, which was one of the aims sought by Mr. Story, and the reflexed sepal was already manifesting itself.

Mr. John Salter, during the time he was in business at Versailles, France, raised and distributed a number of varieties up to the middle of the forties. And in the early fifties Mr. T. Cripps of Tunbridge Wells also distributed several new varieties; and among them Venus de Medici, about 1856, which we are informed it was attempted to again send out as new in 1873.

In his work on the *Propagation and Improve-*

Clio, Perfection, and others, including Prince Albert, a fine dark variety, in which the sepals were handsomely recurved. Mr. Story can claim the credit of raising the first white corolla variety, which he named Queen Victoria, and which was regarded as a great novelty at the time, and its flowers were eagerly looked for. Its parentage



C. E. SHEA.
(CHRYSANTHEMUMS.)



MARTIN R. SMITH, V.M.H.
(CARNATIONS.)



H. WEEKS.
(CHRYSANTHEMUMS.)

ment of Cultivated Plants, Mr. F. W. Burbidge informs us that "the first white-sepalled Fuchsia was Venus Victrix. This was raised by Mr. Gulliver, gardener to the Rev. S. Marriott of Horsemonden, Kent. It was sent out by Messrs. Cripps of Tunbridge Wells, in May, 1842, at one guinea each," and this variety was the forerunner of a whole race of beautiful white-sepalled flowers. This old, distinct, and highly popular variety, finds a place in the Catalogue of Messrs. H. Cannell & Sons nearly sixty years afterwards.

Meanwhile, Mr. Edward Banks of Deal had been at work for several years, but his methods of procedure have not been put on record. It is quite certain that by 1855 he had raised such popular varieties as Glory, Autocrat, Queen of Hanover,

In 1846, Mr. J. Sheriff, of Bromsgrove, Birmingham, raised a very distinct variety from a named variety, known as Wilmore's No. 2, which he named *Scarlatina reflexa*, such names being common in those days; and it was a leading variety up to 1851. Mr. Stokes, of West Bromwich, was another well known raiser in the Midlands, and the flowers raised by the two aforementioned, were sent out by Messrs. Henry Mayle & Co., nurserymen, of Birmingham, a charming light variety, raised by Mr. Stokes about 1849, with blush-white tube and sepals; and a crimson corolla, and named Hebe, was distributed in 1851, and is figured in the *Birmingham and Midland Counties Gardeners' Magazine* for 1852. The appearance of this Fuchsia led to a sharp controversy as to the length of the tube. It was



JAMES LYE.
(FUCHSIAS.)



ROBERT FENN.
(POTATONS.)

came about in this way: Mr. Story obtained from Mr. Veitch, of the Exeter nurseries, some pollen from a species with a small and almost white corolla, and transferred it to a dark variety, obtaining a batch of seedlings of which Queen Victoria was one. I think I am correct in stating that two years or so afterwards, an improved form was sent out from France, followed later by the double-white corolla Madame Cornelissen.



W. J. JAMES,
(CINERARIAS, &c.)

held by London authorities of that time that the sepals of the flower should reflex, and cover the whole of the tube, and so form a ball, with the corolla issuing from the base of it. It is, perhaps, well that the Birmingham growers warmly protested against this, and held up the long-tubed Hebe as their model flower.

In the fifties, quite a host of raisers at home and abroad were seeking to improve the Fuchsia. A published list in 1856 shows that Mr. Edward Banks was far away the leading raiser; while Messrs. E. G. Henderson & Son, of the Wellington Road Nursery; George Smith, Tollington Nursery, Holloway; C. Turner, Slough; W. J. Epps, Maidstone, and others, were sending out new varieties. This list is interesting, as containing some varieties which made a great reputation in their day, and held their own for many years—Duchess of Lancaster (Henderson), Maid of Kent (Banks), Prince Albert (Banks), Queen of Hanover (Banks), and Venus de Medici (Banks). About this period, Mr. Edmund Bland was conspicuous for the new Abutilons and Fuchsias that he raised, a list of which was given in our columns, Feb. 3, 1894, p. 146. Mr. George Fry, whose death we recently chronicled, was also a great Fuchsia-raiser, whose achievements have recently been chronicled.

Ten years after (1866), Mr. Henry Cannell, then at Woolwich, was a Fuchsia specialist, and some years previously, when a private gardener, had taught his contemporaries how to grow splendid specimens. The leading varieties were Minnie, La Favorita, Gipsy Girl, Puritan, Prince Alfred, all raised by Mr. Banks; Rose of Castille, Sir C. Campbell, Schiller, Enoch Arden, &c.

It was about this time that Mr. James Lye, of Market Lavington (see p. 23), began to raise new varieties, which he continues to do to the present day, and also to produce magnificent examples of exhibition specimens at Trowbridge, Bath, and elsewhere, which have made the West of England famous for their production. R. D.

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

HYBRID ANTHURIUM.

I SEND you per parcel-post a flower of a hybrid Anthurium raised in my hot-house. I crossed Anthurium Clarkianum (a form of Andreanum purchased of Pitcher & Manda) in the spring of 1894 with A. ornatum, the latter being the seed-parent. The only plant raised from the cross is now blooming for the first time, and plant as well as flower appear to be fairly intermediate between the two parents. The leaves (last leaf is 14 inches by 8½ inches) resemble those of the pollen-parent A. Clarkianum, being oblong, cordate, the base of the leaf not surrounding the petiole as in Anthurium ornatum. The flower, which is thrown far above the foliage, has a stalk 21 inches long. The spathe, which is 5½ inches long by 4 inches broad, is of a beautiful whitish mother-of-pearl colour and lustre, with faint pinkish lines, and two faint blush bands on each side the median line. The surface is not irregularly wrinkled, as in the pollen-parent (Andreanum variety), but perfectly smooth, and forming an angle with the spadix, which is exactly intermediate between those of the parents. The spadix is 2½ inches long, its lower half a greyish-violet, upper half of a light carmine. The form and outline of the spathe are almost exactly those of the Andreanum variety, and quite different from those of the seed-parent. A. W. Hoisholt, Stockton, California.

C. E. SHEA AND THE CHRYS- ANTHEMUM.

As a raiser and hybridist, Mr. Shea (p. 23) is best known for his work among the Chrysanthemums. Mr. Shea's results are the more valuable in that they are due not to haphazard procedures, but to purposeful intent. Mr. Shea knows what he wants

to do, and what are the most likely or most available methods of attaining his end.

Mr. Shea's 1st object has been—to prove the possibility of fertilising and ripening seed of the Chrysanthemum in England.

The result has been the production of many popular new varieties, including Dorothea Shea, Elsie Teichmann, Silver King, Maggie Blenkiron, &c. Incidental to the foregoing, demonstrating the great power in the hands of the fertiliser in producing definite and foreseen results, both as to colour, habit, and season of flowering.

2. Experiments to get a blue Chrysanthemum—(a), by selection and blending of varieties, white and those most tending to blue in the spectrum; (b), and by cross-fertilisation with the nearest allied species having blue flowers.

The results are still in the experimental stage. In one case a hybrid appeared to have resulted, the plant showing distinctly modified foliage, and bore blooms in pairs, each pair differing in colour. The position of the arrangement of the sexual organs of the blooms also differed slightly from those of the ordinary Chrysanthemum. The plant was very weak and small, and got killed while Mr. Shea was abroad. He, however, pollinated some Chrysanthemums from it, and the offspring showed—and still show—a curious "webbing" on the backs of the petals. These conclusions must be held to be too doubtful for definite assertion of success.

3. Efforts to produce sports and variations in foliage in Chrysanthemums—(a), by injection of acids (formic and others) and alkalies into the stems; (b), by starvation of the plants; (c), by admixture of various substances (notably sulphur) with the soils.

Results—(a), generally death of shoot operated on; (b), established a general disposition to sport. Clearly a step in the right direction, but giving no clue to any law; (c), one variety—"Croda"—produced variegated foliage, and still shows it. "Croda" was raised by the crossing of Edward Molyneux and another variety, neither of which had ever been known to show variegated foliage.

4. Attempt to cross *Primula sinensis* and *P. obconica*. The results were submitted to the Scientific Committee of the Royal Horticultural Society last year, when the general opinion was that the cross had been made.

THE BOTANY OF THE LILIES.

THE genus *Lilium* is one of several which are more interesting to the horticulturist than to the botanist. In almost every case the gardener calls his Lilies by their botanical names. There are not many horticultural varieties, as in some other groups. For these reasons the literature of the genus, which is rather extensive, has always been, and should always remain, rather horticultural than botanical.

The *Gardeners' Chronicle*, foremost among other horticultural periodicals, has been the medium of publication of many important contributions to this subject. Taking this in connection with the fact that a great deal of the best work with Lilies has been done in England, I am led to feel a considerable responsibility to the *clientèle* of this magazine when I make a contribution to the confusion of the genus *Lilium*.*

The botany and nomenclature of the Lilies are very much confused already, from the circumstance that they have been long known, cultivated, and admired. I can hardly hope that the study which I have given the genus will clear up many of the disputed points; but horticulturists and botanists will find it convenient, I hope, to have the Lily names gathered all together once, where we can see the group at one view. It is now a quarter of a century since Mr. J. G. Baker made his monograph and twenty-two years since Elwes published his monu-

* F. A. Waugh, "A Conspectus of the Genus *Lilium*," *Botanical Gazette*, Chicago, April and May, 1899, vol. xxvi. pp. 235–254, and 340–360.

mental work. Since that time many new species have been added to the list, and some fresh light has been thrown on such as were imperfectly understood before.

In the publication in the *Botanical Gazette* here referred to, I have numbered sixty-four species in the genus *Lilium*, which, with their varieties, stand as follows:—

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|---|--|
| Sub-genus I., <i>Eulirion</i> , Baker. | 29. <i>L. papilliferum</i> , Franchet. |
| 1. <i>L. philippinense</i> , Baker. | 30. <i>L. Henryi</i> , Baker. |
| 2. <i>L. Wallichianum</i> , Sch. f. | 31. <i>L. auratum</i> , Lindley. |
| 3. <i>L. sulphureum</i> , Baker. | 32. <i>L. speciosum</i> , Thunb. |
| 4. <i>L. neilgherrense</i> , Wight. | var. <i>rubrum</i> , Hort. |
| 5. <i>L. longifolium</i> , Thunb. | var. <i>album</i> , Hort. |
| var. <i>eximium</i> , Nicholson. | Sub-genus IV., <i>Martagon</i> , Rupp. |
| 6. <i>L. yunnanense</i> , Franchet. | 33. <i>L. puberulum</i> , Duch. (L. Humboldt). |
| 7. <i>L. Delavayi</i> , Franchet. | 34. <i>L. Martagon</i> , Linn. |
| 8. <i>L. japonicum</i> , Thunb. | 35. <i>L. maculatum</i> , Thunb. (L. Hansoni). |
| var. <i>Browni</i> , Nicholson. | 36. <i>L. superbum</i> , Linn. |
| var. <i>roseum</i> , Hort. | var. <i>Carolinianum</i> , Chapm. |
| 9. <i>L. candidum</i> , Linn. | 37. <i>L. occidentale</i> , Purdy. |
| 10. <i>L. Lowi</i> , Baker. | 38. <i>L. pardalinum</i> , Kellogg. |
| 11. <i>L. primulinum</i> , Baker. | 39. <i>L. angustifolium</i> , Kell. (L. Roelli). |
| 12. <i>L. nepalense</i> , D. Don. | 40. <i>L. Columbianum</i> , Hort. (L. parviflorum). |
| 13. <i>L. rubellum</i> , Baker. | 41. <i>L. talense</i> , Franchet. |
| 14. <i>L. Parryi</i> , Watson. | 42. <i>L. lankongense</i> , Franchet. |
| 15. <i>L. Washingtonianum</i> , Kellogg. | 43. <i>L. avenameum</i> , Fischer. |
| var. <i>purpureum</i> , Masters. | 44. <i>L. monadelphum</i> , Blieb. |
| Sub-genus II., <i>Isolirion</i> , Baker. | 45. <i>L. Ledebouri</i> , Baker. |
| 16. <i>L. philadelphicum</i> , Linn. (L. auricum, Gawl.). | 46. <i>L. polyphyllum</i> , D. Don. |
| 17. <i>L. medeoloides</i> , Gray. | 47. <i>L. carniolicum</i> , Bernh. |
| 18. <i>L. concolor</i> , Salisb. | 48. <i>L. Maximowiczii</i> , Regel (L. Leichtlini and L. pseudo-tigrinum). |
| var. <i>sinicum</i> , Lindl. (Buschianum). | 49. <i>L. testaceum</i> , Lindl. |
| var. <i>pulehellum</i> , Baker. | 50. <i>L. ochraceum</i> , Franchet. |
| var. <i>partheaeum</i> , Baker (L. cordicum). | 51. <i>L. Fargesii</i> , Franchet. |
| 19. <i>L. Davidi</i> , Duch. | 52. <i>L. pomponium</i> , Linn. |
| 20. <i>L. formosum</i> , Franchet. | var. <i>pyrenaeum</i> , Baker. |
| 21. <i>L. bulbiferum</i> , Linn. | 53. <i>L. chalcidonicum</i> , Linn. |
| 22. <i>L. croceum</i> , Chaix. | 54. <i>L. callosum</i> , Steb. & Zucc. |
| 23. <i>L. elegans</i> , Thunb. | 55. <i>L. setchuense</i> , Franchet. |
| var. <i>fulgens</i> , Baker (Batemanii). | 56. <i>L. tenuifolium</i> , Fisch. |
| var. <i>atrosanguineum</i> , B. & D. | Sub-genus V., <i>Pseudomartagon</i> , Waugh. |
| var. <i>aluaceum</i> , B. & D. | 57. <i>L. Bolanderi</i> , Watson. |
| var. <i>bicolor</i> , Moore. | 58. <i>L. Grayi</i> , Watson. |
| var. <i>plenum</i> , Waugh. | 59. <i>L. parvum</i> , Kellogg. |
| var. <i>Wallacei</i> , Waugh (L. Wallacei). | 60. <i>L. bitidum</i> , Hort. |
| 24. <i>L. myriophyllum</i> , Franchet. | 61. <i>L. maritimum</i> , Kellogg. |
| 25. <i>L. Catesbei</i> , Walt. | 62. <i>L. canadense</i> , Linn. |
| 26. <i>L. Bakerianum</i> , Coll. & Hem. | var. <i>rubrum</i> , Britton. |
| | var. <i>flavum</i> , Hort. |
| | 63. <i>L. Purdyi</i> , Waugh. |
| Sub-genus III., <i>Archilirion</i> , Baker. | Sub-genus VI., <i>Cardiocrinum</i> , Lindl. |
| 27. <i>L. tigrinum</i> , Andrews. | 64. <i>L. cordifolium</i> , Thunb. |
| var. <i>splendens</i> , Licht. | 65. <i>L. giganteum</i> , Wallich. |
| var. <i>plenevans</i> , Waugh. | 66. <i>L. mirabile</i> , Franchet. |
| 28. <i>L. oxypetalum</i> , Baker. | |

This arrangement of the names is, I think, conservative. No new species have been made, and no new names introduced where it did not seem entirely unavoidable.

There is not space here to discuss the reasons for adopting one name to replace another, as has been necessary in a few cases. The reasons for such steps will appear fairly well from the text of the article in the *Botanical Gazette*.

The largest accession of species comes from Franchet, in his contributions to the sixth volume of the *Journal de Botanique*. It is interesting to note the large number of species added from China. In so far as these have come into cultivation, they are very acceptable acquisitions (e.g., *L. Henryi*).

It will be seen that there is a considerable number of species still to be introduced to cultivation. When we get them all a thriving in our gardens, what a showing it will make! F. A. Waugh, Burlington, Vt., U.S.A.

TREES AND SHRUBS.

CERCIS CANADENSIS (AMERICAN RED-BUD).

APPARENTLY this species fills the same space in the flora of Eastern North America that the common Judas-tree (*C. siliquastrum*) does in Europe. For the gardens of the South of England, it is evidently not the equal of the European one; it has, at any rate, been in cultivation since 1730, and is still uncommon. But as there are parts of this country where the Judas-tree is not strictly

hardy, it might be worth trying there, for it comes from localities where a great winter cold is experienced, and, on the authority of Prof. Sargent, it is hardy in parts of the United States where no other species of *Cercis* will survive. I have not seen plants more than 6 feet high, although doubtless there are such in England. I believe Mr. Lynch has a good specimen at Cambridge. A plant has recently been in flower at Kew. The flowers are rosy-pink, and borne in fascicles as in the Judas-tree, but the individual flowers are smaller. When seen at its best, it is, no doubt, as handsome as the European species, for Prof. Sargent observes that in parts of the United States it makes a "beautiful and conspicuous feature in the landscape." It can be very readily distinguished from *C. siliquastrum* when in leaf by the leaves being pointed and bright green above, whereas in *C. siliquastrum*, the apex is very rounded and the surface conspicuously glaucous. *W. J. Bean.*



HENRY ECKFORD.
(SWEET PEAS, FLORISTS' FLOWERS, &c.)

preference being given to such Roses as bloom in the summer, and again more or less in the autumn.

I notice in a continental journal a number of varieties mentioned as being good for this purpose. I know nothing about them, but give a few names:—*Coquette des Blanches* (N.H.), *Claire Carnot* (N.H.), *Mdlle. Blanche Dürrschmidt* (N.H.), *Blanche Lafitte* (B.), *Emotion* (B.), *Kronprinzessin Victoria* (B.), *Madame Eugénie Resal* (B.), *Bridesmaid* (T.), *Eliza Fugier* (T.), *Fürst Bismarck* (T.), *Jean Pernet* (T.), *Papa Gontier* (T.), *Triomphe de Pernet* (T.). Will some Rose-grower kindly state what is known of these varieties, and if they are likely to be good doers in this country? I find the names of many well-known modern Roses of the Tea, Bourbon, and Hybrid Noisette sections in the list of group Roses, and the list is evidently written by a gardener possessing an excellent knowledge of Roses. *M. W.*



A. BLEU.
(CALADIUMS, GLOXINIAS, ORCHIDS, &c.)



C. T. DRURY.
(FERNS.)

THE ROSARY.

BEDDING-OUT VARIETIES OF ROSES.

As Rose-growers in a general way, we all know what excellent Roses the commoner varieties make as bedders planted in the mass, so as to produce colour-effect in this concern. I refer more especially to such varieties as have a stiff erect habit, or which, having long pliable shoots, possess also stiff flower-stalks capable of holding the flowers erect, so as to avert the splashing of the flowers with earth by heavy rain. Of the first-named, the erect-habited Roses, I may mention *Boule de Nanteuil*, *Duchess of Buccleuch*, *D'Aguisau*, *Kean*, *Marjolin*, and other Gallicas; most of the Moss Roses and hybrids from them, and Hybrid Perpetuals, such as *Crimson Bedder*, *Horace Vernet*, *John Hopper*, *Lady Suffield*, *Magna Charta*, and *Lord Macaulay*. Of those with pliable shoots, I refer to such Roses as *La France*, *John Stuart Mill*, *Camille Bernardin*, *Duke of Edinburgh*, *Prince Camille de Rohan*, &c.: these are good Roses that anyone could ill afford to dispense with; still, if newer varieties could safely be planted as bedders, it would give added interest to the Rose-garden in which colour-effects are a desideratum,



JAS. O'BRIEN, V.M.H.
(NERINES, &c.)

ALFRED BLEU,

Of 48, Avenue d'Italie, Paris, is known to the world of horticulture as the raiser of most of the finest *Caladiums* at the present time in cultivation (p. 25). The evolution of the quaint and showily-coloured leaves of these plants seems to follow so closely on his wishes in that direction that his friends say that he has only to imagine a new *Caladium* and forthwith it appears. But the admirers of his novelties in this line cannot know the great amount of thinking required in order that a wished-for result is achieved. Later, M. Bleu engaged in hybridising other species of plants having fine foliage, and then he turned his attention to Orchids, among which he had many successes, viz., *Cattleya* × *calumnata*, which made a great stir when it flowered for the first time, which, when crossed again with *Cattleya Mossiæ*, gave *C. × Parthenia* and its pretty varieties. But perhaps the most beautiful of M. Bleu's hybrids is *Miltonia* × *Bleuana* (*vexillaria* ♀, *Rozeii* ♂), a very handsome hybrid, giving great variety.

JAMES O'BRIEN, V.M.H.

ALWAYS took interest in hybridising and endeavouring to improve the plants at his command. He made the earliest use of the striped-leaf *Amaryllis reticulata* for crossing with the *Hippeastrums*, the best being named *Amaryllis O'Brieni*. Subsequent to the appearance in gardens of tuberous *Begonias Sedeni* and *boliviensis*, he was the raiser of the first eight new ones, which included a good white; and later the first two double-flowered tuberous *Begonias*. *Gloxinias* were improved by him by crossing *Gloxinias* with *Sinningia*. He carried out the hybridising of other plants, but perhaps the most enduring was the happy use that he made of a pretty but rather weedy-looking *Sonerila* detected on a freshly-imported Orchid, and which, on flowering, Mr. O'Brien crossed both ways, the result being the many pretty varieties, both as regards foliage and flowers, named *Sonerila Hendersoni*. Also *Nerines*, of which *N. atrosanguinea*, *N. cinnabarina*, and *N. Manselli* are yet the only hybrids which in their classes have excelled the best of the species, such as *N. Fothergilli*, &c., as *N. O'Brieni* and its numerous varieties are still the best of the *N. pudica* crosses. He also raised the earliest hybrids of coloured-leaved

Dracenas. At the present time he is best known as honorary secretary of the Orchid Committee of the Royal Horticultural Society, Orchids having been his special forte through life.

FOREIGN CORRESPONDENCE.

THE GENUS NICOTIANA.

PROFESSOR DR. O. COMES, Director of the Botanical Institution at the Royal School of Agriculture at Portici, near Naples, the author of the work *Del Tabacco*, which has been translated into almost all the modern languages except German, at the expense of the government of the respective States, is occupied at present with a *Monograph of the Genus Nicotiana*, which will appear in French.

By long years of study, especially of living specimens, which hitherto has never been to such an extent at the disposal of either Dunal or any other writer on the subject, Professor Comes has come to the conviction that it is desirable to reduce the fifty-eight species noted down of *Nicotiana* to forty-one. This is an energetic proceeding, but it is entirely sound according to our opinion, and such a reduction will also aid in simplifying the confusion of forms and hybrids of the genus *Nicotiana*. Professor Comes reduces the ten species of the class *Tabacum*, enumerated by Dunal, to one good species. He cancels *N. ipomopsisiflora*, Dunal, which he scarcely considers a form of the *N. trigonophylla*, Dunal, and transfers *N. plantaginea*, D. Candolle, to its right place in the *petunioides*! *N. auriculata*, Br., *N. petiolaris*, Schl., and *N. pilosa*, Dunal, have a hybrid character; while *N. loxensis*, H. B. & Kunth, *N. lancifolia*, W., and *N. chinensis*, Fischer, are mere varieties. All of these belong, according to him, to the type *Tabacum*, and have no right to figure as different kinds, however much the individual hybrids and varieties may deviate from each other in time, in this or that district, in the various climates and soils. The representatives of the typical *N. rustica*, which are cultivated in the present day in the immense tracts from the river Amazon northward to Canada, and which several authors have noted as various kinds are: *N. texana* (Naudin), *jamaicensis* (Ten.), *brasilia* (Schränk), *humilis* (Schränk), *asiatica* (Schränk), and *scabra* (Cavaliér). For the rest the acute observations and proofs of the author's statements show undoubtedly the work to be not only an excellent treatise, but also one that will be useful to scientific institutions, botanists, and naturalists, as well as in a special degree to all tobacco-planters and the cultivated trading public. *C. Sprenger, Naples.*

ORCHID NOTES AND GLEANINGS.

LÆLIA JONGHEANA.

It is not yet generally known that this plant has been in England in thousands for more than six months. On November 4, 1898, F. Sander & Co. sold a large importation at Protheroe & Morris' Rooms, under the title of *Lælia pumila* var., which their collector discovered while searching for *L. Jongheana*. The plants bore numerous pods, and dead blooms on them, amply sufficient to show anyone who knows the true plant, that its re-discovery was accomplished by the firm to which we are indebted for so many recovered plants, as well as new ones. It was previously so scarce, that very few people had seen it. I was one of the few, and at once pronounced it *L. Jongheana*. Many did not agree with me, but time and the blooming of the plant by Mr. Keeling (*Orchid Review*, June, 1899) have proved my opinion correct. Readers may fancy my object in this note is to publish my own knowledge. Far from it. I have only for my object to claim for the year 1898 the re-introduction of this plant, and not for 1899, as stated in an advertise-

ment. The plant is a difficult one to establish, as all can testify, and with its re-introduction Mr. Sander might tell us its exact treatment required, or as nearly describe its habitat so as to enable growers to meet its wants better than we at present know them. Microscopical examination of the leaf reveals to me a structure capable of dealing with heavy torrential rain, mingled with intermitted blazing sunshine. *De B. Craichay.*

ABNORMAL FLOWERING OF DENDROBIUM DALHOUSIEANUM.

At Gallowhill gardens, Paisley, there is a plant of *Dendrobium Dalhousieanum* with two flower-spikes coming from the root. The flower-spikes of this variety usually come from the top of the stems, but these two spikes I allude to strike from the same joints as the roots just at the level of the soil. *Robert Macfee.*

LINDENIA.—The plants figured in the 7th and 8th parts of the *Lindenia*, lately published, but dated February and March, are:—

CATTLEYA LABIATA Lind., var. LILACINA.—A form with bluish-lilac sepals, the disc of the lip rich purple, and the throat golden-yellow with purple stripes; t. DCLXIX.

ODONTOGLOSSUM CORADINEI var. MOORTEBEKEIENSE.—A star-shaped flower, with narrow, acute segments, heavily blotched with chestnut-brown spots, the outer segments are yellow, the petals whitish, the lip pale yellow, with chocolate-coloured spots. The plant illustrates the difficulty experienced in drawing any definite line of demarcation between *O. Coradinei* and *excellentis* and *O. Wilckeanum*. *O. Coradinei* was conjectured by Reichenbach to be a natural cross between *O. triumphans* and *O. odoratum*; t. DCL.

ODONTOGLOSSUM CRISPUM var. TIGRINUM.—The flower-segments taper from a broad base, are wavy at the margins, white, with rich reddish-brown blotches; lip cordate ovate acute, yellow at the base; t. DCLI.

LÆLIA PRÆSTANS var. LEE-MANNI, L. Lind.—Flower-segments white, spreading; lip convolute, white at the base; anterior lobe expanded, rounded, somewhat two-lobed; violet, with a yellow throat; t. DCLII.

CATTLEYA TRIANGULARIS Lind., var. CÆRULESCENS, Lind. fil.—Segments white, spreading; outer, oblong-acute; inner ones very broad; lip convolute, white externally; anterior lobe spreading, rounded, with a large bluish-lilac blotch, and a yellow throat, marked with reddish-brown stripes; t. DCLIII.

ODONTOGLOSSUM X SOLEIL DE MUYSEN, Lind. fil.—A form with large, bold, flat flowers; broad, undulated segments; the petals narrow at the base, sharply pointed, yellowish-white, thickly blotched with chocolate. The lip is oblong, somewhat tongue-shaped; lateral lobes spreading obliquely towards the column, whitish, with brown streaks; crest yellow, with small brown linear markings. It is supposed to be a natural hybrid; t. DCLIV.

LÆLIA PRÆSTANS var. ALBO-OCULATA, L. Lind.—Flower nearly wholly white, with, on the front of the lip, two yellow blotches, each terminating in a rosy-violet spot; t. DCLV.

CYPRIPEDIUM INSIGNE, Wall., NOBILE, L. Lind.—A magnificent variety, with large white standard, heavily blotched from the centre downwards with purplish-brown spots; petals yellow, with a lustrous brown flush; lip of the same colour, but more intense, and the margin of the pouch edged with lilac; t. DCLVI.

Most of the above-named varieties were flowered at the Horticulture Internationale, or at Moortbeke. *Odontoglossum Soleil de Muisen* bloomed in the collection of M. Trieu de Terdonck, at the Château of Muisenhuis, at Muisen.

THE FERNERY.

BRITISH FERNS FOR THE GREENHOUSE.

I HAVE become convinced by degrees that the beautiful varietal forms of our native Ferns are indispensable to the amateur who finds himself in possession of a cold greenhouse or conservatory, and knows not how to furnish it. Here, then, are the most suitable plants for this purpose, and more is the pity that their suggestions of coolness, their freshness, and delicacy of their fronds, and their general usefulness, are so little recognized. They may be grown under conditions unsuited to almost every other kind of plant, in aspect the most unpromising, and in partial shade, short of that caused by overhanging trees. My own fernery, which measures 20 feet by 12 feet, has a full southern aspect, a very unsuitable one for plants,

needing much moisture; but by means of roller-blinds, and some permanent summer shading, slate stages covered with broken cinders, a concrete-floor, and water freely distributed, I am able to create the requisite conditions, the success of which I believe is reflected in the freshness and vigour of my Ferns. It follows then that wherever flowers will grow, there also Ferns may be cultivated. And, moreover, what is of still more importance to the average amateur, the dull, dark, shady places are made equally pleasant-looking as crystal houses by the display of those delicate evergreen charms for which some of the forms of British Ferns are so remarkable. Ferns have thus an advantage over flowers; for while the latter are periodic or even spasmodic in their floral effects, the former are evergreen. Do not let me be misunderstood, however, for I do not wish to decry flowers. I love them, as I love the sunshine, the fresh air, or the sights and sounds of rustic life. When I cannot go Fern-hunting, I go flower-searching, and when neither is available I devote my spare time to the cultivation of both.

Ferns.—The growth of British Ferns is worthy of the amateur's best efforts, as it is one which he can take up and develop according to his lights and his leisure. It is an inexpensive hobby after the first outlay; it grows in intensity and interest; it requires no elaborate structure or preparation; and it develops all along the line, especially where spore-raising and crossing are resorted to. Results there must be, normal, peculiar, or unique. "Rogues" will, of course, step in; and forms depauperate and otherwise inelegant, will want to stay; but selection and eradication must be rigorously attended to, and those only that are equal to, or an advance upon, their respective parents, retained to beautify the collection; and to add to the pleasures and experiences of the collector.

To those who have got beyond the initiation stage, and can appreciate a "good thing" when they see it, I say come and see the collection the writer of this note possesses, which contains the best forms of every British species, and it will appeal to the most obstinate despiser of native Ferns, and show the great value and beauty of these plants, as furnishing for the cold greenhouse, &c. *C. B. Green, Acton, W.*

HYBRIDITY.

At one of the meetings of the Royal Society of Edinburgh held this spring, Professor J. Caesar Ewart read the second part of his paper on "Contributions to the Theory of Heredity, Interbreeding, and Variation." He clearly laid down the following propositions. When members of the same variety or race breed together, there was no cross-fertilisation; when members of two different varieties or races were interbred, they had interbreeding; when animals or plants belonging to different species or genera were interbred, they had hybridisation. Cross-fertilisation had two evident and well recognised uses, it led to rejuvenescence, that is it restored the growth-power; and by insuring the intermingling of germ-plasms from two individuals, it favoured the production of new variations. Presumably if cross-fertilisation favoured variations, interbreeding would lead to the like results, but on a grander scale; while interbreeding, if carried far enough, reduces this influence of cross-fertilisation to a minimum. Experience and experiments showed that when two varieties were crossed, the offspring might either resemble the male parent or the female parent; or some might resemble the one, some the other, or all or some of them might unite in different degrees the appearances of both parents. In most cases there was more or less reversion, although it would not be wise to draw far-reaching conclusions from his simple experiments.

Considering the influence of interbreeding in renewing the constitution, Prof. Ewart pointed out that a change in the condition of life seemed to

operate more as an invigorator than to stimulate variation. In other words, while the constitution might be bettered by a change in the environment, active variation was not likely to supervene without the disturbance that accompanied an inter-crossing.

In view of the coming Conference to be held by the Royal Horticultural Society in the gardens at Chiswick, the above views call for special consideration. I agree in the main with Mr. Burbidge's views on the modifying influences of environment. The inferiority of our finest Scotch Gooseberries south of the Tweed first convinced me of the great influence of local soils, climate, surroundings, and quality. I am not sure that I go so far as Mr. Burbidge in the following sentence, though I admit he is a very high authority on the subject. He exclaims, "Nature abhors self-fertilisation, but she specially abhors perpetual cultivation, unless either seed or soil, or both, are continually being changed; or, as in the continuous Wheat-crops of Sir John Lawes', of Rothamsted, sufficient suitable food is provided. Still, it is a

be careful not to underrate the old. Take, for example, the old Ribston Pippin, often spoken and written of as worn out. I boldly affirm that in this year, 1899, there are more and better Ribston Pippins grown in Britain than in any former year of its existence. True, it is generally mounted on a better, more healthy and fertile stock; but surely not a little credit is also due to the latent energy of the sound, good scions of the Ribston Pippin which enabled it to co-operate so effectively with the Paradise and other stocks in rejuvenating its health, intensifying its fertility, and extending its life. *D. T. Fish.*

NURSERY NOTES.

FISHER, SON, & SIBRAY, HANDSWORTH, SHEFFIELD.

THE improvements effected in this nursery during the past twelve years in the removal and conversion of the original houses, and in the erection of new ones, are such that the place may be said to have been remodelled. There are 200 acres of land filled with hardy plants, trees, and shrubs, and all of these bear a remarkable appearance of health and vigour. The Coniferæ are most interesting; Cupressus, Retinospora, Cedars, &c., of sorts, in the freshness of their early summer growths. The Rhododendron quarters were, at the time of my visit, gay with colour, and many of the varieties grown in quantity are in separate batches, so there are beds filled with white, pink, and mauve flowering sorts, and indeed every shade of colour represented by this glorious family. I remarked the clean, straight stems and abundant foliage upon Limes, Oaks, Chestnuts, Beeches, and other deciduous trees. Hardy Clematis grown in pots and plunged in beds there are in large numbers. Mr. Atkinson has carried out the purpose with which he started, and has now both indoors and outside a most varied and extensive collection of plants. The glass-houses are numerous, well arranged, and many are of great length. In each there was perfect order, method, and cleanliness. The paths are made of red tiles, just sufficiently wide to walk along, and were spotlessly clean.

Entering the nursery from the office, we passed through a large show-house, more particularly devoted to foliage plants, and containing *Dicksonia antarctica*, *Araucarias* in different forms, *Kentias*, *Cocos*, *Seaforthias*, *Bamboos*, and a most distinct and bold *Aralia* named *pulchra*, some 5 feet high, with broad shiny leaves, eight of which are developed on one stalk. *Lapagerias* cover a good portion of the roof and end of this structure, and *Cobæa scandens variegata* hung in festoons. The *Croton*-house contained plants from 6 inches high to 4 feet, and they were vigorous and highly coloured. This house was not shaded; the blinds were there, but it is only on an exceptionally hot and glaring day that they are used, and then more for the protection of young and tender leaves than for those already developed; heat, moisture, and strong light are the conditions necessary to the development of *Crotons*, but if one of these essentials be neglected, and either of the others obtain greater influence, the plants will lose vigour, colour, and attractiveness.

A large house full of *Cocos Weddelliana* in different sizes reminds me that at one time £50 and £60 were paid for single plants. There were houses of *Adiantums*, *Pteris*, and other decorative Ferns, as well as the more choice species and varieties; also of stove plants, among which were *Alocasias* and *Anthuriums* in many varieties. Overhead were many *Nepenthes* in baskets, whose pitchers were hanging in quantity, and of capital colour; *N. Curtisii*, *Burkei*, *Mastersiana superba*, *mixta*, were among those noticed. Another house contained a fine lot of the choice *Aralias*, the demand for these being, I was told, greater than at any previous period. The old *Hoya Paxtoni* was

flowering most profusely. *Begonias* in quantity are of a choice strain, whilst of the *Carnations* it is impossible to speak too highly. The tree and *Malmaison* sections are of great vigour, and full of large flowers. Another house contains a splendid lot of the small-flowering *Azaleas*, and among them *A. obtusa* is largely represented. *Vitis purpurea* and *V. Coignetti*, two most useful species for walls and arbours, were also numerous and in good condition.

Of the hybrid greenhouse *Rhododendrons* the stock is great, and though the plants are not quite so large as the specimens the firm used to show some years ago, they are more saleable. The *Duchess of Portland*, *Duchess of Westminster*, and *Countess of Yarborough* are among those for which there are most often enquiries made. For *Lapagerias*, this nursery has been famous for many years, and the *Handsworth* variety is known far and wide; the stock at present is very large, the plants of large size, and growing freely.

In another large house were fine plants of *Araucarias*, including *A. Cunninghami*, *A. excelsa*,



ANTHONY WATERP.

(RHODODENDRONS, &c., &c. SEE P. 21.)

safe rule to alternate crops in fields and gardens. So powerful is the tendency for distribution in all plants bearing seeds or spores, by removal to fresh soils and pastures new, that the contrivances adopted for the purpose seem almost miraculous. Hence," adds Mr. Burbidge, "in rearing cross-bred seedlings, we are, apart from other possible gains, bringing, comparatively speaking, new plants to our old soils (the italics are mine) and climates." And Mr. Burbidge concluded the whole matter almost in the words of Professor Ewart, at the Royal Society of Edinburgh,—"This brings me back to the pith of the whole matter of cross-breeding, viz., that, apart from variety or added value, *per se*, in the produce, we also gain, what is even of more importance, the plants best adapted to particular soils and particular climates or atmospheres."

This literature of hybridisation needs collecting, condensing, and popularising. Special exhibitions should also be held of cross-bred and hybrid plants, side by side with their parents. In our ceaseless efforts to mend Nature by these and other cultural devices, while doing full justice to the merits of new plants, fruits, and flowers, we must



R. IRWIN LYNCH.

(CINERARIAS, &c.)

Napoleon Baumann variety—this is very distinct and dense in growth, and the leaves very glaucous. *A. excelsa glauca* is also beautiful, not quite so robust as the *N. Baumann* variety, but the silvery sheen on its spiny leaves give it a peculiar charm. Palms are grown in great numbers, *Cocos*, *Kentias*, *Geonomas*, &c.; houses 100 feet long are full of the best of these.

The *Orchids* are in fine condition, and many are carrying trusses of flower. *C. Mendeli*, *Warneri*, and *Mossiae* are represented by choice varieties and in great quantity; of the latter, one flower measured no less than 9½ inches across the petals, and the whole of the flower was correspondingly large. *L. purpurata* and *L. tenebrosa* were also very gay. *Cattleya aurea* in baskets was making splendid growths, and pushing up numerous sheaths. *C. Gaskelliana* is also numerous, and full of sheaths. Choice *Dendrobium* hybrids and varieties were worthy attention. *Odontoglossums* are grown in quantity, and are in capital condition, many excellent forms have appeared among them.

Filmy Ferns, *Todeas*, *Trichomanes*, *Hymenophyllums*, in many species, are grown in glass

cases; these were full of clean fronds, and in capital health and colour.

In a large, airy house were some of the best forms of Conifers, Acers, fine-foliaged and variegated forms of all hardy trees and shrubs. These are placed here that the lovely tints and variegation may be the more early and perfectly developed. The results are in every way satisfactory, and one of the most interesting houses in the whole of the nursery was this one.

Out-of-doors there are large beds of Ampelopsis Veitchii purpurea, which retains its foliage and rich colouring much later in the autumn than the type. Breadths of the Golden Elder were common, and a very interesting feature were the bush Ivies grown in pots; many also are planted at the outer edges of beds and borders. This old firm has now passed its third Jubilee, and evidence of further extension is apparent, since ground is being cleared, and foundations of new houses, sheds, and offices are being commenced, as additional conveniences are found to be necessary for the rapid despatch of an ever-increasing business. W. S.

THE HERBACEOUS BORDER.

HELIANTHUS NUTTALLI.

THIS earliest of the perennial Sunflowers is now fully out, in the last week of June. It is described on p. 277 of Asa Gray's *Flora of North America*, and was given to me by a lady for whom it was collected in the Rocky mountains of Wyoming. It grows about 2½ feet high, the flowers are about the size of those of *H. giganteus*, and the habit is neater than that of most of its tribe. It is not yet common in cultivation, and perhaps its early flowering will not be thought a recommendation, but it is a desirable plant for botanical gardens, being a distinct and well marked species. *Helianthella quinquenervis*, often sold wrongly as *H. occidentalis*, is as early to flower, but it is not a true Sunflower. C. Wolley-Dod, Edge Hall, Malpas.

VARIORUM.

REMEDY FOR THE TURNIP-FLEA, OR FLY.—

As considerable damage appears to have been done by the ravages of this pest in different parts of the country, I think it cannot be made too widely known that dressing the seed with turpentine the night before sowing it is a simple and effectual remedy. Several years ago, a farmer, writing from forty years' experience, gave this as an unfailing remedy, and I have tried it since with complete success. While others in the neighbourhood have had to sow a second time in consequence of the attack of the fly, I can show to any of your readers who may care to inspect it, a full and excellent plant from adopting this simple remedy. Half-a-pint of turpentine is sufficient to dress 40 lb. of seed, but I would rather err on the side of using a little more. Paraffin or other oils will not have the same effect. Turpentine being a spirit, penetrates the seed (without destroying its germinating powers), and gives to the young plant a flavour of turpentine, which the fly does not relish, until the plant has got into the rough leaf, when it is safe from further attack. John Hill, Severn Stoke, June 26, 1899. "Worcester Herald."

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By W. STREUNELL, Gardener to the Right Hon. W. H. LONO, Rood Ashton, Trowbridge.

The Cucumber-house.—The principal operations are a daily syringing of the plants once or twice, according to the state of the weather, the stopping of the shoots as the growth proceeds, fastening them to the trellis, and affording water and liquid.

manure to the beds, according to the needs of the plants. The bottom-heat should be maintained steadily at about 80°, and top-dressings of dung and loam afforded at intervals of fourteen days. In Cucumber cultivation, it is prudent to be provided with surplus plants in pots, either seedlings or cuttings, and in sufficient numbers to meet any ordinary emergency. Plants from cuttings fruit quicker than seedlings, but the latter are the more vigorous and enduring. It does not pay to keep plants which have lost their vigour, and it is better practice to replace them with new plants; in fact, start anew, with new soil as well as plants.

Frame Cucumbers.—Much of what has been said about the treatment of the Cucumber in a house applies to frame-culture. The plant needs but little bottom-heat, sun-heat being sufficient with that derived from, perhaps, a bed of leaves used for other purposes early in the season. The ventilation of the frames needs careful attention, especially in "choppy" weather, as when the plants get a check from cold air admitted to the frames, it may cause bitterness and toughness in the fruits. The frames should be syringed and closed by 3 P.M., even when the weather is warm; and while the lights are being partially removed for the purpose, let the needful stopping of the shoots be carried out. Plants may be in vigorous and clean growth, but unless the shoots are often stopped, cropping is slow and uncertain.

Melons.—Fruits approaching ripening will need to be carefully afforded water and air, otherwise splitting will occur, and the fruit spoiled for table use. Some varieties are not affected in this way, but others are very liable to split, as for example, Hero of Effingham and Frogmore Orange, even when the ventilation is carefully done, and artificial heat is afforded, and no syringing of the plants practised. With the change to cooler weather but little shading will be necessary. To plants whose roots have reached the surface, top-dressings of heavy loam mixed with old mortar and ballast may be applied, together with occasional sprinklings of artificial manures, or diluted drainings from the cow-yard. Let the fruits be supported with nets, pieces of board, or slings of stout bast, before they become too heavy. It is a mistaken practice to completely dry off Melon plants when the fruits are approaching ripeness, as then the foliage dies or withers greatly, which, in its turn, affects the flavour of the fruit, and diminishes its size.

PLANTS UNDER GLASS.

By O. B. FIELDS, Gardener to the Dowager Lady HOWARD DE WALDEN, St. James's House, Malvern.

Carnations.—The different varieties of *Souvenir de la Malmaison*, and other early summer-flowering Carnations are now going out of flower, and preparations should forthwith be made to layer shoots for next season's plants. It is a simple and efficient method of propagation at this season if the plants to be layered are put into a cold frame or pit, which has been occupied by early vegetables, as this will contain a bed of soil of the required depth. A commencement should be made with those varieties which have made shoots of a sufficient length to admit of their being layered readily, deferring the layering of such as have not made sufficient growth until later in the month. The healthiest plants should be selected from which to propagate, and if at all infested with green-fly, they must be thoroughly cleansed before being layered by dipping the points of the shoots into some diluted insecticide. The soil having been loosened with a fork to the depth of 9 inches, the plants should be turned out of their pots and planted in a sloping position, so that the shoots which are to be layered may lie upon the surface. The simplest course is to layer each plant as it is planted, it being then more easily manipulated. Previously to layering, some finely sifted, sandy soil, to the depth of a couple of inches should be placed around the plant. Old potting-bench refuse-soil does perfectly well for this purpose. A few of the leaves should then be removed from the base of each shoot, and a slit made with a sharp knife on the under side of the shoot, cutting just below a node, and drawing the knife towards the top of the shoots, and passing it through one joint. This slit should be about 1½ inch in length. A little of the soil should then be removed from under the shoot, which should then be firmly but gently pegged down in the hollow thus made, the hooked peg crossing the shoot at the point where

the transverse incision was made. After layering, water should be afforded to settle the soil. Subsequent treatment consists in keeping the soil moist by sprinkling it with a fine rose water-pot as often as may be necessary; affording a moderate amount of air, and shading lightly during bright sunshine. As soon as the layers are sufficiently rooted, they should be removed from the plants and potted into 3-inch pots, in a compost consisting of two parts loam, one part leaf-soil, and a good sprinkle of silver-sand, and be placed in a cold frame, which should be kept somewhat close and lightly shaded for a few days, after which time the amount of air must be increased and the shading dispensed with, ultimately removing the lights entirely during fine weather. The earliest batch of winter-flowering Carnations should receive the last pinching of the points of the shoots, and as soon as they break they should be shifted into the pots in which they are to flower. Carnations raised from seed sown in February or March will require to be shifted into 48's.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

The Pear.—The pruning of the current season's shoots of trees on walls may commence, growth having been rapid during the past fortnight of hot weather. Earlier pruning was not advisable, in view of a probable second growth, but from the present date to the middle of July is usually considered to be a safe time to begin the summer pruning of the Pear. With a view of not inflicting a check on the growth of the trees, the pruning should be carried out at two operations, that is, by taking the upper half of a tree first, and a week or ten days later the lower half. Cut, or rather with the thumb and pruning-knife, sever the shoot by a sharp twist at about the fourth leaf from the base, excepting all leading or extension shoots, and in the event of any after-growth being made, the two lower buds will then remain dormant. Cordons should be similarly treated, the leading growths being secured in an upright or oblique direction, as the case may be, before getting damaged by the wind.

Peach and Nectarine trees.—The training-in of young necessary shoots and leaders should have timely attention; these being mostly secured by thrusting 6-inch lengths of thin Willow or Privet-twig behind the older shoots and branches; and as the sun is apt to scorch the fruits, the shoots near to a fruit may be temporarily fastened to prevent them blowing about or breaking, and the points allowed to droop, and thus afford shade to the fruits for a time. Where nails and shreds are used, be sure that space be left for the increase of growth, and still more care is necessary when ties of bast are employed. Let the shoots be laid in thinly so as to admit of full development of leaves, without the leaves of one shoot overlapping those of the next shoot below it. The final thinning of the fruits of late varieties should soon be undertaken. During sunny weather let the trees be syringed once a day, either before 8 A.M. or after 4 P.M. By this means red-spider will be kept in check and aphids destroyed. If necessary, the insecticides I have previously recommended should be used in addition to the syringing with clean water. If no copious rains fall during this month, water must be afforded the borders in quantity, that is, enough should be applied as will reach the lowermost roots. The fruits of the earlier varieties of the Peach are swelling fast, still they will not be as early as usual.

Early varieties of the Apple.—The required thinning of fruits on bush-trees, and cordons on dwarfing stocks, should not be delayed. The varieties Ecklinville Seedling, and Lord Grosvenor have set a heavy crop of fruit at Dropmore, and thinning is very much needed.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

The Lawn.—If seeds of grasses were sown in April for renewing or mending the lawn, and the grass has grown sufficiently long to render it desirable to mow it, and a mowing-machine is to be used, the cutters should be set so high that only the taller grasses are cut, and not the shorter bottom grass. Let the lawn be examined care-

fully, and all coarse weeds and grasses spudded out. On light soils, if no rain fall, water must be afforded, preferably in the evening, and the roller applied afterwards. On heavy soils the ground is apt to show cracks and fissures in dry weather, and these should be filled up with some sifted light soil, a little of which may be sprinkled over the surface, in order to keep the young grasses alive. It serves a good purpose to remove the collecting-box of the mowing-machine, and allow the cut grass to lie on the surface. Where turfing was undertaken at a late date in the spring, the same kind of benefit will accrue if the mown grass be left on the turf.

Liliums.—The flower-spikes of *Lilium auratum* and its varieties, *platyphyllum*, *rubrum vittatum*, and *virginale*, will now be showing, and should be staked according to their strength and probable height. The best kind of stakes for this and other purposes are Bamboo rods, which taper nicely, and these should be pushed firmly into the soil, and the Lily stems slung loosely to them. Lily bulbs that were planted this year in a rich soil will require but little manure, but any which may have remained in the same spot for three or four years will be benefited with an occasional application of liquid-manure. All species of Lilies thrive under the same kind of treatment.

Lily of the Valley may be afforded water copiously, and the foliage moistened when the weather is hot and dry.

Gynierum argenteum, and other ornamental grasses, *Hymenocallis*, *Kniphofias*, and many other strong-growing plants, require liberal applications of water during July, and to those which are making weakly growth liquid-manure may be afforded.

Japanese Acers, now making their midsummer shoots, golden-leaved Yews, Cupressus and other conifers of dense growth, sometimes suffer at this season from lack of moisture at the root, and should be afforded water near the stems—a part the rain seldom reaches.

Spring flowering Plants.—If the seeds of Wall-flowers, *Silene pendula*, *Saponaria calabrica*, *Alyssum saxatile compactum*, be sown in drills thinly, the plants will grow sufficiently large without transplantation to be planted direct into the beds in the late autumn. Seeds of the Brompton Stock, Sweet William, *Aquilegia*, and other biennial plants may now be sown in boxes, the latter being placed in a cold frame, and shaded from strong sunshine.

THE ORCHID HOUSES.

By W. H. YORNO, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Temperatures.—Only the warmer divisions need any artificial heat at this season; for although the right temperature may be maintained during genial weather without any fire-heat, even in the East Indian-house, the atmospheric conditions are greatly improved by keeping the water-pipes lukewarm in this section, or where *Phalenopsis*, *Cypripediums*, *Dendrobiums*, &c., are growing. This will serve to stimulate the circulation of the lower stratum of air, and thus prevent a condition favourable to the spread of certain plant pests. The temperature should drop during the night to as near the normal point as possible. A low temperature, in conjunction with a stagnant atmosphere, however, is a condition to be avoided.

Summer Treatment of *Miltonia vexillaria*.—The type form of this showy species has, in most cases, passed out of flower, and the treatment afforded during the next two months is of great importance. Keep the plants cool in a moderately shady and moist house, and afford water with care. Admit abundant air by day and night—especially during the night—so long as the inside temperature is maintained to 58°. The mountain forms, such as *M. v. Klabcockorum*, *M. superba*, and *M. Leopoldi* are still growing, and should be given the conditions described above, except that more water at the root must be afforded.

Miltonia spectabilis and its varieties thrive here in a warm, moist corner of the East Indian-house, where they are well supplied with water overhead. These plants are growing vigorously, and any that require to be re-surfaced should be attended to; but repotting should be deferred until they begin to grow after resting, or soon after the flowers have been removed. Peat and large quantities of drainage materials serve for the rooting medium.

Miltonias flavescens, stellata, Claesiana, Regnelli, candida, and others of this section succeed best in the Cattleya-house. The plants are now growing and rooting freely, and should be afforded abundant supplies of water. *M. Blunii* *Lubbersiana* should be given a moist position in a house where the temperature is a trifle below that of the warm division, and it will require frequent applications of water.

Odontoglossum cirrosum* and *elegans succeed along with *Miltonia vexillaria*. Their period of growth is indefinite, and they should be repotted when the new growths have become a few inches in length. They do not need quite as much water as *O. crispum*.

***Scuticaria Steeli* and *S. Hadweni*.**—The former species, when imported, should be fixed, with the leaves depending, to a raft, first placing a little sphagnum-moss between it and the raft. Suspend the plants in a light position in the warm-house, and afford sufficient water to keep the long, cord-like leaves in a plump condition. *S. Hadweni* is an erect-growing species, and should be planted in a well-drained basket, surfaced with peat and sphagnum-moss. This plant also may be suspended, but in a house having a few degrees less heat.

Acinetas Humboldtii* and *densa will probably need attention now, as they are commencing to grow; and as the spikes take a downward direction, it is inadvisable to place many crocks in the baskets. Two or three round sticks of charcoal laid at right angles to the bottom bars will answer for drainage, providing the basket is a shallow one. A compost of one-third each of fibrous loam, peat, and sphagnum-moss should be worked in amongst the roots, and be carefully afforded water for a time. They are intermediate subjects, and need but little water, excepting when rooting freely. *Luddemania*s are allied subjects, requiring similar treatment, but a slightly higher temperature.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Brussels Sprouts, &c.—The heavy rains will have materially aided in establishing the plants of Brussels Sprouts, Cauliflowers, and other Brassicas lately planted. When the plants have made some progress in height, let the stems be moulded up, in order to steady them, and preserve the moisture about the roots. If clubbing be noticed, lose no time in affording soot-water to which a small portion of salt has been added. Plant out successions as they become fit, affording everything space for sturdy development. Take advantage of showery weather to plant the late Broccolis, Savoyes, Cabbages, &c., and fill vacant plots as fast as these get cleared of their crops. If Potatoland must be utilised, owing to the small extent of the garden, plant in the furrows, and at intervals bend the Potato-baulms down along the rows, so as to admit light and air. When taking heads of Cauliflowers and Lettuces, pull up the entire plant, rather than to leave the stumps and leaves to exhaust the land.

Peas.—The earliest Peas, American Wonder, Chelsea Gem, and William I., are over, and the land may be got in readiness for other crops; and if in the open quarter, Celery-trenches may be thrown out and dunged, or the ground may simply be dug deeply, after heavily manuring it, in readiness for winter Spinach, Turnips, &c. The Criterion Pea is closely following William I., and it has proved to be one of the best second earlies.

Onions.—Now that the rain has moistened the land to a good depth, the bulbs may be still further thinned where left too thickly at the first thinning; remembering, however, that middling sized bulbs are the more useful. If the crop is likely to be a short one, even at this date moderately sized Onion-plants, if carefully drawn and planted in shallow drills with a little soot or guano sprinkled along the rows will make useful bulbs. The tops of the autumn-sown Tripolis, &c., should be pressed over with a stake or a wooden rake, and the flower-stems cut off, and if very large bulbs are required, some kind of artificial manure in minute quantities may be applied in a liquid or dry form.

Potatoes.—If inter-cropping is practised, lift each alternate row of second early varieties for daily use in preference to making a clearance of the entire crop, and by so doing the Savoyes, &c., will obtain more light, and grow stronger and sturdier than other-

wise they would do. When early varieties are ready for lifting, get them dug up without delay, and thus avoid supertuberation; and when dry, store them in a cool, dark place.

Shallots and Garlic.—As the tops of these begin to die away, pull up the bulbs, and as soon as fairly dry remove them to their winter quarters; they must be stored dry, and kept very cool. If some of the roots of Garlic be left in the ground for another year, they, as a rule, make fine, large bulbs.

THE APIARY.

By EXPERT.

Introduction of Queens to Queenless Stocks.—An Apiarist writes, "Being unsuccessful last year in trying direct introduction of an imported Italian queen into a queenless stock of native bees, I adopted the following plan, which might well be called the 'Wells system' of queen introduction (if Mr. Wells does not object). I confined the bees to six frames on one side of the hive by means of a Wells' dummy board, and continued the division through the entrance by placing a 2-inch strip of wood made to project well on to the alighting board. I then liberated the Italian queen and her attendant bees (about 150) on the other side of the dummy board, putting a little naphthaline in both sides of the hive where the queen was, and she soon commenced laying. This stock had a queen when examined about the end of March; she was most prolific last year, and swarmed rather late in June. Her age I do not know, but this spring she did not seem very fit, and at the end of April, I noticed the stock was not working as well as the others, only a few bees carrying in pollen, and these with only half a load; so I suspected something wrong, and found the hive queenless, broodless, and eggless. Last March I drove two of my skeps and united both lots in a frame-hive. Owing, I expect, more to good luck than management, they are now very strong, with nine frames full of brood, but I cannot get them to take to a super. They persist in building queen-cells, and hanging out, although honey is coming in very fast. Can anyone tell me what to do, as I have no drawn-out combs to give them? My other two frame hives are extremely strong, one of them (holding fifteen frames) having brood in twelve frames, and it has two supers on, one of the supers being fit for removal, although only put on ten days ago. Now with regard to my queens, I know that they are all old ones except one hive, from which I had a swarm last year. I should like to re-queen all my stocks in the coming autumn, but try how I may I have never yet seen the queen of any hive. Can you tell me a way out of the difficulty, as it seems to me I cannot re-queen when I cannot find and remove the old ones?" There must surely be some hitch in the arrangements for giving bees access to supers to cause them to refuse possession in such weather as this. We can only advise an examination to be made to find out if there is free access. Queen finding will come with a little experience.

THE GHENT SCHOOL OF HORTICULTURE this week celebrates its jubilee. Established and organised in Van Houtte's nursery, it burst its bounds, and became associated in some degree with the Botanic Garden, the University Professors in the latter establishment sharing in the work of tuition. Crépín, Planchon, Kickx, have been among its Professors; and still the notable four, constituting the four-leaved Shamrock, so-called, are connected with the school in the persons of M. Rodigas (the Director), Van Hulle, Pynaert, and Burvenich. How many men excellently trained it has sent out we do not know; but as the old students are to assemble this week to participate in the functions and festivities, a good opportunity will be afforded of testing the value of the training received. Till lately, we may say up to this time, we have nothing of the kind, and our nurserymen send their sons to pick up information some of which, at least, might as well be imparted here. From personal friendship with many of the Professors for many years, we cannot but feel great sympathy with the Ghent School of Horticulture, and we cordially wish continued prosperity to the School and its Professors. The proceedings began on July 8, and terminate on the 11th.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JULY 8	Rose and Horticultural Shows at Manchester and Alexandra Palace (Wood Green), London, N.
TUESDAY, JULY 11	Royal Horticultural Society's Conference on "Hybrids," and Exhibition at Chiswick. Wolverhampton Floral Fête (three days). Horticultural Show at Reading.
WEDNESDAY, JULY 12	Continuance of Conference on Hybrids, at the Town Hall, Westminster. The Royal Horticultural Society's Dinner at the Hôtel Métropole.
THURSDAY, JULY 13	Rose and Horticultural Shows at Norwich, Woodbridge, Bedale, Brentwood, and Helensburgh.
FRIDAY, JULY 14	Rose and Horticultural Show at Ulverston.
SALE.	
FRIDAY, JULY 14	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period June 25 to July 1, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			LOWEST TEMPERATURE ON GRASS.
JUNE 25 TO JULY 1.	At 9 A.M.		Day. Highest.	Night. Lowest.	At 1-foot deep.	At 2-foot deep.		At 4-foot deep.			
	Dry Bulb.								Wet Bulb.		
SUN. 25	N.N.W.	59.3	54.5	68.9	48.8	...	61.3	60.1	56.9	58.5	
MON. 26	W.N.W.	60.6	61.9	79.9	58.9	...	62.2	59.9	56.9	53.8	
TUES. 27	S.E.	67.5	62.6	71.1	61.8	...	64.9	66.5	56.9	53.5	
WED. 28	S.S.E.	61.3	57.8	76.1	53.6	0.42	62.2	60.8	57.1	47.1	
THU. 29	W.N.W.	65.0	59.9	72.6	57.6	...	63.3	60.7	57.2	55.4	
FRI. 30	W.S.W.	63.2	55.5	60.5	47.0	0.80	63.9	61.1	57.4	38.1	
SAT. 1	W.S.W.	59.9	57.1	61.2	53.9	0.46	63.3	61.4	57.5	53.8	
MEANS...	...	64.1	58.9	71.3	54.5	Tot. 1.63	63.0	60.6	57.1	48.5	

Remarks.—The weather during the first half of the week was very warm and dry; the latter being remarkable for rough winds and frequent storms, with heavy thunderstorms on the 29th and 30th ult., the lightning on both dates being very vivid.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—63.3°.

ACTUAL TEMPERATURES:—

LONDON.—July 5 (6 P.M.): Max. 71°; Min. 50°.

PROVINCIAL.—July 5 (6 P.M.): Max. 71°, Eastern Counties; Min. 56°, Sunbury Head.

Fine, warm; some rain.

Hybrids and their Raisers.

THE approaching Conference will, we believe, deal with hybridisation in a broad sense and under many aspects, scientific as well as practical. There is, indeed, no line to be drawn between the cross-fertilisation of a variety or even of a variation and hybridisation or the cross-fertilisation of two reputed species. The case is one of degree only, ranging from the simplest case of cross-breeding to the raising of bigeneric hybrids. For our present purpose, anything that is not self-fertilisation is cross-breeding. Selection does not necessarily imply cross-breeding, though the two factors are responsible for the production of the fine strains and races that constitute the bulk of our garden-raised flowers. It may be that there is no hybridity in the case of the *Cineraria*, that is a matter to be proved by experiment; there is

certainly none in the *Cyclamen latifolium* (persicum), or the Chinese Primrose; but there has been abundant cross-fertilisation between variations of these plants. No two flowers are absolutely alike even on the same plant. Gardeners are always on the look-out for these variations, and when they see them they inter-cross them.

In our present issue, we continue a series of notes on garden flowers raised by cross-breeding which we began in our last number; and we also give further portraits of some of those, to whom in recent times, we have been the most indebted. It is obvious that in so vast a field we must leave many portions untouched, and we cannot hope to give a complete portrait-gallery, but we shall do our best to give a representative collection, and afford a good general view of the subject. It is necessary to make this statement lest some should be disappointed that their names or their productions are not mentioned.

The "raisers" whose portraits we give this week include those of the veteran ROBERT FENN, p. 23, whose work in cross-breeding as well as selecting Potatoes, is too well known to further comment at this time. ANTHONY WATERER, the worthy son of a worthy sire, p. 27, may well be taken as a representative raiser of hardy Azaleas and Rhododendrons. It was the policy of his father to raise hardy varieties, to be only satisfied with the best, and never to rest till the best had been superseded by something better. JOHN WATERER & Co. must also always be thought of in connection with the improvement of these plants.

Mr. MARTIN SMITH's name (see p. 23) is as indissolubly connected with the Carnation as that of the WATERERS is with the Rhododendron. He too works for robustness of habit as well as beauty of form and colour.

LYE's Fuchsias are wonderful examples of careful breeding and selection (see p. 23).

Turning to Chrysanthemums, Mr. WEEKS (p. 23) has furnished us with a detailed account of his mode of operation, which will be read with interest by the growers of these favourite plants; and Mr. SHEA contributes an all too-brief note (p. 23) on the objects for which he is working. M. CALVAT will follow in due course.

M. BLEU, of Paris, is well known as the raiser of some of our finest *Caladiums* and other plants (see p. 25).

Mr. O'BRIEN has long been known as one of our most intelligent and successful raisers. His works are briefly alluded to at p. 25.

Mr. C. T. DRURY is a Fern enthusiast, who treats his subject from a scientific point of view as well as merely from the cultural side (see p. 25).

Mr. ECKFORD (p. 25) is a veteran worker in the field of cross-breeding. Of late years he has made a name for himself in raising by cross-breeding as well as by selection, superb varieties of Sweet Peas, and is famed also for the new culinary varieties, which owe their origin to his judgment and skill.

Mr. R. IRWIN LYNCH, the Curator of the Botanic Garden at Cambridge, is well known as an enthusiastic and intelligent cultivator, and takes his place among the "raisers" by virtue of his endeavours to unravel the history of the *Cineraria* by direct experiment (p. 27).

Mr. W. J. JAMES (p. 23), is worthily continuing those experiments initiated by his father, and which have made their strain such wonderful illustrations of the gardener's art.

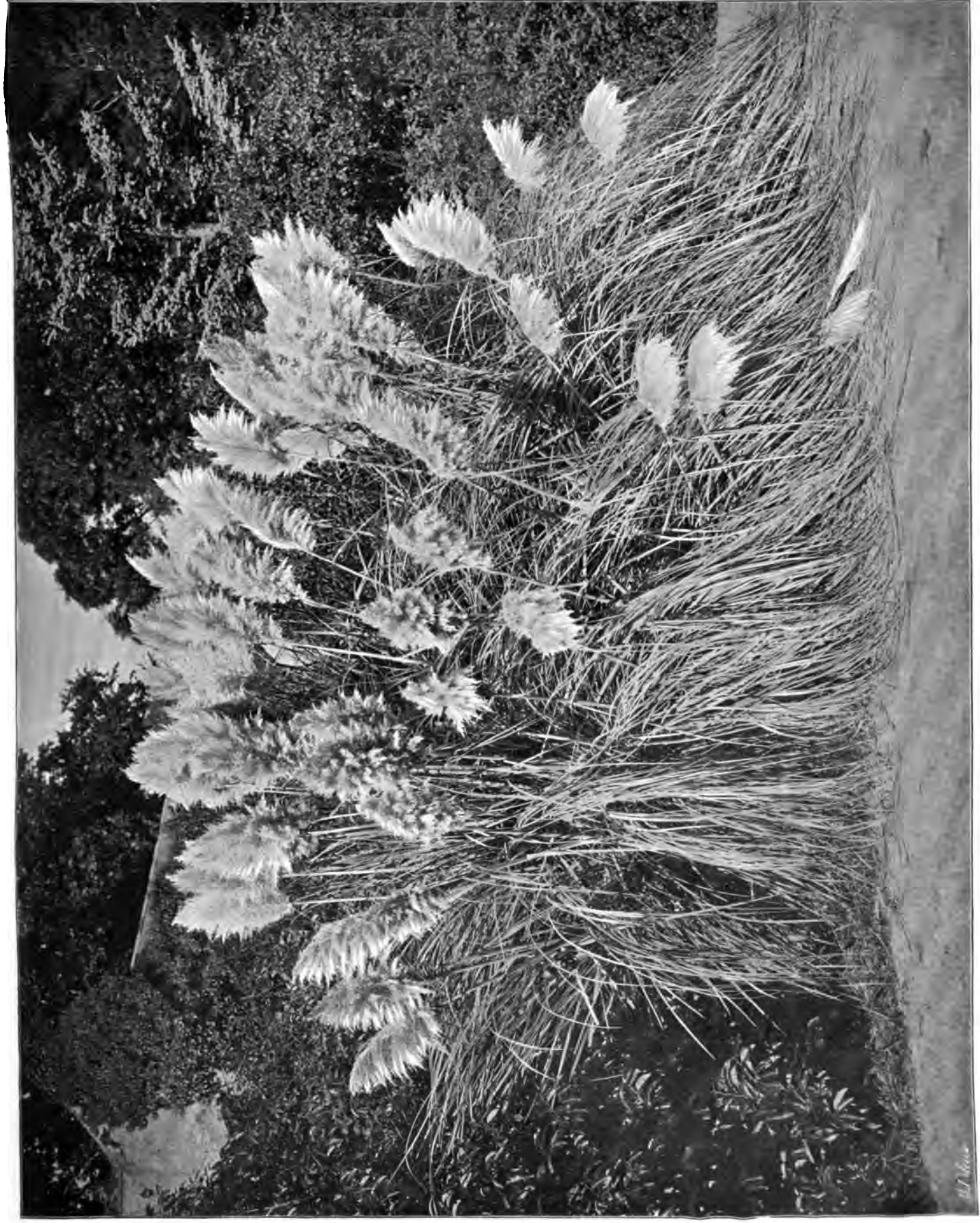
Next week the Conference will hold its meetings at Chiswick, and at the Town Hall, West-

minster, near the offices of the Society, and the home of the Horticultural Club at the Hotel Windsor. Our next number therefore will be largely devoted to the proceedings of the Conference, and we hope to give numerous portraits of those who are to take part in the business of the meetings.

A Text-Book of Plant Diseases.

WHILST much may be effected to prevent the occurrence of disease in plants, and to put a stop to its diffusion, and whilst something may be done to mitigate its consequences, little or nothing can be done in the way of cure. Day after day we receive samples of diseased plants with an enquiry as to the nature of the disease, and almost invariably an enquiry as to a remedy. Sometimes no information is vouchsafed as to local conditions, and as to the method of cultivation adopted, and often, indeed, nothing but continued inspection during growth would enable us to arrive at a satisfactory diagnosis. In most cases absolute cleanliness and free ventilation, together with the methods of cultivation appropriate to each plant, will suffice to keep plants in health. Indeed, in very many instances it is obvious from the specimens sent to us, that slovenly or careless cultivation has been practiced, perhaps unavoidably, from adverse circumstances not known to us. However this may be, disease and parasites, whether vegetable or animal, often find the conditions suitable for their growth and propagation in plants whose cultivation is neglected. This is, however, by no means invariable. Many of the samples sent us come from establishments where rigid care is exercised, as in market establishments where superb cultivation is the rule. Nevertheless, a fungus may make its appearance, and quickly destroy the hopes of the cultivator. Over-crowding, and the growth of the same crop in the same houses year after year necessarily favour the spread of the disease when it does break out. How often do we find the Tomato crop spoiled from this cause? The Tomato, indeed, affords a valuable illustration of the attacks of disease. Forty years ago, Tomato-culture under glass was all but unpractised, and Tomato diseases were quite unknown! Then, as the fruit became more and more used, the cultivation extended till it has reached a degree which may well be called enormous, and the diseases have increased proportionately. House after house in closest proximity to each other are devoted to its cultivation; no thought is given as to the necessity for isolation, and so the disease is well cultivated by the grower at the expense of the crop he wishes to grow. As a rule, no attempt is made to destroy by fire the affected foliage and haulm; on the contrary, it is thrown on to the rubbish-heap, and afforded the best possible means of preserving its spores for future growth. Perhaps the pigs or the fowls are allowed to consume the diseased foliage, and thus again every advantage is given to the fungus.

We see the same carelessness in woods; the unfortunate trees get injured in a variety of different ways, but all resulting in an open wound. Nothing is done to cover this over, and so the wound, it may be a mere crack, offers a resting place for the spores of the fungi, which, as in the case of canker of the Apple, eventually compass the destruction of the tree. Now the main reason for this loss—much of it avoidable—the main reason, is sheer ignorance—indifference and apathy do the rest.



CORTADERIA ARGENTEA (PAMPAS GRASS), AS GROWN IN THE GARDEN OF W. E. GUMBLETON, ESQ., BELGROVE, QUEENSTOWN, IRELAND.

It cannot be expected that the cultivator who has his business to attend to can attain that knowledge of detail that it is the duty of the expert to accumulate, but he should get a sufficient grasp of general principles, and sufficient information as to the manners and customs of fungi and insects, to be able to avail himself of the teachings of the expert, and turn them to practical account.

It is with this object in view that we desire now to call attention to Mr. MASSEE's recently-published *Text-book of Plant-diseases caused by Cryptogamic Parasites* (Duckworth & Co.). After some generalities, the author proceeds to describe seriatim the chief parasites which affect our cultivated plants. The order followed is that of the botanist, the author going from order to order in systematic series.

For the use of practical gardeners it might have been better, after giving a general introduction, to have discussed separately the several diseases attacking each plant—say, the Vine, the Cucumber, the Tomato, or whatever it may be; but as an ample index is given, the actual order in which the information is conveyed is a matter of secondary importance. A less meagre account of the disease of Vines, which the French call "Brunissure," is desirable, and although we find mention made of *Plasmiodiophora vitis*, we find no reference to Rozé's *Pseudocommis*. One excellent feature of the book before us consists, however, in the references to the most important literature of the subject, such as the Germans call the "Wichtigste litteratur."

We have waited long indeed for anything like a complete handbook of this kind. We have had special books like those of Marshall Ward and Worthington Smith, excellent in their way, but strictly limited; we have had various translations from the German, and we have had endless articles in our own columns and those of our contemporaries, but Mr. MASSEE is the first to give us in anything like a complete form, a combination of these scattered records into a systematic whole. This will be invaluable as a book of reference. Our gratitude to the author is proportionate.

The Flavour of Melons.

It is a common belief that excess of water in the soil and a deficiency of air during the last stage of maturity are the ordinary causes of lack of flavour. That may be so under the modern method of thin layers of soil placed over hot-water pipes, for if water be not afforded at all stages of growth, up to and during the progress of ripening, the plants lose their foliage, and the fruit, as a consequence, is poor in flavour.

Here there is a regular sequence of occurrences: the thin bed of soil, the continued application of water and manure-water, with the consequent loss of flavour. Now, contrast that with the thick bed of loam overlying a well-made hot-bed, but separated from it, say, by a thin flooring of boards or roofing-slates, or even a layer of brush-wood trampled flat. Here the plant needs less water, the greater body of soil retaining its moisture for a long time; moreover, the hot-bed extracts but little, if any, and it may impart some moisture, and with one good application of water just before the ripening stage begins, the foliage, provided it is free from red-spider and thrips, will keep green and in health without any more being afforded till the last Melon is removed from the plant. These last three weeks of the plant's existence settle the matter of flavour in the fruit; if you have to afford water in order that

the plants may live, and supplement this by doses of manure in order to obtain inordinate size, the flavour is sure to be poor, or it may be non-existent. In the other case no water being needed in these weeks, the flavour is brought out to the fullest extent.

Great size and flavour are seldom co-existent in the same fruit, and we may take it that a Melon-plant possesses only a definite quantity of flavouring matter, and then if this be diluted with much water, and spread this through the pulpy mass of four or five over-grown fruits, the flavour, if not the aroma, practically disappears.

GARDEN HYBRIDS.—A WARNING.—If the labours of the Hybrid Conference are to add anything to our accurate knowledge of a very mysterious subject, the ordinary language of cultivators will need to be given some precision. The word "hybrid" should be restricted properly to the result of the union of two distinct species; "cross" may be used of that between two more or less distinct races or strains of the same species, or even between its separate individuals. I find that this very important distinction is by no means observed, and that cultivators often speak of cultivated races as being of hybrid origin, when, strictly speaking, they are nothing of the kind. The remarks in your pages (July 1), on the Cyclamen, are a case in point. I have been unable to obtain any evidence that the forms in cultivation are of hybrid origin. Everything I have been able to learn on the subject goes in the opposite direction. It is stated that Cyclamen Atkinsii is a hybrid between *C. latifolium* and *C. coum*. But Mr. BAKER, who made a critical study of the genus, and published a monograph upon it, considered *C. Atkinsii* to be identical with *C. ibericum*, and Mr. ATKINS did not disagree with this conclusion. It has been repeatedly asserted that the cultivated *Cineraria* is of hybrid origin, and Mr. DARWIN has published the statement on information furnished by myself, which I received from the late Mr. THOMAS MOORE. But I have now no doubt whatever, that what are cultivated are all derived forms from *C. cruenta*. Hybrids in the genus are readily obtained, but they appear to me to be easily distinguishable from the cultivated strains. In the same way some of the cultivated forms of the Chinese Primrose are said to be of hybrid origin; but I cannot ascertain any ground for the assertion, or that the Chinese Primrose has ever been hybridised at all. Hybridisation is a subject upon which anyone who is favoured with a correspondence such as mine, will agree that the wildest statements are constantly made in perfect good faith. I can only repeat that the records of such cases are of no value at all, unless carefully sifted and tested, in which case they not infrequently collapse. *W. T. Thiselton-Dyer.*

A FINE CLUMP OF PAMPAS-GRASS (see supplement).—To Mr. GUMBLETON, of Queenstown, Ireland, we are indebted for the fine illustration given this week as a supplement. As a decorative plant, the illustration tells its own tale. The only comment we need add is as to the name, which is in accordance with Dr. STAPP's paper in our columns, Nov. 20, Nov. 27, and Dec. 4, 1897. We regret the necessity of the change, but for gardeners the name Pampas-grass will suffice.

ROYAL HORTICULTURAL SOCIETY.—INTERNATIONAL CONFERENCE ON "HYBRIDISATION," CHISWICK GARDENS, JULY 11, 1899.—The ordinary Committees of the Society will meet at Chiswick on Tuesday, July 11, at 12 o'clock punctually, and plants, &c., for certificate will be placed before them as at the usual meetings in the Drill Hall; but with the exception of plants, &c., for certificate, and hybrids and their parents, no other plants, &c., may be exhibited on this day.

THE HORTICULTURAL COLLEGE, SWANLEY.—The Rose-garden, which has just been laid out at

this college, was opened on Thursday by the Viscountess FALMOUTH. The Rose-garden was laid out under the superintendence of the Dean of ROCHESTER, who enlarged on his favourite topic. The Countess of WICKLOW, Sir JOHN and Lady LENARD, &c., were also present.

THE VILLA THURET.—We learn from the *Revue Horticole* that M. POIRAVLT has been appointed to succeed our old correspondent and friend, CHARLES NAUDIN, as Director of the Experimental Garden at Antibes.

CHISWICK GARDENS.—Visitors to the Hybridisation Conference on Tuesday next, will be too early to obtain much information from the many trials that are being made this season, but the methods pursued in these comparative experiments will be seen, and they will doubtless interest British and foreign horticulturists. The trial of Sweet Peas may offer some information as they are now commencing to bloom; but the Culinary Peas, the Potatoes, Spring-sown Onions, French Beans, and a very extensive trial of Cactus and Pompon Dahlias will not show any results for some time. There is a batch of Caladiums, including a fine lot of new varieties in one of the houses, also a group of zonal Pelargoniums in full bloom; and the large breadth of Violas near to the north wall by the Council Room, though they are not nearly at their best, are nevertheless blooming freely, and the recent rains will be sure to afford them immediate benefit. The fruit trees out of doors, excepting the Strawberries, though arranged alphabetically, would be more interesting were the meeting an autumn one. Indoors, however, there is a splendid crop of ripe Peaches and Nectarines on the standard trees in a lean-to house, and the well-known collection of Fig-trees in pots are at the present time ripening a grand crop of fruits. Possibly, at the luncheon or other time, visitors may have an opportunity to taste these (we hope they may), and if it should persuade gardeners of the expediency of introducing into their houses some of the better and more delicately-flowered varieties, to be grown with that universal Brown Turkey, the result will be pleasing to them. Brown Turkey is deservedly popular, and a very reliable cropper; but it should not be grown to the exclusion of every other kind. Any information that visitors may seek of the Superintendent, we are sure, will be most willingly afforded.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION, WORCESTER AUXILIARY.—On behalf of the funds of the aforesaid, his Excellency Earl BEAUCHAMP, K.C.M.G., very kindly gave permission to the Auxiliary Committee to have the beautiful gardens and glass-houses at Madresfield Court thrown open to the public on June 22. A small charge was made, and refreshments could be obtained. Unfortunately the weather was threatening and showery, otherwise there would doubtless have been a much larger attendance. About 500 people visited the gardens, and appeared to thoroughly enjoy the privilege. The net proceeds amounted to about £18. There are many gardens in the country which might offer similar privileges to the public, and add profit greatly to the funds of the charity, "if" only gardeners were less apathetic.

HORTICULTURAL CLUB.—On the occasion of the holding of the Conference on Hybridisation by the Royal Horticultural Society, the committee of this club have decided to invite the distinguished foreign visitors to a Dinner at the Hotel Windsor, on Tuesday, July 11, at 7 P.M. It is hoped that as many members as possible of the club will be present on the occasion to do honour to their foreign guests. Rev. H. HONYWOOD D'OMBRAIN, Westwell Vicarage, Ashford, Kent, is the Secretary.

THE ROYAL GARDENERS' ORPHAN FUND.—We beg leave to remind our readers that the annual dinner will take place on Tuesday, July 18, at the Hôtel Métropole, at 6.30. Sir REGINALD HANSON will take the chair, and will, we trust, be

heartily supported. The objects of the Fund are :—To make allowances or grants of money to aid in the maintenance and education of the orphans of gardeners, foremen in public, private, and market gardens, and the managers or departmental foremen in nursery and seed establishments. By means of the Fund seventy-eight fatherless children are this year (1899) being assisted at the rate of 5s. per week until they attain the age of fourteen years, and who, with the sanction of the Executive Committee, may be placed with relatives, or other responsible persons, acting as guardians. The Committee also has power to grant a sum not exceeding £10 towards apprenticing or otherwise promoting the start in life of any orphan who may be eligible for such assistance; and to make arrangements for placing children elected to the benefits of the Fund, either with carefully-selected foster-parents as cottage-boarders, or with the master or mistress of a school or institution, from whom satisfactory security is required for the proper discharge of their duties. Further information will be gladly given by the Secretary, B. WYNNE, 8, Danes Inn, Strand, London, W.C.

NATIONAL CHRYSANTHEMUM SOCIETY'S ANNUAL PICNIC.—The annual picnic and outing will, by the kind permission of the Rt. Hon. the Earl of ROSEBERRY, K.G., take the form of a visit to Mentmore, Bucks, when the gardens and magnificent grounds will be open to inspection. The date fixed for the picnic is Monday, July 17, and the cost, inclusive of railway fare, conveyance to and from Mentmore, dinner and tea, will be 9s. 6d. for members, and 10s. for non-members. Ladies are specially invited. The company will be conveyed to Cheddington Station on the London & North-Western Railway, from which there is a pleasant walk to Mentmore, about 1½ mile. Conveyances will meet the train at Cheddington for such as may be disposed to ride, the cost of which is included in the ticket for the day. Dinner and tea will be provided in a tent on the village green of Mentmore, which is close to the gardens. Railway-tickets are available from Euston, Camden Town, and Addison Road stations, passengers changing at Willesden in the two last cases. Members and friends not using railway-tickets will be charged 6s. for conveyance to and from Mentmore, dinner and tea. RICHARD DEAN, V.M.H., is the Secretary.

BRITISH MYCOLOGICAL SOCIETY.—Some years ago at a meeting of a students' society, the lecturer of the evening began to enumerate the several societies known to him. At length, wearying himself and his hearers long before any sign of the end was reached, he stopped. We do not think the British Mycological was included among those enumerated, nor even among those "taken as read." In some of these smaller societies, the feeling of companionship is stronger than in the case of larger bodies, and the workers more in earnest and proportionately more numerous. This appears to be the case with the British Mycological. The *Transactions* for the season 1897—1898 are before us, containing an account of the very successful "foray" held in Dublin in September last. A list of the more important fungi collected on that occasion is given, as well as the presidential address, delivered by Dr. PLOWRIGHT. Dr. PLOWRIGHT also contributes a very useful summary of "ERIKSSON'S Observations on the Rusts of Cereals," the life-history of which is very complicated, but obviously of great interest to the agriculturist. Thus, *Puccinia graminis*, the Wheat mildew, one stage of which occurs on the Berberry, in the form of cluster-cups or *Æcidia*, is now known to exist in six forms, which cannot be distinguished by their appearance, but which are distinct physiologically on Rye, Oats, Wheat, Ailsa, Agroetia, and Poa. All these have their *æcidiospores* (cluster-cups) on the Berberry, but the *æcidiospores* formed on the Rye (for example), will not, when placed on Oat, or Wheat, or on any of the five other plants, give rise to the *Uredo* form, but when placed on Rye they will do so. Here, then, we

have varieties well marked biologically, but indistinguishable one from the other morphologically. It would be a pretty problem to ascertain whether these phenomena denominate the gradual differentiation of new species or the disintegration of an old one.

FRUIT PROSPECTS IN THE UNITED STATES.—From reports just to hand we learn, concerning Apples, that in the thirteen States, having 3,000,000 or more Apple-trees in bearing at the last census, the condition for our report, as compared with the average June condition for the last fifteen years, was as follows:—New York, 1 above; Pennsylvania, 6 below; Michigan, 14 below; Missouri, 2 above; Illinois, 8 above; Indiana, 5 above; Kansas, 4 above; Kentucky, no difference; Tennessee, 2 above; Virginia, 3 below; North Carolina, 4 below; Iowa, 11 below; and Maine, 31 below. Peaches: the crop, it is said, will probably come as near being a total failure as it ever will come in a country of such vast extent and such varied climatic conditions as the United States. With the exception of California, where the conditions indicate from 75 to 95 per cent. of a full crop, there is not a State that has the promise of so much as two-thirds of a normal crop; few look for even a half crop, and in many important Peach-growing States there will be practically no crop whatever.

HOOKE'S ICONES PLANTARUM.—The first part of the seventh volume, dated June, 1899, has lately been issued by Messrs. DULAU & Co. It is devoted, but not exclusively, to Grasses described by Dr. STAFF. Among them is *Secale africanum*, remarkable for having been seen by THUNBERG, but not collected since his time. It is, nevertheless, so abundant as to have given the name Roggeveld to the district where it occurs. It is suggested that this may be a variety of the common Rye become wild; but, says Dr. STAFF, Rye varies very little, and "so far as I am aware never in a way which would explain the differences that characterise the new species described above;" tab. 2601. *Arundinaria auricoma* of MITFORD, t. 2613, is a broad-leaved species, confounded with *A. Fortunei*, and related to *A. macrosperma*; it is only known as a cultivated plant. *Phyllostachys Henonis* is a Japanese species near to *P. Stauntoni*, Munro, but is different; tab. 2614.

"ALBUM DES ORCHIDÉES."—M. CORREYON has recently issued under this name a treatise on the Orchids of central and northern Europe, accompanied by sixty coloured plates. It is published by O. DOIN, 8, Place de l'Odéon, Paris, or may be obtained from Messrs. WILLIAMS & NORGATE, or other foreign booksellers. The author describes the general conformation of the plants, the process of fertilisation, and the classification of the family. As to this last point, M. CORREYON follows the arrangement of PRITZER, which is largely founded on the mode of growth, and which appeals, therefore, more directly to the gardener than do the minute details of floral conformation. We do not, however, agree with M. CORREYON when he calls this system more natural than that of LINDLEY, as modified by BENTHAM; nor do we understand what he means by the system of REICHENBACH. We believe the Hamburg Professor became lost in the forest of detail that he himself had been largely instrumental in accumulating. The most useful chapter in M. CORREYON'S book is that devoted to the method of cultivation, in which he sums up briefly the methods employed by the most successful cultivators of these plants in our country, in France, Switzerland, Holland, and other countries. But we do no injustice to the author by specially commending the coloured illustrations, which are well drawn, not too highly coloured or otherwise exaggerated, and with sufficient detail for practical purposes. As these are available to readers of all nations, and to those who may not know any but their own native language, we heartily commend them as being trustworthy and serviceable.

BOOK NOTICE.

A TABULATED LIST OF ORCHARD INSECT PESTS AFFECTED BY SPRAYING. By F. V. Theobald (Headley Brothers, Ashford).

FOR a long time we were as a voice crying in the wilderness. Again and again we urged the desirability of having recourse to spraying, but it was not until the establishment of agricultural stations by the various county councils that the matter was taken up with any energy, and this, in spite of the fact that the hop-growers had long before included washing in the routine of cultivation. Our American cousins, it may be, go to the other extreme, and sometimes employ spraying when it is neither necessary nor judicious. In fact, a knowledge of the life history and mode of life of the insect, and of the local circumstances, are demanded before spraying can be advantageously carried out; and hence we cordially welcome the little pamphlet which has just been issued by Mr. Theobald, the zoologist to the agricultural college at Wye. In it the author treats of the principal insects attacking the Apple, the Cherry, the Currant, the Gooseberry, Medlar Nut, Pear, Plum, Quince, Raspberry, Strawberry, and Walnut.

The name of the insect is given, together with a reference to the treatise in which it is described. Then in tabular form, information is supplied when and where the eggs and the larvae are to be found; what is the best wash to be applied and when. Directions for making the several insecticides are given, and care is taken to utter cautions as to the extremely poisonous character of some of these substances, and the consequent need of extreme care in storing and handling them.

HOME CORRESPONDENCE.

CRATÆGUS TANACETIFOLIA.—The accompanying flowering-shoot has been sent to me under the above name from a garden in Gloucestershire, where for several years past the whole tree, excepting one branch, has flowered regularly every other year, that particular branch flowering as regularly on every alternate year, at which time there is no bloom at all on the other parts of the tree. Is not this very unusual? W. Thomson, Teignmouth.

ACCIDENT TO A YOUNG GARDENER.—I have to relate that during the recent storm, Geo. Hubank, one of the young gardeners employed at Powis Castle Gardens, and son of the head gardener of Styche, Market Drayton, Shropshire, when passing under a large Elm-tree on his way to shelter from the terrific storm of June 28, just as it was struck by lightning, was unfortunately struck on the head by a large piece, and rendered unconscious; but I am pleased to state that he is recovering from the wound that he received, and the shock to his nervous system. J. L.

DENDROMECON RIGIDUM.—There are two distinct forms of this beautiful half-hardy Californian Tree-poppy, one of which figured on p. 13 of your last issue, and of which a coloured plate appeared in the *Garden* for October 10, 1896, is, I consider, far inferior in size and beauty of flower to the other, and comparatively worthless form. This I believe to be a native of South California. The other and far finer variety which is figured in the 85th volume of the *Botanical Magazine* on plate 5134, is, I believe, a native of North California, and is apparently a much scarcer plant even in its native country. This fine plant was introduced many years ago, 1859, by Messrs. Veitch, who received it from their collector, Lobb, but has for some time been lost to cultivation. There is now, however, in cultivation at Kew another and very different looking plant recently received from Los Angeles, under this name, which it is to be hoped may turn out to be the fine form sent by Lobb to Messrs. Veitch. W. E. Gumbleton.

NORTHERNHAY PUBLIC GARDENS, EXETER.—A year ago the corporation of Exeter resolved to pay more attention to these gardens, which are situated in the heart of the city, and at the back of Rougemont and the Castle of Exeter. A fore-

man, Mr. W. Andrews, was appointed to look after the public gardens, and as Northernhay is the chief of these, it came in for a considerable amount of attention from him. Rockeries and dripping cascades and ponds were formed, and alterations effected in various directions by Messrs.

turf. The show has been held in Northernhay for more than fifty years. It has been decided to hold the exhibition in Bury Meadow. *Andrew Hope.*

IRIS REVERSION.—I have pleasure in sending a spike of a dark-blue English Iris var. (*L. xiphoides*),

only this one during the present flowering season, and I saw a similar flower of a Spanish Iris variety some years ago. *Ernst H. Krelage.*

ARABIS ALBIDA, FLORE-PLENO.—This has come before us with such a flourish of trumpets, that it is a source of astonishment to me that we have not had an opportunity of seeing it in fine condition at one of the meetings of the Royal Horticultural Society. This is what an enthusiastic American writer says of it:—"It is certainly one of the best introductions of the year. The plant is perfectly hardy; the individual flowers are perfectly double, of a pleasing pure-white colour, and are freely produced on graceful spikes. The difference between the new form and the type is as great as that which exists between a fine double and a poor single Ten-week Stock." All this is very glowing indeed, but is it true? A miserable example did certainly come before the Floral Committee of the Royal Horticultural Society at an early meeting in the present year, but it was ridiculously unequal to the single form. I have a mournful recollection of the advent of the double form of *Iberis sempervirens* fl.-pl. a few years ago, and on the strength of some such plausible recommendation as that I have just quoted, I invested in plants. It was the single form deformed and spoilt, and this experience leads me to infer there is a danger of its being so with the double *Arabis*. *R. D.*

LAVATERA ARBOREA VARIEGATA.—The variegated Tree-Mallow, though very beautiful when well grown, is by no means a common plant in gardens, and especially in gardens attached to a farmhouse. But I lately found a number of fine plants of it in the pretty gardens surrounding the dwelling of Mr. Alfred Priest, at Tithe Farm, Roxeth, Harrow. These were each 3 to 4 feet in height, and bearing dense heads of the most beautiful variegated foliage, in which the cream-white colour predominates. The handsome, light-coloured foliage appears to great advantage amidst excellently-grown Roses, covered with a profusion of flowers, and the numerous other fragrant and showy flowers which always seem to thrive so vigorously in farmhouse gardens. The large-flowered Perennial Pea, the Canterbury Bells, and the Mule Pinks and Pansies are also very fresh, bright, and showy, and the mingling here and there of Cherry trees, Plums, Apples, and other fruit-trees gives an additional attraction, first with their flowers, and afterwards with their fruit. In front of the house is a small Weeping-Ash, covered with wire netting to form an ideal cage for the doves, the wire netting, while restricting their flight, not preventing them from enjoying a certain amount of liberty among the branches of the tree, and serving also the useful purpose of protecting them from possible enemies. *J. O'B.*

HOT-WATER CURE FOR MILDEW.—I have been much interested in the discussion going on in the *Gardeners' Chronicle* on hot water as an insecticide. I first heard of the method from an American source about six months ago, and have since adopted it with success on various plants. The temperature recommended was 140° F., and I was careful to have it exact in my first experiment, which was on a large *Imantophyllum miniatum*. I did not dip the plant on account of size, but used the syringe with force. All the mealy-bug, by which the plant was badly infested, was dislodged, if not killed, as I have not been able to find one on it since. I found the plant was not in the least injured, hence I was encouraged to make further experiments. I now use the water as hot as I can dip my hand in without being scalded, and I find it most effectual in destroying mealy-bug and scale. Syringing is much better than dipping, as the white powdery matter on the bug acts as a protection, and the water does not easily penetrate it, on the same principle that water will not penetrate very dry, dusty soil. All the eggs of the mealy-bug seem to be destroyed, hence the advantage of the hot water over many other insecticides. I have a very large collection of Cacti under my charge, in which mealy-bug, yellow thrip, and scale have been very troublesome, especially by infesting the densely-spined *Echinocacti* and *Mammillarias*. I have tried vaporising with XL All at double strength, spraying, as recommended by some growers, with spirits of wine, Fir-tree oil, &c., all with more or less damage to Cacti, with the exception of the first-mentioned. I now rely entirely on hot water for



FIG. 21.—A VIEW IN THE AVENUE, "THE GLEN," INNERLEITHEN.
(See p. 6 in our last issue.)

R. Veitch & Son. Now, when the result is apparent, the citizens are much pleased with the improvements that have been made. The corporation being now mindful of the improved appearance of the garden, the council at their last meeting decided against the Devon and Exeter Horticultural Society holding its summer exhibition there, on the ground that it would injure the

a part of the flower having reverted into light blue, evidently the colour of one of the parents. The demarcation-line between the two colours is very conspicuous. The second flower, not yet open at this moment, will probably show the same phenomenon, although the demarcation-line may differ from that in the first flower. Similar cases are, as far as my experience goes, rather scarce, I observed

these plants, and I find they are stimulated rather than injured thereby. I strongly recommend it to growers of Cacti in particular. There are hundreds of plants thrown away annually on account of their being badly infested with insect pests. I would advise my *confreres* to try hot water on such in future before consigning them to the fire or rubbish-heap. *Arthur Cobbold, Heaton Mersey.*

While the discussion in your paper continues on destroying mildew on Vines by hot water, I may say it is a process I do not agree with on Vines. The best cure and preventive I ever tried was flowers-of-sulphur mixed in boiling water, made into a thin paste, and applied to the hot-water pipes by a brush in the afternoon at closing-time, and with pipes hot. I have never known this remedy fail me. Of course the house must be kept closed after applying the sulphur, and if not thoroughly destroyed the first time, continue it the next afternoon at closing-time. Respecting mealy-bug, I think hot-water at, say, 130°, or according to the hardness of the plant, is a good remedy, and especially if mixed with insecticides, make it more effective. *Wm. Smythe, Basing Park.*

HYBRIDISTS AND CROSS-BREEDERS.—The notes on p. 1 of your last issue on the history and improvements that have been effected in florist's flowers, are very interesting reading to those who have been closely identified with the investigations that have helped to bring about the advance we see to-day. Our reason in writing is to express regret that your correspondent should have omitted to make any mention of the leading part we have taken in improving these flowers during the last forty years. We have only to refer you to the columns of the *Gardeners' Chronicle* during the last three years, where have appeared comparative illustrations of what we have done with the *Calceolaria* and *Petunia*, as against the original types. Our experiments with the *Primula*, *Cineraria*, *Gloxinia*, and *Cyclamen*, have equally advanced. In the case of the *Primula*, we may mention that we were awarded a First-class Certificate by the Royal Horticultural Society for the first Blue *Primula*, and our *Cinerarias* last year beat in open competition one of the best known strains in cultivation; our *Gloxinias*, too, are considered to be exceptionally fine, and we hold several gold medals for groups of all these plants that have been staged at various exhibitions. *James Carter & Co.* [From the abundance of material at hand, we cannot undertake to notice the work that each individual or firm may have done, but even in such a general survey as we propose to make, it is obvious that the name of *Carter & Co.* could not be omitted without exposing ourselves to the charge of incompleteness. If Messrs. Carter will kindly wait, they will find that we shall have plenty of opportunities of rendering to them the credit that is their due. *Ed.*]

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 29.—At a meeting of the Fruit and Vegetable Committee, held on the above date at Chiswick, there were present, Mr. P. Crowley, Chairman; S. T. Wright, Secretary; and Messrs. Baldison, Barron, Dean, Mortimer, Smith, and Pope.

The earliest varieties of sixty-five stocks of Peas were examined; these varied very much in height, some very dwarf, others 5 feet in height. The shortest varieties, probably because too near the hot soil, had not set well. Some of the taller ones had done admirably. Three marks were given to Duke of Cornwall, 5 feet in height, good cropper; pods large, green, well filled, and Peas green, and of excellent quality; and to Alderman, a very fine tall variety, that has been some two or three years in commerce, and is, apart from being early, and a great cropper, probably the finest of all exhibition varieties. Duke of York, a well-known variety, was also in capital form; and of smaller-podded Peas, *Acme* was good, but lacks colour. All Peas now, first early or late, must have good green colour, to meet modern requirements, and the Peas should be tender, and have nice flavour. Too many of even new ones are deficient in these respects. Several stocks, also, were yet indifferently selected. Some Peas that were good croppers would have been regarded as first-class ten years since.

Some twenty stocks of both old and new Lettuces were seen. The best of the Cabbage forms were All-the-Year-Round, Early Market, Continuity, Crystal Palace, and Leyden White Dutch; and of Cos forms, Pyramidal Brown Cos, and Paris White Cos, the best. A few varieties seemed to have more fitness for the flower border than for table use.

Mr. Beale, of Loughborough, sent heads of a late Broccoli as Latest-of-All, that arrived at the Drill Hall on the 27th ult., too late; these the committee unanimously pronounced to be late Chou de Burrell. It was agreed that for examination of the later Peas, the committee meet at Chiswick at 11 A.M. sharp on Tuesday, the 11th inst.

The Fruit Crops.—When presently the customary census of the season's fruit crops is obtained, I fear the returns will show a comparatively poor crop. A jam-maker recently told me that the fruit reports sent into the market gave but a poor prospect; and whilst Apples and Gooseberries were the best, with Currants, Raspberries, and Strawberries fair, others were very poor indeed. The Strawberry crop, owing very much to the previous season's drought and the late spring frosts, was little better than half one, and I fear in many private gardens it is hardly so good as that. Peas and Plums are very thin indeed, almost failures; Damsons being absolutely so. Cherries are partial, and in a few places good, in so many are very thin. I have rarely heard so many complaints with respect to the falling of stone fruits, after apparently setting, as this season. Without doubt, so general a failure in fruit production can hardly have other than an embarrassing effect on fruit-culture generally. It is so difficult in the face of the poor crops of the past and present seasons, to be enthusiastic in advocacy of fruit-tree planting. Unless advocates can show something tangible in results, their advocacy finds little credence. Most certainly, what between weather so seriously affecting trees and bloom, and insect pests, which seem to be as prevalent as ever, in spite of the myriads of palliatives and insecticides advertised, the fruit-grower's life is hardly a happy one. But, no doubt, presently we shall hear pessimists pointing to our fruit imports, and asking why we do not grow more fruit in this country. Did we now have crops relative to trees, bushes, and plants, we should have a great one. A really great, or even relatively great, fruit crop seems never to greet our efforts now. If any one can, in discussing the causes of our existing season's poor crop, but tell us how to avoid failures and secure good results, then something tangible may come out of present failures. That is a task, I fear, no one will care to undertake. *A. D.*

Scientific Committee.

JUNE 27.—Present: Dr. M. T. Masters (in the chair); Dr. Müller, Rev. W. Wilks, Rev. G. Henslow, Hon. Sec.; visitor, Mr. H. J. Webber (Agricultural Department, New York).

A monstrous Cattle.—Dr. Masters observed that the specimen brought to the last meeting was characterised by having a sepal in a petaloid condition; but the same feature occurred in three flowers on the spike.

A malformed *Cataetum rostratum*.—A spray bearing two flowers, with the lateral petals bearing characters of the lip, was sent by Sir Trevor Lawrence.

Diseased Carnations.—Specimens were sent by Mrs. E. Mackay, which proved to be attacked, both by bacteria and *Puccinia dianthi*. Mr. Webber observed that the disease known as bacteriosis is now generally regarded in America as a result, and not a cause; that it follows upon some lesion to the foliage, as by punctures, &c., by insects. The same observation might apply to the presence of the *Puccinia*. No remedy could be suggested. It is best to destroy the plants entirely.

NATIONAL ROSE.

JULY 1.—The annual display of Roses at the Crystal Palace, under the auspices of the National Rose Society, was held on Saturday last, and probably few were disappointed either by the number of Roses staged or in the quality of the blooms generally. Anything like a "record" show was not anticipated. The spring and early summer have not been of a "record" character in respect to weather, unless it be that it has been more than usually changeable and ungenial. There has been no long spell of great heat, but Roses have nevertheless suffered from drought, owing to the moisture in air and atmosphere having been absorbed by the E. and N.E. winds that prevailed during the month of May and some part of June. The rains have been delayed until the plants were commencing to bloom, and although much needed by the roots, have served in a measure to disfigure the blossoms. The occasional contributions in the *Gardeners' Chronicle* by "Wild Rose" have not been very optimistic in respect to the "Prospects of the Season," and as we were not expecting to see a magnificent show, that on Saturday last was considered rather more than satisfactory. There were capital blooms found for each of the six medals offered, and that has not always been the case. Mr. E. Mawley had to bear the most of the work, and did so with his usual kindness and courtesy, but we were pleased to see that the esteemed and veteran Secretary, the Rev. H. H. D'Ombrian, was able to visit the show. Mr. B. R. CANT followed his success of last year by again winning the Challenge Trophy for seventy-two blooms, and the Amateur's Trophies were won by Mr. E. B. LINDSEY, for thirty-six blooms, distinct; and Mr. O. G. ORPEN, for eighteen Teas and Noisettes, distinct, respectively. The Society's Gold Medal was awarded to Mr. PIPER'S Sunrise, an excellent Tea that has been shown extensively this season. The Nurserymen's exhibits were staged in the Central Transept opposite the large Organ, and the Amateurs' in the Eastern section of the Nave.

NURSERYMEN.

Seventy-two blooms, distinct varieties.—In this most important Trophy class there were six exhibitors, and consequently four hundred and thirty-two flowers staged. The Trophy and 1st prize were won as last year by Mr. B. R. CANT, of Colchester; and another Colchester firm, Messrs. PRIOR & SON were 2nd; and the 3rd position was secured by Messrs. HARKNESS & SONS, Bedale and Hitchin. The 1st prize collection was much better than had been anticipated this season. The varieties were:—Back row: Gustave Piganneau, Marchioness of Dufferin, Duke of Edinburgh (a very good bloom of this old finely-coloured variety), Mrs. Sharman Crawford, Ulrich Brunner, Countess of Caledon, Camille Bernardin, La France, François Michelin (very good), Cleopatra, Tom Wood, Lady M. Fitzwilliam, Suzanne M. Rodocanachi, Muriel Grahame (a magnificent bloom of this pretty variety that gained the Silver Medal for the best T. or N. in the Nurserymen's classes), Marquise Litta, Mrs. John Laing, Xavier Olibo (grand colour), Mrs. W. J. Grant, Madame Victor Verdier, Her Majesty, Duke of Fife, Caroline Testout, Crown Prince, and a pretty bloom of Madame Gabrielle Luizet. Centre row: Dupuy Jamin, White Lady, General Jacqueminot, Innocente Pirola, Abel Carrière, Kaiserin Augusta Victoria, Duchess de Morny, Souvenir de S. A. Prince, Horace Vernet, Jean Ducher, Alfred Colomb, Charlotte Guillemot, Helen Keller, Souvenir d'Elise Vardon, Rev. Allan Charles, Mrs. Sandford, Le Havre, Madame Cusin, Marie Baumann, Marchioness of Londonderry, Marie Verdier, The Bride (a very nice bloom), Auguste Rigotard, and Bridesmaid. Front row: Edouard André, Souvenir d'Un Ami, Duke of Connaught, Comtesse de Nadailac, Comte de Raimbaud, Golden Gate, Sultan of Zanzibar, Margaret Dickson, Madame Eugénie Verdier, Maréchal Niel, Marie Rady, Medea, N. Noman, Maman Cochet (very good), A. K. Williams, Marchioness of Downshire, La Franchise, Catherine Mermet, Comtesse de Ludré, Madame de Watteville (good), Earl Dufferin, Ernest Metz, Mrs. Cocker (very large, full, and good in colour), and Madame Hoste. Messrs. D. PRIOR & SON'S exhibit was a commendable one, and this firm may hope to win the class in the near future. The varieties best shown were Mrs. John Laing, Maman Cochet, Dr. Seward, Suzanne-Marie Rodocanachi, Pride of Reigate (the old striped rose), Madame Delville, Helen Keller, Catherine Mermet, and Comtesse de Nadailac. 3rd, Messrs. HARKNESS & SONS, Bedale, Yorks, and Hitchin, Herts.

Forty distinct varieties (trebles).—There were six hundred Roses shown in this class, which in effect is one of the most showy. Messrs. D. PRIOR & SON, who were 1st, had a capital exhibit. The most effective varieties were Ulrich Brunner, Marquise Litta, Dupuy Jamin, Margaret Dickson, Madame de Watteville, Maman Cochet, Mrs. W. J. Grant, Camille Bernardin, Duchess de Morny, Abel Carrière, Madame Gabrielle Luizet, General Jacqueminot, Innocente Pirola, &c. Mr. B. R. CANT had a pretty exhibit of somewhat smaller blooms, and including many pretty trebles of Teas and Noisettes. Messrs. FRANK CANT & Co. were 3rd.

Forty-eight blooms, distinct varieties.—Messrs. J. TOWNSEND & SONS, Worcester, who were 2nd in this class last year, this season won premier place. The best flowers in the stand were of the following varieties: Gustave Piganneau (an excellent corner bloom), Caroline Testout, Marquise Litta (this H.T. was a splendid colour in this case), Mrs. Jno. Laing, Catherine Mermet, Souvenir de Marie Levet, Mrs. Sharman Crawford, Suzanne-Marie Rodocanachi (excellent colour), Madame de Watteville, Innocente Pirola, Prince C. de Rohan (deepest crimson, and shown in grand colour), Ulrich Brunner, Prince Arthur, Mrs. W. J. Grant, Madame de Watteville, and Niphetos. Messrs. G. & W. H. BURCH, Peterborough, had smaller Roses, but were nevertheless commendable in the 2nd degree, and included some fine blooms, particularly of the varieties Helen Keller, Tom Wood, Madame Gabrielle Luizet, Lawrence Allen, Horace Vernet, and Mrs. Jno. Laing. 3rd (very close), Messrs. J. BURRELL & Co., Cambridge.

Twenty-four blooms, distinct varieties.—Mr. Chas. Turner, who staged an excellent exhibit in this class last year, on the present occasion was beaten by Mr. GEO. PRINCE, of Oxford. Mr. Prince's varieties were, back row, Comtesse de Nadailac, Marquise Litta, Her Majesty, A. K. Williams, Beauté Lyonnaise, Ulrich Brunner, Maréchal Niel, and Mrs. Sharman Crawford. Centre row: Mrs. W. J. Grant, Souvenir de S. A. Prince, Reynolds Hole, Margaret Dickson, Gustave Piganneau, Maman Cochet (good), Victor Hugo, and Innocente Pirola. Front row: The Bride, Souvenir C. E. Rohan, Souvenir d'Un Ami, F. Michelin, Catherine Mermet (good), Sultan of Zanzibar, Golden Gate, and Mrs. Jno. Laing. Mr. CHAS. TURNER, Slough, had a bright collection that was placed 2nd; and Mr. J. MATLOCK was the best exhibitor of the other five that competed.

Twenty-four trebles, distinct varieties.—There were five exhibitors in this class, and the 1st prize was won by Mr. JOHN MATLOCK, of New Headington, Oxford. The blooms were small, but they were remarkably fresh and clean in appearance. Mrs. Sharman Crawford, Marquise Litta, Catherine Mermet, Maman Cochet, and Madame de Watteville, were among the most effective. Messrs. G. & W. H. BURCH, Peterborough, were very good as 2nd prize exhibitors; and Messrs. J. TOWNSEND & SONS, Worcester, were 3rd.

Twelve blooms, distinct (Dickson Cup Class).—The best stand of twelve blooms of distinct Roses sent out by Messrs. A. DICKSON & SONS, Newlowards, was shown by Messrs. F. CANT & Co., who besides winning the 1st prize have now

become absolute owners of the Dickson Challenge Cup, presented by Mr. C. J. Grahame, who is responsible also for the money prizes in this class. The varieties were Mrs. G. Sharman Crawford, Mrs. W. J. Grant, Marchioness of Downshire, Marchioness of Londonderry, Margaret Dickson, Helen Keller, Ethel Brownlow, Marchioness of Dufferin, Countess of Caledon, Ethel Richardson, Tom Wood (exceedingly bright), and Ellen Drew. The last-named Rose is one of the newest, and a pretty pink H. P. of moderate size, and very sweet. Messrs. A. Dickson & Sons, Newtownards, were 2nd, but last year they were the winners. In their stand were Mrs. W. J. Grant (fine), Muriel Grahame, Ulster, Beattie Brown, a beautiful white Rose with faint bluish petals very fine, Robert Duncan, and Daisy, &c. 3rd, Mr. B. R. Cant. At least two other collections were unplaced.

Twelve distinct varieties, seven trusses of each—This class is probably intended as a means of introducing novelty in the method of exhibiting Roses. Boxes may not be used, but the bunches must be staged in vases or other receptacles. Mr. Geo. Prince's exhibit was a most delightful one. The Roses were arranged in elegant receptacles over a black velvet ground adorned with Rose shoots. The point in which the exhibit was open to criticism was in the matter of

Nadailac, Souvenir de S. A. Prince, Princess of Wales, and Madame Hoste. Messrs. J. Burrell & Co., Cambridge, were 2nd, and included beautiful blooms of Maman Cochet, The Bride (best in the stand), and Catherine Mermet. 3rd, Messrs. J. Townsend & Sons. There was only one unplaced stand.

Eighteen distinct varieties (trebles)—In this large treble Tea class the winner last season, Mr. Geo. Prince, was again most successful. His best trebles were Catherine Mermet, Madame Cusin, Innocente Pirola, Madame de Watteville, Maman Cochet, Bridesmaid, Comtesse de Nadailac, Luciole (described by a visitor as more like a Tulip than a Rose), and Maréchal Niel. Mr. B. R. Cant had an even lot of rather small flowers, and was 2nd. Messrs. F. Cant & Co., whose exhibit contained too many whites and yellows (good) was 3rd. One collection failed to get a place.

GARDEN OR DECORATIVE ROSES.

These very beautiful varieties were almost at their best on Saturday last, and some magnificent exhibits were staged.

Twenty-six distinct varieties, not fewer than three trusses of each—Messrs. Geo. Paul & Son, The Old Nurseries, Chesnut, beat Messrs. Geo. Cooling & Sons, Bath, these being the

An extra class with identical requirements to the one above, but open to all nurserymen whether competing in the above classes or not, was won by Mr. Charles Turner, Slough; the 2nd and 3rd prizes being obtained by Messrs. Frank Cant & Co. and Mr. George Prince respectively. There was one other exhibit.

OPEN CLASSES.

Twelve blooms of hybrid Teas distinct—Messrs. F. Cant & Co. had a stand in which each of the dozen blooms staged was beautiful. The varieties were Mrs. W. J. Grant, Caroline Testout, Marquise Litta, La France, Kaiserin A. Victoria, Clara Watson, Charlotte Guillemot, Lady Fitzwilliam, Madame Abi Chatenay, Souvenir de President Carnot, Viscountess Folkestone (magnificent bloom), and Souvenir de Madame Eugénie Verdier. Mr. B. R. Cant took 2nd place, also showing most creditably; 3rd, Messrs. A. Dickson & Sons. Each of these exhibits was of excellent merit, and went to show what a number of the most lovely of modern Roses belong to this section. There were six collections in the class.

Twelve blooms of any yellow Rose—There was half-a-dozen collections and the 1st prize was won by Mr. George Prince,

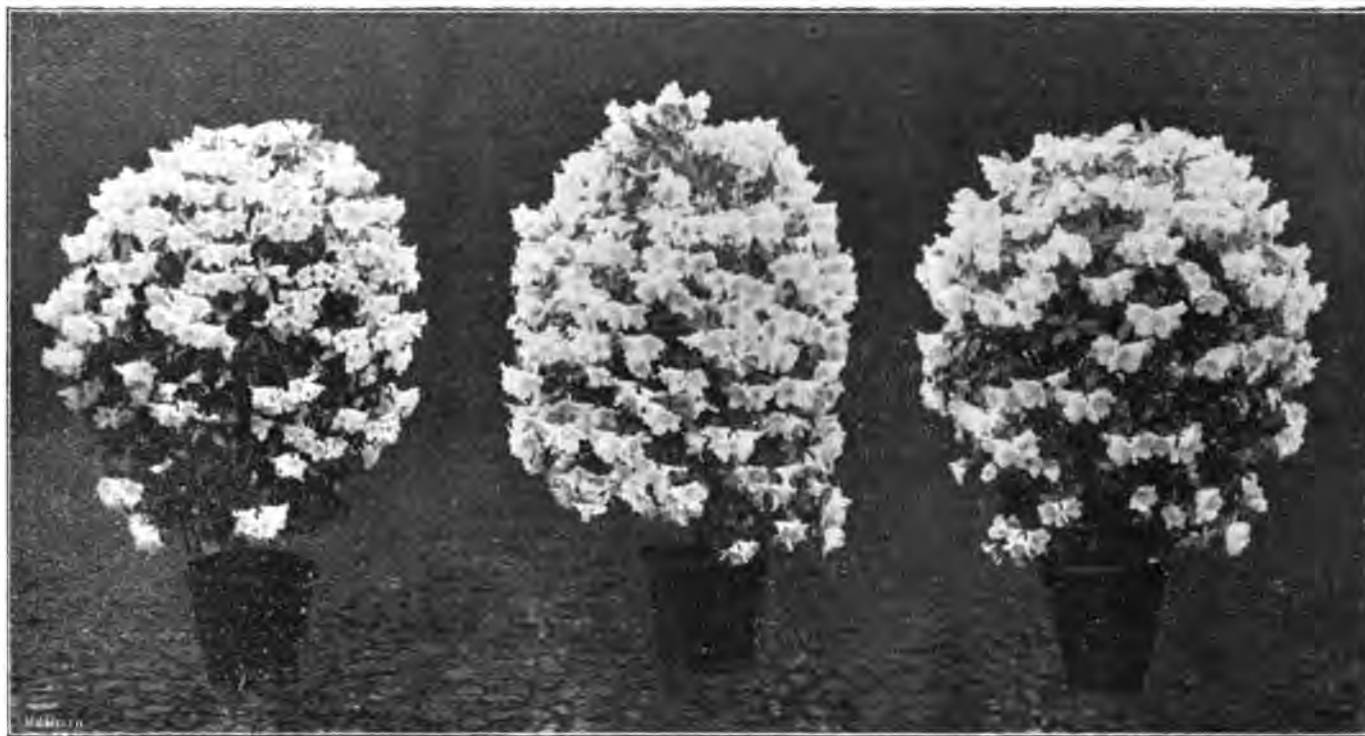


FIG. 22.—SPECIMEN PLANTS OF GREENHOUSE RHODODENDRONS, AS GROWN AT "THE GLEN," INNERLEITHEN.

(See p. 6 in our last issue.)

labelling, there being no names to the Roses whatever, a serious disadvantage to the public. Marquise Litta, staged in a neat bunch, was exceedingly effective. Mr. John Mattock was 2nd, and Messrs. Paul & Sons, Chesnut, 3rd.

TEAS AND NOISETTES.

Twenty-four blooms, distinct varieties—Teas and Noisettes were not specially good, being somewhat undersized, and many of them were disfigured by wind and rain. Messrs. F. Cant & Co., Braintree Nursery, Colchester, however, who won this class, staged an excellent exhibit. The varieties were, back row, Catherine Mermet, Innocente Pirola, Ernest Metz, Madame Cusin, Madame Koster, Cleopatra, Maman Cochet, and Rubens. Centre row: Souvenir de S. A. Prince, Souvenir d'Un Ami, Golden Gate, Niphetos, Madame de Watteville, Maréchal Niel, Bridesmaid, and Medea. Front row: Amazone, Ethel Brownlow (very fine indeed), The Bride, Empress Alexandra of Russia, Marie Van Houtte, Souvenir d'Elise, Comtesse de Nadailac, and Hon. Edith Gifford. 2nd, Mr. B. R. Cant, who had rather smaller flowers, his best blooms were of the varieties Bridesmaid, Ethel Brownlow, and Madame de Watteville. 3rd, Mr. Geo. Prince, there being one unplaced stand.

Twelve blooms, distinct varieties—Mr. John Mattock, New Headington, Oxford, proved to be the winner of this class, his varieties being: back row, Madame de Watteville (beautiful), Maréchal Niel, Souvenir d'Un Ami, Souvenir d'Elise Vardon. Centre row: Amazone, Catherine Mermet (very fine), The Bride, Maman Cochet; front row, Comtesse de

only firms competing in this class. Each exhibit was arranged similar but not perfectly like to the other, being in large bunches or sprays, in moss-surfaced boxes.

In the 1st prize exhibit were noticed of Polyantha varieties, Perle d'Or, Gloire de Polyantha, China, Marie de Montravel (white), Grandiflora, &c. Of Noisettes, Madame P. Cochet (fine yellow), Alistair Stella Gray, L'Idéal, W. A. Richardson, &c. Then there were the popular varieties of garden Rose, Crimson Rambler, H. T. Dawn, a large rose-coloured semi-single, fig. in *Gardeners' Chronicle*, July 28, 1898 (supplement). PAUL'S Carmine Pillar, H. T. Camoens; H. T., Madame P. Ducher, Reine Olga de Wurtemberg, Sweet Briar, Janet's Pride; H. P., Royal Scarlet (a most effective single Rose); Moss Roses, Prolific and Crested; Noisette Payche (pink); Rugosa varieties, Madame C. Worth, Alba, Mundi, &c. Messrs. Geo. Cooling & Sons' exhibit was also very attractive, and differed considerably in the varieties displayed.

Eighteen distinct varieties, not fewer than three trusses of each—There were three exhibits of eighteen bunches of Garden Roses, distinct, and Messrs. Frank Cant & Co. were the victors. There was excellent quality in these Roses, and the varieties were Crimson Rambler, W. A. Richardson, Reine Olga de Wurtemberg (gorgeous), Madame Falcot, Marquis of Salisbury, Madame Chedane Guinoisseau, Barbon Job, Crested Moss, Gustave Regis, Laurette Messimy, Ma Capucine, Common Moss, Pernet Ducher, Rainbow, Madame A. E. Notte, Souvenir de Catherine Guillot, Cecile Brunner (Polyantha), and L'Idéal. Mr. Chas. Turner was 2nd, and Mr. Jno. Mattock, 3rd.

who had Comtesse de Nadailac (his favourite Rose), in admirable condition; Marie Van Houtte from Mr. J. Mattock, and Madame Hoste, from Mr. Benjamin R. Cant, were 2nd and 3rd respectively.

Twelve blooms of any white Rose—Of a dozen exhibitors in this class, the best was Mr. Benjamin R. Cant who showed White Lady very finely. Messrs. D. Prior & Son were 2nd with Beattie Brown, showing a collection which included the Silver Medal H. T. bloom; and Messrs. D. Prior & Son who exhibited The Bride were 3rd.

Twelve blooms of any light or dark crimson Rose—There were nine collections, and of these, one showing the variety General Jacqueminot was 1st, from Messrs. D. Prior & Son. The variety Ulrich Brunner, from Mr. Chas. Turner, was 2nd; and Gustave Piganneau, from Messrs. Townsend & Son, 3rd.

Twelve blooms of any light pink or rose coloured Rose—There were thirteen exhibits in this class, and no fewer than eight of the exhibitors relied on the popular variety Mrs. John Laing. The 1st prize was awarded to this variety, as exhibited by Mr. Chas. Turner; and 2nd prize to Mr. W. J. Grant, as shown by Mr. Benj. R. Cant; and 3rd to Mrs. Jno. Laing again, as displayed by Messrs. Prior & Son.

The best H.P. in the nurserymen's classes was shown in this class, being a magnificent bloom of Mrs. Jno. Laing in an exhibit from Mr. Augustus G. Green, Rose Land, Great Hockesley, Colchester.

Twelve blooms of any Tea or Noisette—Comtesse de Nadailac was given the place of honour in this class, and was

appropriately shown by Mr. Geo. PRINCE, Oxford, in splendid fashion. Mr. JOHN MATTOCK was 2nd, and Messrs. F. CANT & Co. 3rd.

Twelve distinct varieties of single-flowered Roses.—Messrs. PAUL & SON, Chesham, won this class, which is a very pretty one. His varieties were, Nutkatensis (white), Paul's Carmine Pillar, Rugosa x pumila (purple), Royal Scarlet, Andersoni pink, Lucy Ashton (pale pink), Lady Penzance (a copper-coloured Sweet Briar), Pink Roamer, Benda (large pink), Paul's Single White, and Gallica pumila. Mr. CHAS. TURNER was 2nd, and Mr. JNO. MATTOCK 3rd.

Six Roses suitable for buttonholes, and shown in bunches or sprays.—Mr. JOHN MATTOCK was the winner of this class. His varieties were Madame Hoste, W. A. Richardson, Amazone (yellow), Anna Ollivier, Ma Capucine, Souvenir Catherine Guillot, Marie Van Houtte, Rubens and Papillon. Mr. Geo. PRINCE was 2nd, and Messrs. TOWSEND & SONS 3rd.

Three sprays of Roses suitable for ladies' wear, with any foliage or grasses.—This appears to be a class entirely for the ladies, at any rate they secured all the three prizes offered. Mrs. O. G. ORPEN won the premier award, her spray was composed of the tiniest buds possible, and was very pretty in effect. Miss BEATRICE L. LANGTON, Hendon, was 2nd; and Mrs. G. W. COOK, North Finchley, who had much larger flowers, 3rd.

NEW ROSES (OPEN).

Nine blooms of any new Rose.—In this class Roses are admitted that were not catalogued by English nurserymen previous to 1896. Messrs. A. DICKSON & SONS were the winners with nine beautiful blooms of Bessie Brown, a large fine-petalled Rose, almost white, but possessing a faint blush. Mr. B. R. CANT was 2nd with H. P. Mrs. Cocker (pink), and Messrs. F. CANT & Co. were 3rd with Mrs. F. Cant, a very pretty pink variety that is now moderately well known.

Twelve blooms, distinct varieties, not catalogued previous to 1896.—This class was also won by Messrs. A. DICKSON & SONS, their varieties being Killarney, Rev. Allan Cheales, Bessie Brown (as shown in previous class), Countess of Caledon, Muriel Grahame (the premier T. or N. in Nurserymen's classes), Daisy, Madame C. Rainey, Antoine Revoire, Tom Wood, Mrs. Edward Mawley, Ulster and Robert Duncan. Mr. B. R. CANT was 2nd, and Messrs. FRANK CANT & Co. 3rd.

Three trusses of any new seedling Rose or distinct sport.—The Gold Medal of the Society was awarded to Tea Rose Sunrise, a quantity of blooms of which was shown by Mr. G. W. PIPER, Uckfield. This beautiful and distinctly tinted Rose was figured in *Gardeners' Chronicle*, May 20, p. 319. It is brilliant orange-yellow, the backs of the petals being rosy-pink. The blooms are excellent in form, and the variety very free-flowering.

Messrs. PAUL & SON were requested to exhibit their new Rose, Alex. Hill Gray, on a future occasion. It is a fragrant, broad-petalled Tea, cream-coloured, with suspicion of pink towards the margin of the petals. There were several other varieties submitted, but none of them gained an award.

PREMIER BLOOMS.

The best H.P. bloom was Mrs. John Laing, shown by Mr. A. G. GREEN; the best Tea or Noisette was Muriel Grahame, in Mr. B. R. CANT's 1st prize collection of seventy-two blooms; and the best H.T. was the new Rose, Bessie Brown, in a stand from Messrs. D. PATON & SON, in the class for twelve blooms of any white Rose.

AMATEURS.

There was very close competition in many of the classes for Amateur growers only, and some really good flowers were staged.

The Champion Trophy for thirty-six blooms was again secured by E. B. LINDSELL, Esq., Hitchin. Among these was the Silver Medal Hybrid Perpetual, François Michelon, Earl of Dufferin, Marchioness of Londonderry, La France, Ulrich Brunner, Mrs. J. Laing, Gustave Piganeau, Madame G. Luizet, Captain Hayward, Helen Keller, S. M. Rodocanachi, Sharman Crawford, Dupuy Jamin, K. A. Victoria, Comtesse de Ludre, Madame Cusin, Comte Raimbaud, Catherine Mernet, Madame de Watteville, Charles Lefebvre, Horace Vernet, Muriel Grahame, Bridesmaid, Her Majesty, A. E. Williams, Caroline Kuster, Sir R. Hill, Innocente Pirola, Duchesse de Bedford, Madame E. Verdier, Edouard André, Merville de Lyon, Marie Baumann, Mrs. W. J. Grant, Madame Hansmann, and Lady Mary Fitzwilliam were the remaining varieties. T. B. HAYWOOD, Esq., Reigate, made a good 2nd, having G. Piganeau, Her Majesty, Louis Van Houtte, Abel Carrière and Margaret Dickson in grand form; Rev. J. H. PEMBERTON, Havering-atte-Bower, securing 3rd place.

Twenty-four blooms, distinct.—This year, the class for twenty-four varieties was very wisely tied from winners of the Champion Trophy during the last ten years. The Rev. A. FOSTER-MELLIAR, Ipswich, was successful with very bright and even blooms. Dr. Sewell was especially good, the other most noticeable flowers being Caroline Testout, General Jacqueminot, Souvenir de S. A. Prince, Madame Hoste, Média, Etienne Levet, Ulrich Brunner, The Bride, and Marquise de Litta. A. TATE, Esq., Leatherhead, followed very closely, his stand containing the Silver Medal Tea in Princess Beatrice, a really grand flower. F. W. CAMPION, Esq., Reigate, was 3rd.

For twelve distinct trebles.—E. B. LINDSELL, Esq., was well ahead; there were grand trusses of Ulrich Brunner, Marie Beaumann, K. A. Victoria, Mrs. J. Laing, and Captain Hayward. As in the Trophy Class, T. B. HAYWOOD, Esq., of Reigate, made a good 2nd to the champion grower, being followed by Colonel J. H. PITT, Maidstone. Both of these stands contained some capital flowers.

For twelve trusses of any Rose except Teas or Noisettes.—T. B. HAYWOOD, Esq., was first with some very clean and bright examples of Her Majesty. C. J. GRAHAM, Esq., Leatherhead, was 2nd, with Mr. J. Laing; and O. G. ORPEN, Esq., Colchester, 3rd, with K. A. Victoria.

For six distinct new Roses.—The Rev. J. PEMBERTON was well ahead, having Madame Cadeau Ramey in good form.

RESTRICTED CLASSES.

Some of the best blooms in the show were found among the classes open only to growers of fewer than 2,000 plants. E. M. BETHUNE, Esq., Horsham, won for 24 varieties, the six best being Clara Watson, K. A. Victoria, The Bride, Captain Hayward, Marie Van Houtte, and Pride of Reigate. W. COLIN ROMAIN, Esq., The Priory, Windsor, took 2nd place, and R. E. WEST, Esq., Reigate, 3rd. The last named exhibitor had The Bride, Maréchal Niel, and Prince C. de Rohan, in particularly good form.

For eighteen distinct, single trusses.—CONWAY JONES, Esq., Gloucester, was well in front. We noticed here, a good bloom of Catherine Mernet, that was almost as pale as Muriel Grahame; La France, Captain Hayward, and Dupuy Jamin, were also very good. E. MAWLEY, Esq., Berkhamsted, followed, his Marquise de Litta, Dupuy Jamin and Ferdinand de Lesseps being extra clean and good. P. G. C. BURNAND, Esq., Reigate, was 3rd.

Six competitors entered the class for eight trebles, Mr. E. MAWLEY being well ahead in this instance; and his most noticeable blooms were Margaret Dickson, and Mrs. E. Mawley. P. G. C. BURNAND, Esq., had La France, Mrs. R. G. Sharman Crawford, and François Michelon in good form; and he was followed by CONWAY JONES, Esq., Gloucester.

There were also six competitors for nine blooms of any Rose except Teas or Noisettes: P. G. C. BURNAND, Esq., winning with Mrs. Sharman Crawford; Rev. H. A. BERNERS, Harkstead Rectory, was 2nd with Margaret Dickson; and R. E. WEST, Esq., 3rd with Mrs. John Laing.

For growers of fewer than 1,000 plants.—Miss B. H. LANGTON, Hendon, was well ahead of eleven competitors for twelve distinct varieties. Her Majesty, Mrs. W. J. Grant, La France, A. K. Williams, General Jacqueminot, and Marquise de Litta were the best blooms. The last-named variety secured the Silver Medal as the best Hybrid Tea in the Amateur section, and was extra good. Second and third positions were taken by Rev. F. PAGE ROBERTS, Scole Rectory, and G. MOULES, Esq., Hitchin, in the order named.

Nine growers competed for six blooms of any one variety; G. W. COOK, Esq., North Finchley, securing 1st prize with Mrs. J. Laing; Mr. J. BATEMAN, Archway Rd., N., and R. FOLEY HOBBS, Esq., Worcester, following with the same variety.

For growers of fewer than 500 plants.—There were nine competitors in all of these classes, and some of the very best flowers were found in this division.

For nine distinct varieties a piece of plate presented by C. E. SHEA, Esq., was secured by Mrs. L. E. LINES, Hitchin; the best blooms were Alfred Colomb, Mrs. J. Laing, G. Piganeau, and Ulrich Brunner. Mr. E. R. SMITH, Melford Lodge, and Mr. J. CARTER, Halstead, Essex, following in the order named.

A grand half-a-dozen flowers came from J. T. THOMSON, Esq., Round's Green, N., consisting of Mrs. W. J. Grant, Prince Arthur, Marquise de Litta, Mrs. S. Crawford, Captain Hayward, and Mrs. J. Laing. W. D. FRESHFIELD, Esq., Reigate, was 2nd, and had one of the best blooms of Viscountess Folkestone we have seen this season; 3rd place was awarded to J. HUNT, Esq., Hitchin.

F. WELLESLEY, Esq., Woking, was a capital 1st, for six blooms of any variety except Teas or Noisettes, winning with Mrs. J. Laing; the same variety from R. W. BOWYER, Esq., Halesbury College, taking 2nd prize; and Caroline Testout, from G. A. HAMMOND, Esq., Burgess Hill, 3rd.

The Silver Challenge Cup, for twelve blooms, distinct varieties, presented by C. J. GRAHAM, Esq., was secured by Mr. G. MOULES, Hitchin, against twelve competitors, who all showed very strongly. Niphetos, Marquise de Litta, K. A. Victoria, Etienne Levet, Souvenir d'Elise Vardon, Xavier Olibo, Madame Cusin, Comtesse de Nadailac, Ulrich Brunner, Marchioness of Downshire, A. K. Williams, and François Michelon, made a really good dozen. Rev. A. C. JOHNSON, Capel St. Mary, Suffolk, and R. FOLEY HOBBS, Esq., Worcester, followed in like order.

Ten competed for four distinct trebles.—Rev. J. PAGE ROBERTS, Scole Rectory, winning with Comtesse de Nadailac, Marquise Litta, Mrs. J. Laing, and Cleopatra; the last-named were superb flowers. H. P. LANDON, Brentwood, and G. W. COOK, North Finchley, followed with very creditable exhibits.

The Rumsey Cup, for twelve blooms, distinct (open to all Amateurs), was won by the Rev. J. H. PEMBERTON, against eleven competitors. His flowers were Marchioness of Dufferin, Niphetos, Marquise de Litta, Ulrich Brunner, Comtesse de Nadailac, Mrs. J. Laing, G. Jacqueminot, A. E. Williams, Etienne Levet, and Horace Vernet. Mr. C. J. GRAHAM, and Mr. E. B. LINDSELL, Hitchin, following very closely.

The Rev. J. H. PEMBERTON also won Messrs. PAUL & SON's prize, for nine distinct varieties (open to all Amateurs); and Mr. O. G. ORPEN, Colchester, was 2nd.

MAIDEN WINNERS, AND SUBURBAN GROWERS.

In the class open only to amateurs who have never won a prize at an exhibition of the N. R. S., J. C. THOMSON, Esq., Round's Green, N., F. WELLESLEY, Esq., Woking, and G. H. BAXTER, Esq., Brentwood, were successful against

eleven competitors; H. ADAMSON, Esq., Bedale, Yorks, Colonel J. H. PITT, Maidstone, and A. E. GIFFORD, South Norwood, being successful against nine competitors.

The Langton Memorial Cup, for six blooms grown within eight miles of Charing Cross, was won by G. W. COOK, Esq., North Finchley.

TEAS AND NOISETTES.

The Challenge Trophy for 18 blooms, distinct, was easily won by O. G. ORPEN, Esq., Colchester, who had grand flowers of Elsie Fugler, Maman Cochet, and Bridesmaid. A. HILL GRAY, Esq., Bath, and Rev. FOSTER-MELLIAR, Ipswich, being 2nd and 3rd.

Mr. A. HILL GRAY, Bath, won for twelve varieties, the variety Cleopatra being especially good and clean. The same gentleman was also the winner of the piece of plate for eight varieties, three blooms of each; and again of nine blooms of any one variety, staging The Bride in better form than we have seen it before during this season.

Among Growers of fewer than 500 plants.—The Rev. PAGE ROBERTS, Scole Rectory, was ahead for twelve blooms distinct; his blooms of Comtesse de Nadailac, Maman Cochet, and Cleopatra, being very large and bright. Miss B. LANGTON, Hendon, was 1st for nine blooms; and Rev. R. POWLEY, Wymminster, and E. S. MAWLEY, Esq., Berkhamsted, next.

The six best blooms of Maréchal Niel in the Show came from CONWAY JONES, Esq., Gloucester.

For Growers of fewer than 200 plants of Teas and Noisettes.—A. MUNT, Esq., Slough, won for nine blooms with very clean and pretty flowers, and was followed by G. MOULES, Esq., Hitchin, and Mr. G. H. BAXTER, Brentwood.

The Rev. BURNES was 1st for six varieties, The Bride and Medea being particularly good.

For six blooms of any one variety.—The Rev. A. C. JOHNSON, Capel St. Mary, Suffolk, won with the variety, Edith Gifford; the Rev. F. R. BURNES following with Madame de Watteville.

For four varieties (trebles).—Mr. CONWAY JONES, Gloucester, was well in front, Niphetos and Maman Cochet being especially good.

In a class for six varieties, seven trusses of each, Mr. O. G. ORPEN, Colchester, was successful.

GARDEN AND DECORATIVE ROSES.

The best "garden or decorative Roses" came from A. TATE, Esq., Leatherhead, who was well in front of Mr. O. G. ORPEN, Colchester, and Mr. F. W. CAMPION, Reigate, Mr. A. F. PERKINS and Miss D. A. NEXFIELD, Tunbridge Wells, winning in the class for nine varieties.

Miss E. TURNER, Hendon, won for a vase of cut Roses, staging La France in very pretty form; Mrs. O. G. ORPEN and Miss WEST also being successful in this class.

PREMIER BLOOMS.

The best H.T. Rose was Marquise de Litta, shown by Miss LANGTON; the best H.P. was François Michelon, shown by Mr. LINDSELL in the Trophy Class; and the best Tea or Noisette was Princess Beatrice, shown by A. TATE, Esq., Leatherhead.

MISCELLANEOUS EXHIBITS.

Mr. Maurice Pritchard, Christchurch Nurseries, Hants, showed hardy flowers; Mr. F. G. FOSTER, Brockhampton Nurseries, Sussex, a collection of Sweet Peas; Messrs. W. CUTBUSH & SONS, Highgate, London, a group of Carnations, &c.; Messrs. JAS. CHEAL & SONS, Lowfield Nurseries, Crawley, hardy flowers, and sprays of ornamental shrubs; Messrs. Geo. JACKMAN & SON, Woking, hardy flowers, and a fine exhibit of cut Roses; Mr. W. SPOONER, Arthur's Bridge Nursery, had cut Roses, mostly of Tea or garden varieties; Messrs. WALLACE & CO. Kilnfield Gardens, Colchester, in a group of hardy flowers, included some fine Lilies, and varieties of Calochortus venustus, Brodiaea, &c.; Messrs. LAXTON BROS., Bedford, had a collection of mammoth fruits of varieties of Strawberries, including Montmore, Laxton's Admiral, Monarch, Thos. Laxton, and some large pale-coloured fruits of the perpetual-fruited variety, Louis Gauthier. Messrs. JOHN LAING & SONS, Forest Hill Nurseries, London, had the largest exhibit staged. There were numbers of cut Roses and hardy flowers; also Cannas in pots, and a group of ornamental trees and shrubs in pots. Messrs. Geo. BUNYARD & CO., Maidstone, exhibited cut Roses; Mr. W. RUNNEY, Joyning's Nurseries, Waltham Cross, had blooms of his H.P. Rose, Mrs. Runney; and Mr. J. WILLIAMS, Oxford Road, Ealing, had table decorations, &c.

THE ROYAL SOUTHAMPTON HORTICULTURAL.

JUNE 27, 28.—This important Society held its annual summer show on the pier on the days named, this being the second year since its establishment.

The groups of plants in the Concert Hall were of themselves an imposing display; and the awards fell to Mr. E. CARR, gr. to W. A. GILBERT, Esq., Fair Oak Park, Bishopstoke, 1st, the group contained numerous Orchids.

Specimen stove and greenhouse plants were well shown by Mr. W. PEEL, with profusely-flowered plants of Ixora Williamsii, Anthurium Scherzerianum, and a Codium angustifolium, highly coloured. Mr. BLANDFORD took the 1st prize for specimen plants, including a very fine Bougainvillea glabra, and a Stephanotis floribunda. Ferns

were well shown, and Mr. OSMAN was 1st for four plants. Mr. CARR had the best Caladiums; Mr. C. H. ROSEY, gr. to J. C. E. D'ESTRANGE, Esq., Elmfield Hill, Southampton, the best Gloxinias in a brisk competition.

Roses of good quality were staged, if not in large numbers. Messrs. D. PRIOR & SONS, Colchester, were awarded all the leading prizes in the open classes, viz. for thirty-six blooms, distinct, eighteen trebles, twelve Teas, and six dark, and the same number of any light-coloured variety. In the local classes, Mr. W. NEVILLE, gr. to F. W. FLIGHT, Esq., Twyford, Winchester, Dr. SKATON, Bitterne, and Captain RAMSAY, Fareham, were the principal prize-takers. In the class set apart for ladies, for a basket of Roses Mrs. C. S. FERIDGE was awarded the 1st prize. Miss WILLS was 1st for an Epergne, tastefully filled with flowers, &c.

Mr. B. LADHAMS, Florist, Shirley, secured the premier award for bridal and ball bouquets, both being of more than average merit.

Hardy herbaceous flowers were a strong class, and the best twelve were shown by Mr. LADHAMS.

Fruit and Vegetables made a good and extensive display; Mr. BOWERMAN, gr. to Mrs. C. HOARE, Hackwood Park, Basingstoke, was 1st for three bunches of Grapes, also for two of black and two white, and in all classes he showed garden productions of more than average merit.

In Vegetables Mr. BOWERMAN was invincible. His exhibits of Onions, Carrots, Peas, and Potatoes leaving nothing to be desired.

Mr. LADHAMS received an Award for Campanula periclymenifolia, variety Mont Blanc, a large-flowered form of C. p. Backhouseana; and for Coreopsis Eldorado, a variety with flowers 3 inches in diameter.

Messrs. E. WEBB & SONS, Stourbridge, and Messrs. TOOGOOD & SONS, Southampton, exhibited immense bunches of leading varieties of Sweet Peas; Mr. M. PRITCHARD, Christchurch, hardy flowers; Messrs. ROGERS & SONS, shrubs; Messrs. JARMAN & CO., Chard, Roses and herbaceous flowers.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 29.—The meeting was a good one, and there was quite a fine display of good Orchids, forty-three subjects being brought under the notice of the Committee.

Mr. BRIGGS BURY, Acrlington (gr. Mr. Wilkinson), exhibited a nice plant of the now well-known *Lælia tenebrosa*, "Walton Grange" variety, and received a First-class Certificate for the same.

Messrs. F. SANDER & CO. exhibited three very choice Orchids, one a very handsome form of *Cattleya Mendell*, which received an Award of Merit; *Cattleya Mossiae Sandere* is a beautiful and distinct variety, but received no award; and *Thunia x Brymeriana* (T. Bensoniae x T. Marshalliana), and well intermediate between its parents, was also passed over.

F. STATTER, Esq., Whitefield (gr. Mr. Johnson), showed *Lælio-Cattleya x Hippolyta*, the best form we have yet seen in Manchester, but still not good enough to receive any award; *Lælio-Cattleya x Statters*, from the same collection, a good and somewhat distinct plant, which, as seen, it gives one the impression of being a natural hybrid, having *Lælia purpurata* as one of its parents; the plant was put back, to be seen upon a future occasion. *Odontoglossum crispum* "The albino" is from the same collection, and is certainly a variety of much distinctness, still the Committee could perceive no point in it for which to grant an award.

J. LEMANN, Esq., Heaton Mersey, put a choice group of Orchids up, amongst which were two good varieties of *Lælio-Cattleya x Eudora*, one called *Alba*, *Cattleya x Gandi*, having *C. guttata Leopoldi* and C. Loddigesii for its parents, was not an improvement upon either of its parents. The group was awarded a Silver Medal.

Mr. A. J. KEELING, Bingley, Yorks, exhibited a plant of *Masdevallia Gairiana*, a pretty, but by no means new, hybrid between M. Davisii x M. Veitchii.

Messrs. JAS. VEITCH & SONS staged a small group of choice plants, the best being *Lælio-Cattleya x Eudora* var. *eximia*, possessing a wonderfully brilliant, large and well-shaped lip; possibly this was the best Orchid shown on this day. L.-C. Canhamiana var. *albida* was given an Award of Merit; and *Cattleya Gaskelliana* var. *formosa*, a very choice light variety, an Award of Merit.

Mr. J. CYPRER staged a plant of *Cattleya Mendell* var. "John Lemann," and it received an Award of Merit; it is a splendid grower, and the plant bore fine flowers on the spikes. JOHN COWAN & CO., LTD., Gateacre, had a few very pretty *Odontoglossums*, showing a good type.

G. W. LAW-SCHOFIELD, Rawtinstall (gr. Mr. Shill), had half-a-dozen excellent plants, his *Lælio-Cattleya* "Fire King" var. "Frances Mary" received a First-class Certificate. *Cypripedium Shillanum* (C. Goweri x C. Rothschiliani) is a very good plant, and has the qualities of both its parents, and makes a bold and imposing flower (Award of Merit). Mr. SCHOFIELD also had some fine forms of L.-C. Canhamiana, and his L.-C. Eudora received an Award of Merit.

A. WARBURTON, Esq., Haslingden (gr. Mr. Lofthouse), sent a very handsome variety of *Odontoglossum vexillarium* called *Warburtonianum*, which was admired, and received a First-class Certificate. It is in the way of O. v. Leopoldi, but the marking in the lip is not so acute nor so dark as in that variety. It deserves to rank in the same class.

Mr. JOHN ROBSON, Altrincham, exhibited a magnificent plant of that beautiful "old-fashioned" Orchid, *Epidendrum prismatocarpum*.

Messrs. CHARLESWORTH & CO., Bradford, had a few nice plants, the best being a specimen of *Cattleya Mossiae* var. *Wagneri*, bearing ten or a dozen flowers, which were slightly past their best. Other good things from the same firm were L.-C. Eudora, L. x cinnabrosa, which composite specific name implies its parentage as L. cinnabarina and L. tenebrosa, an interesting plant, but not far enough removed from *Hippolyta*, *Phoebe*, and *latona*. *Cattleya Mendell* var. *Princess Victoria* is a handsome and charming variety, although no award was given to it.

F. BAXTER, Esq., Morecambe (gr. Mr. Roberts), sent a few plants of *Odontoglossum crispum*, flowering for the first time, and indicating a possible "Klondike" for the firm who imported them (Vote of Thanks).

THE BIRMINGHAM AND MIDLAND COUNTIES CHRYSANTHEMUM.

GREAT AS WAS the success of the Chrysanthemum Exhibition, held in Bingley Hall in 1897, the report of 1898, their thirty-eighth annual show, held in November last, was even a greater success. The Committee hope by strict attention to the comfort of visitors, the convenience of exhibitors, together with the largely-increased prize list, and due regard for the safety and preservation of exhibits committed to their charge, to make their 1899 exhibition by far the most notable of its kind ever held in the midlands. The general statement of accounts shows:—

	£	s	d.
Deposit account	215	4	7
Current account	125	5	10
	810	10	5
By balance excess of income over expenditure for year ending April 13, 1899	112	8	8
By surplus from previous year's accounts	115	4	10
By reserve fund	112	16	11
	840	10	5

Schedules and all particulars post free on application to the Secretaries—J. Hughes, 110, High Street, Harborne, Birmingham; F. W. SIMPSON, Victoria Road, Harborne.

RYDE HORTICULTURAL.

THE ANNUAL ROSE SHOW was held on Coronation Day in the beautiful grounds of Appley Towers, by permission of Mr. G. W. HUNT, who greatly interested himself in the event of the day, taking a prominent part in the management of the sports. The exhibits were very fine indeed.

In the open classes, Mr. F. CANT, Chelmsford, secured the higher Awards; and in the local classes, the competition was keen. The principal exhibitors and prize-winners were Mrs. E. CROFT-MURRAY (gr. J. H. Kent), Miss CARTER (gr. J. Kent), T. L. WINTHORPE (gr. C. Pince), J. LEE-WHITE (gr. Mr. Knapp), Colonel SMITH (gr. E. Moth), Rev. J. SHARPE (gr. W. Brett), J. O. BROOK (gr. W. Spragg), Mrs. MAINWARING (gr. W. Burden), Mrs. HARRIDGE (gr. J. Cluitt), Geo. WILLIAMS, J. LEEK, J. WOODFORD, and G. E. LIPSCOMBE. Mrs. G. H. KENT secured the premier Award for table decorations.

Mrs. CROFT-MURRAY showed excellently garden-Roses; also Mr. E. C. GORLE, F.R.H.S.

ISLE OF WIGHT.

JULY 1.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday, Dr. J. GROVES presiding.

Mr. A. COFFIN of Lisle Court, Wootton, gave a lecture on the "Cultivation of Ferns," which was followed by a profitable discussion. The exhibits consisted of culinary and Sweet Peas, seedling tuberous Begonias, &c.

ROYAL HORTICULTURAL, IRELAND.

JUNE 29.—The annual Rose Show of the Royal Horticultural Society was held on the above date, under very favourable circumstances, in Merrion Square, Dublin, although the intended visit of the Lord Lieutenant was postponed, His Excellency having to be present at the conferring of degrees of the "Silent Sister" Trinity College.

The Rose Show of this year was not so good as usual, but in the opinion of the judges, the quality of the exhibits was above the ordinary standard; and the entries numbered 160. The Carnations were very fine—the Carnations in particular were the finest that have been seen in recent years; and the double tuberous-rooted Begonias staged by Lord ASHBROOK were a meritorious stand. Fruits and Vegetables were up to the usual standard.

FLOWERING PLANTS.

At the entrance of one of the marquees, Messrs. DICKSON, nurserymen, Chester, staged a very fine collection of herbaceous plants; amongst the Peonies, some fine specimens of *Caroline*, *Elaine*, *carnea elegans*, M. Bouchalart, and *grandiflora nivea*; and an equally splendid group of Spanish Irises, which were highly admired.

Mr. W. WATSON, Nurserymen, Clontarf, staged a splendid collection of plants; specimens of *Prunella Welliana*, *Iris anglica* White Lady, *Philadelphus hybrida*, *Coronilla varia*, *Coreopsis lanceolata*, *Cephalaria alpina*, *Tradescantia vir-*

ginica, *Inula Hookeri*; but probably the distinctive item of this stand was the fine collection of *Violas*, including *Florizel Pembroke*, *Lizzie Barron*, H. W. Stewart, A. J. Rowberry, and *White Perfection*, the whole forming a very creditable stand.

Messrs. RAMSAY & SONS, nurseries, Balls Bridge, staged a very good collection of plants. The stand included *Hydrangeas*, *Cannas*, and some extra good samples of *Cocos Weddelliana*.

D. DRIMMIE, Esq., J.P., Belle Vue, Bootertown, staged a magnificent collection of *Gloxinias*, and a very fine plant of *Dendrobium suavisissimum*. The Right Hon. J. M. MEADE, LL.D., P.C., Ailesbury Road, Meriton, staged some fine *Fuchsias*, possessing a wealth of blossoms.

C. T. SPEAR, Esq., Glenageary, sent a fine sample of *Sobralia macrantha*. Also Mrs. BURROWS, Dorrden, Bootertown, an example of *Kalosanthes coccinea*; and both came in for a fair share of attention.

ROSES.

Messrs. ALEXANDER DICKSON & SONS, The Nurseries, Newtownards, co. Down, exhibited one of the finest stands of Roses in the show; also a fine collection of herbaceous perennial plants. Amongst the Roses, splendid samples of Mrs. J. W. Grant, Mildred Grant, Alice Lindsell, Mrs. Conway Jones, and Bessy Brown.

J. A. MILLAR, Esq., Windsor House, Monkstown (gr. D. Colohan), staged a very effective group of Roses, the best of which were Messrs. Sharman Crawford, Margaret Dickson, Niphetos, Ulrich Brunner, and Gloire de Dijon.

E. BEWLEY, Esq., 5, Cowper Road, Rathmines, had a nice stand of Roses, including nice specimens of The Bride.

J. HUME DUDGON, Esq., Merville, Bootertown, had a fine stand of La France.

Messrs. CHARLES RAMSAY & SONS, Balls Bridge Nurseries, staged an excellent collection of Roses, amongst which the following were worth noting:—Baroness Rothschild, Prince Camille de Rohan, Niphetos, Dupuy Jamain, Countess of Nadailiac, Mrs. John Laing, Captain Christie, and Madame Willermoz.

AWARDS.

Stand of thirty-six Roses, cut blooms, not fewer than twenty-four varieties, nor more than two of any variety. A Challenge Plate, value £25, presented by Messrs. Alexander Dickson & Sons, Newtownards, co. Down. The Society adds money prizes: 1st prize, F. A. MILLER, Windsor House, Monkstown (gr. D. Colohan); 2nd, Lord ASHBROOK, Woodlawn, Galway (gr. A. Porter).

CARNATIONS.

Carnations formed a goodly show, and were the objects of much critical attention; the marquee was filled during the afternoon by troops of admirers. The chief exhibitors were Surgeon-General BRAUMONT, M.D., Palmerston House, Palmerston Park; J. J. McKellar, gr. to Lord ASHBROOK; Lord CLOMCCURRY LYONS, Hazelhatch; Col. C. F. CRICHTON, Mullabaden, Ballymore, Eustace.

Begonias were well shown by Messrs. CHARLES RAMSAY & SONS, Balls Bridge, and by Lord ASHBROOK.

PLANTS.

The group of plants staged by Mr. F. W. MOORE, The Botanic Gardens, Glasnevin, were a very noteworthy exhibit.

FRUITS AND VEGETABLES.

EDMUND D'OLIER, Esq., Knocklinn, Bray, had some fine samples of Royal Sovereign; also Earl of DROGHEDA, with Laxton's Leader.

J. HUME DUDGON, Esq., Merville, Bootertown, exhibited a fine dish of Cherries, May Duke, and took 1st place.

Lady EMILY BURY, Tullamore, King's County, took 1st place with a dish of Perfection.

Earl of DROGHEDA, Moore Abbey, Monasterevan, exhibited a choice selection of Drummond's Desideratum.

G. C. ASHLIN, Esq., St. George's, Killiney, took 1st place with his collection of vegetables, the Green Peas and Tomatoes being the best of the kinds.

AWARDS.

Stand of two bunches of Grapes, one black and one white, with 1st prize the Society's Large Silver-gilt Medal, and with 2nd prize the Society's Bronze Medal: 1st, J. V. WESTBY, Roebuck Castle, Dundrum (gr. Mr. Bunting); 2nd, The Lady EMILY BURY, Charleville Forest, Tullamore, King's County (gr. R. McKenna).

Grapes, white, stand of two bunches, 1st, Lady EMILY BURY, Tullamore, King's County; 2nd, J. V. WESTBY, Roebuck Castle, Dundrum.

Grapes, black, at end of two bunches, 1st, J. V. WESTBY, Dundrum; 2nd, Lady EMILY BURY, King's County.

Melon, green or white flesh, 1st prize, Mrs. MOORE, Ashtown, Phoenix Park (gr. M. Kearns); 2nd, Rt. Hon. J. M. MEADE, LL.D., P.C., Ailesbury Road, Merron (gr. J. Colgan).

GLOUCESTERSHIRE ROSE

JULY 4.—The Gloucestershire Rose Society held their eleventh annual exhibition of Roses at Gloucester on the above date. The entries, which numbered 207, were far in excess of those of last year, and the quality of the blooms exhibited bore favourable comparison with any previous collection shown in the city.

With regard to the special awards, the Gold Medal given by the Society for the champion class in the county was again won by Mr. E. C. HOPKIN, Hucclecote. Mr. CONWAY JONES (who did not compete in this class, having won the prize twice before) secured the Silver Medal for the best Tea or

Noisette exhibited by any amateur, with The Bride. Mr. G. R. BONNAR was awarded a similar honour for the best hybrid perpetual, with Mrs. John Laing.

The 1st prize in the class for the City of Gloucester amateurs, given by the Mayor and Corporation, went to Mr. H. M. HARTLAND; whilst Mr. CONWAY JONES was awarded the piece of plate given by the High Sheriff for a magnificent box of Tea Roses, twelve varieties.

EALING HORTICULTURAL.

JULY 5.—This was the thirty-fifth exhibition of this Society, and took place in the park attached to the residence of the aged Miss Perceval, Manor House, which is in the centre of Ealing and adjacent to the green. Five commodious tents were filled with exhibits, but as compared with the exhibitions held a dozen years ago, there was a considerable falling-off in the competitive classes.

Miscellaneous exhibits made a very imposing feature. From Gunnersbury Park and also from Gunnersbury House came two superb groups. Mr. REYNOLDS made use of Lilies, Ixoras, Orchids, &c., with foliaged plants, while Mr. HUDSON had Cannas, with foliaged plants, and in the foreground of his group the rich blue *Exacum macranthum*, which with its yellow stamens represents the colours of the Rothschild family; and he had also blooms of *Nymphaea Stella*, which formed a fine feature. Mr. CHARLES TURNER sent from Slough about thirty specimen plants of large-flowered and fancy *Pelargoniums*; Messrs. J. VERTUE & SONS had very fine cut Roses and a rare collection of hardy cut flowers; Messrs. C. LEE & SONS had a large and imposing group of hardy variegated plants. Messrs. FROMOW & SON, Chiswick, had a large group of Japanese Maples; Mr. GEORGE CANNON, St. John's Nursery, a fine group of plants; and Mrs. H. B. SMITH, the local Court florist, some very elaborate floral decorations.

Cut Roses are always a leading feature, and in the nurserymen's class for forty-eight blooms Mr. C. TURNER came in first with bright, fresh, medium-sized flowers, the crimson varieties being especially effective. Messrs. G. & W. BUCKH, Nurserymen, Peterborough, were 2nd.

In the local class for twenty-four blooms, the first being the Gold Medal of the National Rose Society, there was a keen competition, the award going to Mr. E. P. OAKSHOTT (gr., C. Long).

The other Rose classes were well filled, but the average of quality was affected by the close warm weather.

Other classes for cut flowers produced excellent *Gloxinias*, stove and greenhouse cut flowers, *Pelargoniums*, hardy perennials, Sweet Peas, &c.

Groups arranged for effect were a good feature; and in the class for a large one Mr. J. HARRIS was 1st; and in that for a smaller, Mr. M. HULBERT came in 1st. Fine foliaged plants, stove and greenhouse flowering, among which a grandly-bloomed specimen of *Datura suaveolens* was a conspicuous feature; *Fuchsias*, *Cycladums*, *Coleus*, Ferns, &c., were also exhibited.

Fruit was sparingly shown, the hardy varieties predominating; there were very good vegetables, a good deal of the soil of Ealing being well adapted to produce them in good character.

Cottagers' productions filled a large tent, and the numerous allotment gardens at Ealing being well tilled, the display is always numerous and very fine; and in a competition between the allotment gardeners and the private gardeners, we think the former would hold their own.

NATIONAL ROSE EXHIBITION AT COLCHESTER.

(By Telegraph.)

JULY 6.—The National Rose Society is this year holding but one exhibition in the provinces, and this took place at Colchester, in connection with the Colchester Rose and Horticultural Society, and in the centre of one of the greatest Rose growing districts in the kingdom.

A very fine show, and the quality of the Roses in the leading classes was excellent. Some who had entered were unable to show owing to the weather. In the Jubilee Trophy classes, i.e., for seventy-two blooms, distinct, and thirty-six, distinct, Mr. B. CANT was 1st; he also won three Medals for premier blooms. The competitions for thirty-six and eighteen blooms, distinct, were won by Mr. D. PRIOR & SON, with twenty-four.

For twenty-four blooms, Teas or Noisettes, distinct: 1st, Mr. FRANK CANT & CO. And for twelve blooms, Messrs. HARKNESS & SONS were 1st. Mr. FRANK CANT & CO. had the best garden Roses. The twelve best Teas or Noisettes were shown by Mr. B. R. CANT.

The Amateurs' Jubilee Trophy, viz., for twenty-four blooms, distinct, was won by Mr. E. B. LINDSELL, with a very fine stand, including a Medal bloom.

Class 18, for thirty-six blooms, distinct, and open to all amateurs, irrespective of the number of plants that they grow, was won by the Rev. J. H. PEMBERTON.

The prize given by the Mayor of Colchester for twelve blooms, distinct varieties, was won by Mr. O. G. ORPEN, the stand including a Medal bloom.

The best collection of eighteen blooms (amateurs), Teas and Noisettes, came from the Rev. A. FOSTER-MELLISH, Sproughton Rectory, Ipswich; Mr. O. G. ORPEN was 2nd. The weather was fortunately fine

WADDON HOUSE, CROYDON.

THERE are about 15 acres, chiefly gardens and pleasure-grounds, surrounding the residence of Philip Crowley, Esq., F.L.S., Treasurer of the Royal Horticultural Society. In every part there is evidence that its owner is a lover of plants, and especially of beautiful, old, and now but little-known ones. The house stands on high ground, with a fine expanse of smooth and well-kept lawn around it, belted by shrubberies and grand old trees, the Beeches being specially beautiful. To the left, and beneath the trees, are rockeries planted with Ferns, &c., some of which have been collected by Mr. Crowley, or some of his family, in Switzerland and Germany. Of these, two very remarkable and interesting instances may be cited, viz. *Asplenium septentrionale*, collected by Mr. Crowley in 1888, and *A. fontanum* collected by a member of the family in 1841, which have been kept in vigour, the safety of the stock being secured by having good plants of each protected. In places the rockeries merge into a wild, but still well-kept garden, in which the spring flowers, such as seen in the illustration of *Anemone apennina*, in the *Gardeners' Chronicle*, June 24, p. 407, make a charming show. Beyond are the well-cropped kitchen and fruit gardens, which are reached by walks bordered by herbaceous perennials, the same continuing through the kitchen-gardens, a fine show being made with Peonies, Pinks, Roses, Sweet Peas, Campanulas, Delphiniums, &c. Conspicuous in the herbaceous borders is *Papaver pilosum*, with its showy heads of orange-red flowers, and Lord Anson's Pea (*Lathyrus magellanicus*).

On the other side of the house is a conservatory furnished with Palms, Ferns, and flowering plants, and adjoining it is a rockery-house, very tastefully planted with Ferns, Begonias, and other plants; an effective feature in the house being its flooring of rock, shelving downward and arranged to match the rest of the rockery; another effective feature being a partial screen of *Ficus stipularis* running across the upper part of the structure.

THE GLASS-HOUSES

are arranged for the accommodation of a representative collection of plants, or rather for the best representatives of each of the species cultivated. Orchids included, and of these, although no general collection is attempted, fine examples of most of the leading showy species were remarked. Some species reputedly difficult to grow, the gardener, Mr. J. Harris, is capable of growing satisfactorily. Among these may be noted *Vanda coerulea*, several plants of which have here been growing with increasing vigour, and one fine form was recently in bloom. Another is *Epidendrum bicoloratum*, which thrives and flowers annually; *Vanda suavis* and *V. tricolor*, old Waddon plants, are still in vigorous health; *Saccolabium ampullaceum*, with many growths, each year produces a fine show of flowers; *Vanda Sanderiana*, and other *Vandas*, *Saccolabiums*, and *Aérides*, which few growers manage successfully for any length of time.

The occupants of all the Orchid-houses, without showing any abnormal growth, afforded evidence of vigour well maintained. Among those in flower were varieties of *Cattleya Mendeli*, and *C. Mossii*; *Lælia purpurata*, among which two remarkable and dissimilar forms were noted, viz. L. p. "Waddon House" variety, a white flower with a rose-purple zone to the lip, and pale rose apex; and a form of L. p. *Bryasiana*, a richly-coloured flower, with petals bearing a fine rose-coloured veining. Grouped with these were very fine *Odontoglossum crispum*, and a lesser number of *O. Pescatorei*, and other species. The cool house: *Maedevallia Harryana*, and *M. ignea*, with *Odontoglossums*, *Sophranitis grandiflora*, *Oncidium*, *Phalenopsis*, *Epidendrum vitellinum*, &c. A feature in this house was that the whole of the basement beneath the staging is moss-grown rock-work, in which large tufts of *Trichomanes radicans*

(Killarney Fern) are growing in the most luxuriant fashion, their fresh, cool-looking frondage being perfect. With them grow other Filmy Ferns, all doing well, and presenting a much more beautiful appearance than when seen enclosed in Wardian cases, or otherwise protected by glass, as is usually the case.

Other Orchids noted in flower were *Aérides Lobbi*, *Lycaste Barringtonia*, *Lælia tenebrosa*, *Saccolabium Blumei*, *Odontoglossum citrosimum*, *Cælogyne Massangeana*, *Oncidium Lanceanum*, and other *Oncidiums*; the fine old *Maxillaria tenuifolia*, covered with its reddish flowers; *Dendrobium Dearei*, *D. chrysanthum*, *Cypripediums*, *Cymbidium*, &c.

The Fern-houses contain some very handsome specimen Ferns, the beautiful plants of *Davallia fijiensis*, *D. F. plumosa*, *D. F. elegans*, *D. polyantha*, *D. Mooreana*, and others, being each several feet across, with fronds quite perfection. Specimen *Selaginellas*, which are here grown in the pyramid form, are also very beautiful objects, even the very dwarf ones, such as *Selaginella apoda*, being arranged in conical form.

The stoves also have a very fine lot of specimen *Codæums*, *Dracænas*, *Alcasias*, *Anthuriums*, &c., as well as grand examples of the showy flowering species, among those in bloom being specimens of *Clerodendron Balfouri*, *Anthurium Laiagi*, *A. carneum*, *Hymenocallis littoralis*, *Acalypha hispida*, *Crinum Mooreanum*, some of the best *Ixoras*, finely flowered shrubby *Begonias*, &c. The roof in each of the houses is made use of to train flowering climbers which aid much in growing an effective display, those in flower now being *Dipladenia amabilis*, *D. Brearleyana*, *Clerodendron Balfouri*, *Allamandas*, *Aristolochia elegans*, and the large claret-coloured *Hoya imperialis*, which continues its flowering for about ten months each year.

Other things well-flowered noted were a showy collection of *Gloxinias*, fine specimens of *Achimenes*, *Pavonia multiflora*, *Asclepias curassavica*, *Eucomis punctata*, handsome flowering Cannas, *Begonia Gloire de Lorraine*, as usual covered with flowers almost hiding the leaves; and coming into bloom a fine bush of *Coffea arabica*, which usually bears Coffee-berries here; and a good batch of the yellow *Richardia Elliotiana* raised from seed on the place.

The vineries and other fruit-houses showed capital crops of fruit of special interest, being a house the roof of which is covered by a very old specimen of *Citrus medica* (Citron), which annually bears a large crop of fine fruits.

NOTES FROM A SCOTTISH MANSE.

ATMOSPHERIC conditions are at present highly favourable for vegetative growth; our gardens are assuming a fresher and a brighter aspect. The African *Ixias*, Californian *Calochorti* (with the exception of the *Mariposa Lilies*) are in splendid bloom, and the gracious reign of the Rose has begun. The wild flowers, which so greatly glorify our waysides and sequestered woodlands; our deep glens and shadowy valleys with their murmuring silver streams, are also very beautiful, especially such beauties as the stately pink *Campion* and the tenderly-formed *Woodsorrel*, the lesser *Stitchwort*, and the wild *Geranium*; the white and yellow *Marguerites*, the wild *Pinks*, the insectivorous *Sundew* (*Drosera rotundifolia*), and graceful *Milk-wort* on the confines of the remote, rocky regions of Heath and Heather cresting the western sea; and the fragrant *Burnet Rose* (*Rosa spinosissima*) on picturesque slopes along the eastern shore. By the side of the burns that make musical our glens, the *Myosotis*, overlooked by the happy "Bird's-foot Trefoil," loves to dwell; it is, like its frequent companion, *Iris pseudacorus*, a moisture-loving flower; the supreme beauty of the Hawthorn—the bride of the woodlands—has been succeeded by that of the richly fragrant *Woodbine*, the crowning glory of our Scottish woods.

While such are the romantic surroundings of the garden, its predominating attraction is unquestionably the Rose. The Roses that flower earliest are always exceedingly interesting; they come to us with what may be entitled a new-old aspect of brightest hopefulness, after the long, patiently experienced period of winter gloom. True indeed that the Snowdrop, the Crocus, and the Narcissus exquisitely intervened with their infinitely varied colours and memorable fragrances, which lingers in our consciousness when their fair forms (like many whom we have loved and lost, but whose influence remains to bless our activities) have silently passed away—

"They may be called the creatures of a day,
Yet deathless is the grace they leave behind."

But though the season intervening between winter and summer is made so consoling by the providential advent of such marvellous types of beauty, we hail with gladness the annual reappearance of the queenly Rose. I have said already that her earliest flowers have always for the earnest and loving cultivator a peculiar fascination. The first Roses which opened impressively in my garden this year were Clio, a grand pale-pink variety, endowed with splendid attributes, raised by Mr. Wm. Paul at Waltham Cross; and Papa Gontier, one of the finest of French Hybrid Teas, the value of which for garden decoration can hardly be emphasised or eulogised too much. Immediately following these came Madame Pernet Ducher, a very precious variety, canary-yellow in colour, with a centre of somewhat richer hue, akin to apricot—introduced by the distinguished Continental rosarian whose name it bears, in 1891; Captain Hayward, a brilliantly-coloured crimson, highly perfumed Rose; Viscountess Folkestone, and Grace Darling, for which three Roses of the greatest attractiveness we are indebted to the late Mr. Bennet, some of whose creations will not soon be superseded; Margaret Dickson, and Mrs. W. S. Grant, "the fairest of the fair." And though the Dukes of Edinburgh and Wellington are only as yet on the confines of their wonderful beauty (scarlet flashing through maroon, like the deep lustre that sometimes radiates through the plumage of a dark bird); we have the hardly less radiant flowers of A. K. Williams, Madame Lambert, and Duke of Albany; to be followed by Cheshunt Scarlet, and, above all, those of Clara Watson and the incomparable La France.

Among Roses of recent origin at present in bloom two of the most interesting are Ardsrover and Countess of Caledon, both of which possess the attribute of fragrance in an eminent degree. Meta and Beryl, also from Newtownards, are not grown well with me; the latter has produced one solitary but extremely charming flower. Mr. Paul's Aurora, of whose merits I have heard much, I cannot characterise, as it is not yet (June 29) in bloom.

My Oriental and American Lilies are already far advanced. The development of *Lilium giganteum* is so rapid as to be astonishing; and on many of my auratum the flower-buds are conspicuous. *Lilium davuricum*, which belongs to the sub-genus *Isolirion*, and is a native of Siberia, has reached its flowering season; so also has a much lovelier Lily, *Lilium Washingtonianum*, which American naturalists call the "Queen of the Sierra Nevada," a title which, even when it is placed in comparison with such Californian rivals as *Lilium pardalinum* and *L. Humboldtii*, it amply deserves. Its colour at first is almost pure white, gradually shading off to delicate lilac; its form is faultless, and it has the fragrance of the Honeysuckle. *Lilium Washingtonianum* is, therefore, "a gem of purest ray serene." Its fairest companion at present in my garden is *Magnolia Watsoni*, which has flowered this season for the first time since the summer of 1895. It is of eastern origin, a native of Japan. David R. Williamson.

Obituary.

JOSEPH DAWSON.—We regret to announce the death recently of Mr. J. Dawson, of Darley Dale, for many years gardener, and latterly steward to Sir Joseph Whitworth, at Standcliffe Hall, Derbyshire. When Sir Joseph came into possession of the Standcliffe estate in 1856, Mr. Dawson was engaged to lay it out under his employer's superintendence, with eminently satisfactory results. Previously he had acted as one of the late Sir Joseph Paxton's trustworthy assistants in the laying-out of the grounds of the Crystal Palace. The deceased was for the period of forty years gardener, and subsequently steward at Standcliffe. As evidence of his skill as an artist in rockwork and in tree-planting, we would refer our readers to two supplements given with our issues of Dec. 24, 1884, and August 14, 1886.

MARKETS.

COVENT GARDEN, JULY 6.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Fuchsias, per dozen	6 0-10 0
Aspidistra, p. doz.	18 0-36 0	Hydrangeas, p. doz.	6 0-10 0
— specimen, each	5 0-10 0	— paniculata, doz.	18 0-24 0
Bouvardia, p. doz.	18 0-42 0	Lycopodium, doz.	8 0-4 0
Calceolaria, p. doz.	5 0-9 0	Marguerite Daisy,	
Eunymium, various,		per dozen	6 0-8 0
per dozen	6 0-18 0	Mignonette, p. doz.	4 0-8 0
Ferns, in variety,		Palma, various, ea.	1 0-15 0
per dozen	4 0-12 0	— specimen, ea.	21 0-38 0
— small, per 100	4 0-6 0	Pelargonium, var.,	6 0-10 0
Pious elastica, each	1 0-5 0	— Zonala, per doz.	6 0-8 0
Foliage plants, var.,		Roses, per dozen	6 0-9 0
each	1 0-5 0	Spiraea, per dozen	4 0-6 0

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen	4 0-6 0	Marguerites, p. doz.	8 0-4 0
Asparagus "Fern,"		Maldenhair Fern,	
bunch	2 0-3 0	per doz. bunches	4 0-6 0
Azalea, white, 12		Narcissus, White,	
bunches	2 0-3 0	orchid bunches	1 6-2 0
Azalea mollis, per		Orchids, per dozen	
dozen bunches	6 0-9 0	blooms	6 0-12 0
Bouvardia, per bun.	0 4-0 6	Paeonies, doz. bun.	6 0-12 0
Carnations, per doz.		Pelargonium, doz.	
blooms	1 6-3 0	bunches	4 0-6 0
Cornflowers, dozen		— scarlet, doz. bun.	4 0-6 0
bunches	2 6-3 0	Roses (indoor), per	
Daffodils, per dozen		dozen	1 6-2 0
bunches	—	— Pink, per dozen	4 0-6 0
Enchiridion, per dozen	3 0-4 0	— Tea, white, per	
Gardenias, per doz.	1 0-3 0	dozen	2 0-3 0
Iris, p. doz. bunches	6 0-9 0	— Ferle, per doz.	1 0-2 0
Lilium longiflorum,		— Safrano, p. doz.	1 6-2 0
per dozen	4 0-6 0	Smilax, per bunch	8 0-5 0
— candidum, per		Spiraea, doz. bun.	4 0-6 0
bunch	2 6-3 0	Stock, doz. bunches	2 0-3 0
Lily of the Valley,		Sweet Peas, dozen	
per doz. bunches	4 0-12 0	bunches	8 0-4 0
Mignonette, doz. bun.	2 0-3 0	Tuberose, 12 blms.	0 8-1 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian		Grapes Channellais	
and Victorian,		Hamburg, lb.	1 6-1 10
French Crab,		— Muscata, lb.	1 3-3 0
Pearmain, New York		Lemons, Naples,	
Pippin, Strimmer,		per case of 300	18 0 —
case	6 0-12 0	— Murcia, case, 120	2 0 —
Apricots, box of 12		Lyches, Chinese,	
or 15	1 6 —	packet, 1 lb.	1 3 —
— basket, about		Melons, each	1 3-2 0
10 lb.	3 6-3 6	— Foreign Rock	1 6-3 0
Bananas, per bunch	7 0-10 0	Nectarines, A., per	
Cherries, Eng. Blks.		dozen	10 0-12 0
— white, sieve	4 0-6 0	— B., per dozen	3 0-6 0
— May Duke, per		Oranges, Murcia,	
sieve	5 0-6 6	various num-	
— Foreign, sieve	4 0-7 6	bers, from 96	
Figs, per dozen	1 6-8 0	to 120	18 0 —
— French, boxes	1 2-1 3	Peaches, A., per	
Gooseberries, sieve	1 9-2 3	dozen	10 0-12 0
Grapes, English,		— B., per doz.	8 0-6 0
Hamburg, A.,		— Foreign, box, 12	1 6 —
per lb.	1 6-2 0	Pines, St. Michaels,	
— B., per lb.	0 10-1 3	each	2 6-4 6
— Muscata, A.,		Plums, basket	3 0 —
per lb.	2 6-3 0	— Gages, box of 40	2 6 —
— B., per lb.	1 6-2 3	Strawberries,	
— Belgian, per lb.,		in punnets, dozen	6 0-8 0
new	0 5-0 6	— Southamptons,	
		baskets	1 0-1 6
		— Kent & Middx.	
		in pecks, from	3 6-4 6

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Mint, per dozen	2 0-4 0
per doz.	1 0-2 0	bunches	2 0-4 0
Aubergines, doz.	2 6 —	Mushrooms, house,	
Beans, English,		per lb.	1 0 —
— Dwarf, per lb.	0 9-1 0	Onions, Egyptian,	
— Broad Windsor,		cwt. bag	8 9-4 0
in bushels	2 0 —	— Oporto and	
— Dwarf, Chan-		Valencia, cases	6 0 —
nel Island, lb.	0 8 —	— new, bunches	4 0 —
Beetroots, per doz.	1 0-1 6	Parley, new, dozen	
bushel	8 0-8 6	bunches	4 0-6 0
Cabbage, tally	8 0-8 6	Peas, blues, per	
— dozen	0 9-1 0	bushel	2 0-3 0
Carrots, new French,		— bag	5 0-6 0
per bunch	0 5-0 6	— white, bags	3 0 —
— English, per		Potatoes, new Jersey	
dozen bunches	1 6-4 0	Kidneys, cwt.	5 0-6 0
Cauliflowers, dozen	2 0-3 0	— Lincoln, cwt.	7 0 —
Celery, new, per		— Kent, pr. bush	5 0-6 0
bundle	1 6 —	— Cherbourg, per	
Cress, per dozen		cwt.	5 0 —
punnets	1 6 —	Radishes, round,	
Cucumbers, per		breakfast, per	
dozen	2 6-3 6	dozen bunches	1 6 —
Endive, new French,		Salad, small, pun-	
per dozen	1 0 —	nets, per dozen	1 8 —
Garlic, per lb.	0 3 —	Shallots, new, doz.	
Horseradish, Eng-		bunches	1 6 —
lish, bundle	3 0 —	Spinach, per bush	3 0 —
— loose per		— New Zealand,	
doz. fine	1 6 —	per peck	1 6 —
— foreign, per		Tomatoes, new	
bundle	1 0 —	English, per lb.	0 5-0 5
Leeks, per dozen		— Channel Islands,	
bunches	1 6 —	p. lb.	0 4-0 5
Lettuce, English,		— Valencia, p. box	0 8 —
Cabbage, dozen	0 9-1 0	— French, crates	4 6 —
— Cos, per		Turnips, new, doz.	4 0-5 0
score	1 0-1 6	Watercress, p. doz.	
Marrows, Veg., doz.	4 0 —	bunches	0 4-0 6

POTATOES.

Jersey, new, 5s. 6d. per cwt.; Cherbourg, cwt., 5s. John Bath, 32 and 34, Wellington Street, Covent Garden.

REMARKS.—Cherries are coming in variety, but unless they consist of fair samples they are not in much request; plenty of buyers for anything that is very good. Of Strawberries a short supply to-day, and what have been coming in during the week have been a little under the average size, and pale in colour, owing to the lack of sunshine. Some Pine Strawberries were to-day very bright and good. The principal sorts of Strawberries are Royal Sovereign and Sir Joseph Paxton, the latter being considered by far the best for keeping when gathered.

SEEDS.

LONDON: July 5.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that there were not many buyers on to-day's seed-market, and still fewer transactions passing. It is noteworthy that England has just been shipping American Red Clover-seed to Germany. Samples of new French Trifolium are now arriving. For Mustard and Rape seed the sowing demand is meagre. In Canary-seed a further advance has taken place. A widening speculative movement, and also short crops and dwindling stocks, look like driving up Canary-seed prices still higher. Hempseed continues scarce and dear. There is no change this week in either Peas or Haricots. Linseed favours holders.

FRUIT AND VEGETABLES.

GLASGOW: July 5.—The following are the averages of the prices recorded since our last report:—Cherries, English, halves, 5d. to 5½d. per lb.; do., French, 4d. to 5d. do.; Apricots, 9d. to 1s. per box; and 2s. 6d. per basket; Gooseberries, 10s. to 13s. per cwt.; Grapes, Belgian, 11d. per lb.; do., Guernsey, 8d. to 1s. do.; do., English 1s. 3d. to 1s. 6d. do.; Plums, 2s. 9d. to 3s. 6d. per basket; Peaches, home, 4s. to 7s. per dozen; do., French, 1s. to 1s. 6d. do.; Strawberries, Cornish, 2s. 6d. to 4s. 6d. per dozen punnets; do., Kent, 5s. to 6s. per basket; do., Lincolnshire, 5d. to 6d. per lb.; do., Scotch, 2½d. to 3d. do.; Tomatoes, Scotch, 8d. to 1s. 2d. per lb.; do., English, 7d. to 8d. do.; do., Guernsey, 6d. to 8d. do.; Cucumbers, 3s. 6d. to 4s. 6d. per dozen; Turnips, Dutch, 3s. 6d. to 4s. per mud; Peas, 3s. 6d. to 5s. 6d. per bag; Carrots, Dutch, 1s. 3d. to 1s. 4d. per dozen bunches; Cabbages, 7d. to 1s. 6d. per dozen; Cauliflowers, Edinburgh, 2s. 6d. to 4s. do.; Mint, green, 6d. to 9d. per bunch; Onions, 4s. 6d. to 5s. per cwt.; Parsley, 2s. 6d. to 4s. per stone; Lettuces, round, 1s. 3d. to 1s. 6d. per dozen; do., Cos, 11d. to 1s. 3d. do.; Radishes, round, 9d. to 1s. 6d. per dozen bunches; Mushrooms, 1s. to 1s. 3d. per lb.; Beetroots, 6d. to 7d. per dozen; Rhubarb, 1s. 3d. to 1s. 6d. per cwt.

LIVERPOOL: July 5.—Wholesale Vegetable Market.—Potatoes, per cwt., Early Regents, 5s. to 5s. 6d.; Jersey, 5s. to 5s. 6d.; Main Crop, 3s. to 3s. 6d.; Kidneys, 7s. 6d. to 9s.; Bruce, 1s. 8d. to 2s.; do., new, 1s. 6d. per 21 lb.; Turnips, 6d. to 10d. per dozen bunches; Carrots, 6d. to 10d. do.; Parsley, 6d. to 8d. do.; Onions, foreign, 2s. 6d. to 3s. 6d. per cwt.; Lettuces, 6d. to 8d. per doz.; Cucumbers, 1s. 3d. to 3s. do.; Cauliflowers, 1s. 6d. to 3s. do.; Cabbages, 8d. to 1s. 6d. do.; Peas, 3s. to 4s. per bushel. St. John's.—Potatoes, 1d. to 2d. per lb.; Grapes, English, 1s. 6d. to 2s. do.; Pines, English, 4s. to 6s. each; Currants, red and white, 6d. per lb.; do., black, 8d. do.; Strawberries, 4d. to 8d. per lb.; Gooseberries, 3d. per quart; Peas, 1s. to 1s. 4d. per peck; Cherries, 4d. to 8d. per lb.; Apricots, 1s. per dozen; Cucumbers, 2d. to 4d. each; Mushrooms, 1s. 4d. per pound and basket. Birkenhead.—Potatoes, new, 1d. to 2d. per pound; Peas, 1s. 6d. to

8s. per peck; Asparagus, 1s. 6d. to 8s. per 100; Cucumbers, 2d. to 4d. each; Strawberries, 4d. to 6d. per pound; Cherries, 6d. to 10d. do.; Currants, black, 6d. to 8d. per pound; do., red, 6d. do.; Apricots, 1s. per dozen; Gooseberries, 3d. to 4d. per pound; Grapes, home, 1s. 6d. to 2s. do.; Mushrooms, 1s. to 1s. 6d. do.

THE WEATHER.

The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Ins.	No. of Rainy Days since Jan. 1, 1899.	Total Fall since Jan. 1, 1899.
	Above (+) or below (-) the Mean for the week ending July 1.	Above 45° or the Week.	Below 45° or the Week.	Above 45° difference from Mean since Jan. 1, 1899.				
0	aver	86	0	+ 98	- 6	1	111	22.8
1	aver	97	0	+ 44	+ 20	8	105	16.8
2	1 +	111	0	+ 151	- 98	7	95	12.1
3	2 +	129	0	+ 142	- 196	5	86	10.7
4	2 +	129	0	+ 138	- 141	6	86	13.6
5	2 +	138	0	+ 221	- 183	4	75	11.2
6	1 -	97	0	+ 71	- 49	17	108	25.5
7	1 +	120	0	+ 188	- 146	9	99	17.4
8	1 +	122	0	+ 223	- 121	1	93	20.4
9	1 +	109	0	+ 98	- 72	12	114	18.9
10	1 +	120	0	+ 202	- 54	2	97	21.2
11	1 +	130	0	+ 295	- 67	1	89	14.6

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Graining, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending July 1, is furnished from the Meteorological Office:—

"The weather during this week gradually became very unsettled. Rain was very frequent and general. Thunderstorms occurred in nearly all parts of the Kingdom on Wednesday and Thursday, and again towards the close of the period in many parts of central and eastern England.

"The temperature was a little above the mean in most districts, but only just equalled the normal in 'Scotland, N. and E.,' and was slightly below it in 'Scotland, W.' The highest of the maxima were recorded during the earlier days of the period, and ranged from 82° in 'England, S.,' and 79° in the 'Midland Counties,' to 73° in 'Scotland, E.,' 'England, N.W.,' and 'Ireland, N.,' and to 70° in 'Scotland, N.' The lowest of the minima occurred on the 27th in Scotland, and on irregular dates over England and Ireland; varied from 58° in 'Scotland, E.,' to 47° in 'England, S. and N.W.' and 'Ireland, N.,' and 54° in the 'Channel Islands.'

"The rainfall exceeded the mean in all districts except 'Scotland, N.' In 'Scotland, W.' the fall was more than three times the mean amount, and in most other districts between two and three times the normal. Great local variation in the fall was experienced, and at Eastry (near Dover), on Thursday, as much as 2.5 inches fell during five hours.

"The bright sunshine was again deficient generally, but exceeded the mean in 'England, S.' and the 'Channel Islands.' The percentage of the possible duration ranged from 50 in the last-named district, and 44 in 'England, S.,' to between 18 and 23 in Scotland, and to between 10 and 15 in Ireland."

ENQUIRY.

WANTED to know whether professional growers of Asparagus for the trade or for show purposes, or private gardeners, have ever cut one Asparagus 6 feet 4 inches long and 1 inch wide where cut in earth, and exactly same width for its entire length, bearing more than double the quantity of seed of any others in three large beds? *Laxoring, E. Devon.*

ROYAL HORTICULTURAL SOCIETY.—A special general meeting of the Fellows is fixed for Friday, July 21, at 3 P.M., at the Offices of the Society, to discuss the draft of an amended Charter, and, if approved, to adopt it. Considering that the matter comes as a surprise at the very busiest season of the year, and without any obvious urgency, we suggest that the meeting be adjourned, in order to give the Fellows the opportunity of considering the details, which they obviously cannot do at the meeting in question. Perhaps the Council intend to circulate the draft in advance; but even then we plead for mercy at this season.

ANSWERS TO CORRESPONDENTS.

AMARYLLIS: *W. S.* Being pure white, but for the exception of a greenish tinge of the lower half of the tube, it might be worth keeping, but as regards form it leaves much to be desired, the segments being acutely pointed, narrow, and not reflexing, so as to show a good area of white.

ANTHURIUM CRYSTALLINUM: *B. Reid.* We should say that the plant is either attacked by the small brown thrips, which keep so close to the midrib and edges of the leaves as to be frequently overlooked; or that for some reason the roots have suffered. If upon examination the latter is found to be the case, all the soil should be washed off the roots, cutting the decayed portions of the latter away, and repotting the plant into a smaller-sized pot, affording a compost consisting of one part loam, two parts good fibrous peat broken into small lumps, one part fresh sphagnum, and sufficient broken charcoal and sand to keep the compost open and porous. Should the presence of thrips be detected, the plant should be sponged with an insecticide until it is quite free from the pest.

ASTERS: *E. Scapellato.* The Asters are probably attacked by a worm, figured and described in *Gardeners' Chronicle*, August 14, 1897, pp. 97 and 98.

CLEMATIS: *A. B.* Materials insufficient; probably, *C. montana*.

CORRECTION: *Windsor Rose Show.* For Messrs. Pitt, read Messrs. Titt; and for Hon. C. Joli, read Hon. C. Irby. The Pea shown by this exhibitor was Carter's Improved Telegraph, not Duke of Albany.

FUNGUS: *J. Leach.* The Stink-horn Fungus, *Phallus impudicus*, not uncommon.

GARDENERS AND TAXES: *N. W. P.* By the latest decision of the Courts, trade employees are not liable.

GRAPES AND MILDEW: *Jack.* Why do you not try the hotwater-cure, as sulphur fails to do any good? Peruse the notes on the subject in our Home Correspondence this week. Grapes which have had mildew upon them are spoiled, and should be removed from the bunches.

GREEN BERRIES IN A RIPENING BUNCH OF GRAPES: *J. S.* These may have resulted from flowers which opened later than those on the rest of the bunch.

HOYA CARNOSA: *A. C. C.* It is not of common occurrence for this plant to set its flowers and bear seed-pods.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*J. O. B.* *Pernettya mucronata.*—*S. Nash.* *Thunbergia Harrii* (laureolia).—*E. C. C. D.* *Marrubium vulgare*, Horehound, British.—*H. O. E.* 1, *Geranium pratense*; 2, *G. sanguineum*; 3, *Campanula persicifolia*; 4, *Sedum acre*; 5, *S. kamtschaticum*; 6, *Lithospermum* sp.—*J. W.* 1, *Buddleia globosa*; 2, *Epimedium alpinum*; 3, *Spiraea Douglasii*; 4, *Cornus mas variegata*; 5, *Allium Moly*.—*F. C.* 1, *Tradescantia virginica*; 2, *Galium verum*, yellow flower, label misplaced; 3, *Chrysanthemum segetum*; 4, *Betonica* sp., label misplaced; 5, *Geranium sanguineum*; 6, *Potentilla* sp.; 7, *Stachys lanata.*—*Japonica.* We cannot recognise the leaf. 1, *Tilia cordata* var.; 2, *Astilbe japonica*; 3, *Hemerocallis fulva.*—*J. B.* *Colutea arborescens.*—*H. F.* *Philadelphus microphyllus.*—*M. R. M., Neath.* 1, *Dendrobium transparense*; 2, *Cymbidium aloifolium.*—*Argyll.* 1, *Oncidium pul-*

vinatum; 2, *Dendrobium crepidatum*; 3, *Alocasia Veitchii*; 4, *Cypripedium Chamberlainianum.*—*R. E., Bristol.* *Epidendrum oncioides.*—*J. C., Suffolk.* 1, *Adiantum Waltoni*; 2, *A. cuneatum variegatum*; 3, *A. eximium multifidum*; 4, *A. cuneatum gracillimum*; 5, *A. c. mundulum*; 6, *Cypripedium bellatulum.*—*H. P.* 1, *Semprevivum tectorum*; 2, *Thymus lanuginosus*; 3, *T. Serpyllum*; 4, *Saxifraga geum*; 5, *Sedum asiaticum*; 6, *Sedum kamtschaticum.*—*In Rouge Box.* *Odontoglossum polyanthum.*—*Zodad.* *Malvastrum coccineum.*—*J. H. W.* 1, *Spiraea species*; 2, *Euonymus europaeus*; 3, *Syringa Josikaea.*—*W. C., Rochester.* *Hyoscyamus niger.*

ORCHID-LEAF: *Argyll.* The leaf shows that there is something in the house in which it has been grown that is not as it should be. Probably the shading has not been sufficient, or the heat excessive, especially at night time.

PEAR LEAVES: *S.* The leaves have been infested with a mite, *Phytoptus pyri*, difficult to cope with, it being a mite doing much injury in Pear orchards, and although you may try to keep your trees clean by washes and fumigation, if your neighbours are less assiduous, your efforts are useless or nearly so.

POND LEAKING: *R. S.* We should not advise the use of horse-dung in the clay, but to obtain the most tenacious form of clay, free from stones, and well pugged, to render it homogeneous before laying down. It should not be less than 9 in. thick. Of course, all clay will crack under hot sun, unless covered with water or shaded by vegetation, such as Reeds, Sedges, Iris, Salicaria, &c.

RASPBERRIES: *C. T. N.* For some reason or other that we do not know, the flowers have not been fertilised. Perhaps the insects were not about at the right time, or the weather was unpropitious when the stigma was ripe, or it may be a case of tendency to a dioecious condition. In any case, we should get a fresh stock.

STRAWBERRIES MOULDY: *Hume.* The fungus on the berry sent appears to be that known as *Monilia*, which causes fruit-rot on Cherries, Plums, &c., although we have never before heard of it on the Strawberry. In any case, the fungus has made its way through the whole fruit, and if the disease is widespread, the treatment must be thorough. The soil should be well trenched before next season; this would, of course, be best done if the plants were cleared out; but you must decide if this is advisable. If the plants be left on the ground, they should be mowed over, and all the gatherings burnt. This is the course recommended for Strawberry mildew—a somewhat similar disease. Next season a spraying of dilute Bordeaux Mixture or potassium sulphide before flowering would be a good preventive measure.

TOMATO: *J. L. F.* Your fruit and foliage is attacked by a fungus (*Cladosporium lycopersici*), which is supposed first to attack the decaying style, and later to establish itself in the fruit. It always causes the apex of the fruits opposite to the stem to become flattened and black, and is thus known as "black spot." Remove and burn each fruit as soon as it can be noticed that it has become attacked. During the early stages of growth, Tomato plants should be frequently sprayed with the Bordeaux Mixture, which would tend to prevent this and other fungoid pests from obtaining a hold upon the crop.

VINE-LEAF: *Argyll.* The leaf of Vine seems to have been scorched by the sun, otherwise its roots may have got into unsuitable material.

VINE LEAVES SPOTTED, &c.: *Grower.* We have seen similar brown-spotted leaves before, and neither they nor those now sent, showed any insect or fungus. In a recent case the Vines had partially-decayed roots, which showed signs of fungi. Perhaps the roots of your plants are in some way defective, and either they or the border require attention. The shrub must be sent when in flower.

COMMUNICATIONS RECEIVED.—*A. H.*, yes, please.—*E. W. & Sons*, reply sent previous to receipt of second letter.—*J. S.*—*E. C. F.* *W. B. J. W. T.*—*D. T. F.*—*Vaughan Bro.*—*O. F.*, Zurich.—*J. Wallis.*—*A. J.*—*L. H. Bailey.*—*J. R. G.*—*E. C.*—*A. J. L.*—*A. O. N.*—*J. R. W.*—*H. M.*—*A. C. F.*—*T. B.*—*H. L.*—*F. Y.*—*W. B.*—*F. C.*—*W. Y.*

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—*A. D.*—*W. L.*—*Prof. B.*



THE Gardeners' Chronicle

No. 655.—SATURDAY, JULY 15, 1899.

HYBRIDS AND THEIR RAISERS.

(Continued from p. 24.)

[SEE SUPPLEMENTARY SHEET.]

M. LATOUR-MARLIAC AND THE NYMPHÆAS. — M. Latour-Marliac was born at Granges, Lot-et-Garonne, on March 6, 1830. Having been early initiated by his father into the study of natural history, M. B. Latour-Marliac has devoted his life to horticulture. M. Latour-Marliac has his nurseries at Temple-sur-Lot, of which town he has been elected mayor. One part of his grounds may be said to be devoted to agriculture, as it is occupied principally with plantations of Plums, Vines, Japanese Kakis, and Japanese Lacquer plants.

The remaining portion of the nursery is exclusively devoted to Bamboos, Lacquer-trees, aquatic plants of all kinds, and especially to Nymphæas.

The Bamboos, most of them imported from their native countries by M. Latour-Marliac, include some fifty species and varieties of this most useful and ornamental genus. The Lacquer-tree (*Rhus vernicifera*), a native of China and Japan, is also valuable to the landscape-gardener; it is perfectly hardy in all parts of France, and grows nearly 40 feet high. It yields the well-known lacquer of China and Japan, still unequalled by European imitations.

But the chief interest of M. Latour-Marliac's establishment is found in the fine collections of Nymphæas, in hybridising which he has been so markedly successful.

The aquatic garden at Temple-sur-Lot consists of numerous tanks and fountains, and occupies the sides of a brook whose banks are screened with Bamboos and other appropriate plants.

Here are found the fine *Nelumbiums* and new hybrids of hardy Nymphæas, of gorgeous colouring, such as the splendid *N. Laydekeri rosea*, very bright carmine-rose; and *N. rubra punctata*; *N. flammea*, deep amaranth.

M. Latour-Marliac also cultivates many of the inter-tropical Nymphæas, such as *N. zanzibarensis*, *rosea*, *azurea*, *cœrulea*, *scutifolia*, and *stellata*. These are in a tank 50 feet long. After October, the water admitted into this is maintained at a uniform temperature of 12° Cent. (53° F.), and the plants are kept under glass; towards the end of April the lights are raised, the temperature of the water is reduced to that of the atmosphere, and the plants begin their usual summer growth.

The most favourable months in which to visit the nurseries are July, August, and September, as then the flowers of both indigenous and exotic species are in full beauty. There is much to interest even the most casual visitor in the grounds of M. Latour-Marliac, whose novel and beautiful hybrids are becoming more and more widely known, appreciated, and distributed. In 1898 M. Latour-Marliac received a Veitch Memorial Medal, and in 1899 was nominated an officer of the Academy. Ed. (See Supplementary sheet).

M. ERNEST CALVAT.

THIS gentleman may be justly regarded as the most famous of our Chrysanthemum raisers, and his novelties have been remarkable for the high position they have maintained at our shows. He is the son of the late Mayor of Grenoble, and was born in 1852. After completing his education here in England, he returned to France, and entered his father's glove-making manufactory, devoting his leisure to his garden. About twelve years ago he became specially interested in the Chrysanthemum, and then centred his sole attention upon its improvement. Owing to a favourable position and a climate that aided him in his work, he raised his first seedlings in 1889, and from that time has systematically practised cross-fertilisation with the largest varieties obtainable, with the view of creating a new race of the finest show flowers. So great has the progress been, and the demand for his products increasing, that M. Calvat, a few years since, gave up the glove-making, and devoted himself wholly and solely to his work with the Chrysanthemum, and this comprises not only raising new varieties, but supplying the markets with many thousands of blooms grown in exhibition form for the Paris florists.

Among the earliest varieties from M. Calvat's seedlings, Louise, Mrs. C. Harman Payne, President Borel, L'Isère, Mdle. Thérèse Rey, Souvenir de Petite Ami, M. Chenon de Leché, and Madame Carnot, the incomparable white Japanese, and the parent of several equally good yellow sports, are still well-known. Later novelties, and their name is legion, comprise Madame Gustave Henry, Mrs. J. Lewis, Ma Perfection, Madame Ferlat, Mdle. Lucie Faure, N.C.S. Jubilee, Soleil d'Octobre, Werther, President Bevan, Le Grand Dragon, M. Patzer, Topaze Orientale, the curious green Madame Ed. Roger, and others far too numerous to mention, and afford ample ground for believing that this eminent Frenchman's seed-bed has still many more floral wonders in store for the ardent admirer of this protean Oriental flower.

Of M. Calvat's successes, both here and on the Continent, we have no space to speak, and it must suffice to say that he exhibits at all the Continental shows, and is a member of the leading societies that deal with the Chrysanthemum. He also enjoys the unique distinction of being the only Frenchman that has won medals of the English N.C.S., of which Society he is an honorary Fellow. In recognition of his valuable services to horticulture, the French Government has conferred upon him the Cross of Officer of the Order of the Mérite Agricole. C. H. P. (See Supplementary sheet).

CHARLES MARON.

THOUGH still young, M. Maron has done great work as an Orchid hybridist. As a young man he served under Mr. J. O'Brien, in the nurseries of Messrs. E. G. Henderson & Son, at that time a good school for one interested in plants. Afterwards M. Maron was gardener at Corbeille, where some interesting hybrids were raised; but his best work commenced with his taking charge of the establishment of M. Louis Fournier, at Marseilles, where *Lælio-Cattleya* × *Berthe Fournier*, L.-C. × *Andreana*, L.-C. × *Sallieri*, and other showy things were raised. Recently M. Maron has installed himself at Brunoy, Seine-et-Oise, France, from where some truly remarkable things have been shown, notably *Lælio-Cattleya* × *Digbyano-Mendeli*, L.-C. × *Ernesti*, Princess Olga, L.-C. × *Henry Greenwood*, and the beautiful *Cattleya* × *Maroni* (*velutina* ♀ *aurea*), the last three having been illustrated recently in the *Gardeners' Chronicle*. J. O'B. (See Supplementary sheet).

JOHN SEDEN.

I FIRST fell in love with Orchids, &c., in 1859, when I lived in a private place next door to the late Dr. Butler, who had at that time a good

selection of the best Orchids in cultivation, and exhibited very successfully at Regent's Park and the Crystal Palace. The late Mr. Robert Bullen, late curator of the Botanic Gardens, Glasgow, was the grower. In 1860 Mr. Bullen went to Chelsea as Orchid grower, and recommended me also to the late Mr. James Veitch. I started work there in January, 1861. In the autumn of that year Mr. Veitch wished me to go to Exeter, under Mr. Dominy; it was there I got the first idea to follow up the work of hybridisation of plants, &c.

In the autumn of 1862, after the death of the late Mr. James Veitch, of Exeter, I was asked to return to Chelsea, to take charge of Orchids, some stove plants, including *Nepenthes*. I began my work, then, first with *Caladiums*, *Cheloni* being the only one worth keeping out of the batch; then came *Alocasia Sedeni*, *A. intermedia*, and two others; *Gloxinias*, from which six were selected and sent out; then *Amaryllis Chelsoni* were selected to grow; then *Nepenthes Chelsoni* and *N. Sedeni*.

In 1867 Mr. James Veitch went to reside at Stanley House, next to the Chelsea Nursery. Mr. Veitch said he wanted a man after his own heart, and wished me to leave the nursery and be his private servant; this I did. I raised the first tuberous *Begonia*, *Sedeni Chelsoni*, and many others; then my first *Cypripedium Sedeni*, *Sedeni candidulum*, *Morgania* James H. Veitch, *Schrodæra Leeanum superbum*, *cananthum superbum*, *Niobe*, Baron Schroder, and a host of others; *Dendrobium splendissimum grandiflorum*, *Ainsworthi intertextum*, *Aspasia*, *endocharis*, *eusum loucopterum*, and many others, and more to follow. *Masdevallia Chelsoni*, *Gairiana*, and others; *Phalenopsis intermedia*, *John Seden*, *Harrietia*, and several others; *Epiphrontis Veitchi*, a great success; *Epidendrum* James O'Brien, *Endresio-Wallisi*, and many others; *Disa Veitchi*, and others; *Angræcum Veitchi*; *Sophræ-Cattleya Batemanni* *eximia*, and others; *Lælio-Cattleya bella*, L.-C. *Empress Frederick*, L.-C. *callistoglossa* and var. *ignescens*, L.-C. *Digbyana-Mossii*, a great success; L.-C. *Digbyana Trianae*; L.-C. *Thorntoni*, L.-C. *Canhami alba*, L.-C. *Decia alba*, L.-C. *Wellsiana* and var. *alba*; L.-C. *Eudora*, and several fine varieties; L.-C. *eximia*, very fine; L.-C. *Nysa* and varieties, good; *Dominiana* var. *Langleyensis*, very fine. *Thunia Veitchi*, *Sobralia Veitchi*, *Chysis Chelsoni* and *Sedeni*, and others.

In 1889 Mr. Harry Veitch invited me to Langley, that I might have some outside work; that has resulted in raising various fruits, such as Strawberries Veitch's Perfection, Veitch's Prolific, Raspberry Golden Queen, Apple Langley Pippin, Apple Mrs. John Seden, Gooseberries Langley Beauty, Langley Gage, and Golden Gem, all of which have been acknowledged by the Fruit Committee of the Royal Horticultural Society. About 490 various crosses of my raising have been brought before the public since I began. Ed. (See Supplementary sheet).

GEORGE PAUL.

My first trial was with *Weigelas* and *Diervillas*. I obtained one or two things, but they did not attract attention, so I left off. Secondly, I tried *Amaryllis*, beginning with *De Graaf* and *Veitch* strains, carefully selected; and looking back on the species several kinds were certificated, such as *Silver Queen*, *Mrs. Hudson*, and others rewarded my efforts, which are still being continued. I began *Cannas* after the last French exhibition, when I was struck with *Crozy's*, and in this my aim has been to get dwarf, quick-flowering varieties, suited to our climate both out-of-doors and also indoors; *William Trepto*, *Cheshunt Yellow*, and many other certificated flowers rewarded my efforts.

In *Rhododendrons*, by crossing with *R. Fortunei*, I have gained a group of hybrids with larger flowers, some scent, and but slightly earlier than the *Catawbiense* hybrids. *Duke* and *Duchess of York*, *Her Majesty*, *Arderne*, *Lady Thiselton Dyer*, have all gained awards. *Roses* I have left, so far as cross-breeding goes, to my son, whose recent gain

of Psycho, from Crimson Rambler, and a yellow Polyantha Rose are not uninteresting. *George Paul*. [For portrait of Mr. Paul, see our Supplement to this issue. Ed.]

WILLIAM CULVERWELL.

In my early days I was very much interested in hybrids, and made several attempts to produce a new fruit. Among them was a cross of the Raspberry and Blackberry. The Strawberry and Raspberry cross, this certainly is a hybrid, and produced abundance of flowers, but is not fertile, the leaves are intermediate, the inflorescence is on the top of the shoot, but a fruit has never been found. [This cross is identified by Dr. Focke as *Rubus Leesii*, and its hybrid origin has been, as we think, needlessly doubled. Ed.]

The Gooseberry and the Black Currant is also a hybrid (already figured in the *Gardeners' Chronicle*), and produced a great crop of fruit in 1898; it was in bunches like the Black Currant, the berries were smaller than those of the Gooseberry, but larger than those of the Currant. They are good for tarts, as the ripe fruit was better than green Gooseberries, also much sweeter than the Black Currant; the crop is not good this year, the frost in spring destroyed it.

Of Peas I have had a multitude of crosses, and am very proud of them. The first was a cross between Laxton's Supreme and Veitch's Perfection, the result of that was amongst others, Invincible and Telegraph, both of these are great croppers, and will stand the cold in spring, consequently they are used for field culture in great quantities. Telegraph has sported a number of good Peas, but for hardiness and field culture, it still has no equal.

I have also done a great deal in improving the Polyanthus for more than thirty years, the colours are now perfect, and very distinct. Those have passed into the hands of Messrs. Veitch & Sons, Ltd., year after year for a great number of years. *William Culverwell*. [Mr. Culverwell's portrait is given in this week's Supplement. Ed.]

WILLIAM SMYTHE.

PASSION-FLOWERS are among the easiest plants to cross-fertilise, the more so as some of them positively refuse to set seed with the aid of their own pollen. This tendency to cross-fertilisation is, no doubt, responsible for much of the beauty of these flowers, and for the great difficulty there is in satisfactorily identifying or describing certain species, especially among the *Tacsonias*. Sabine was one of the first to write on hybrid Passion-flowers. His account of *Passiflora cœrulea racemosa*, raised by Mr. Thomas Milne, of the firm of Whittey, Brames, & Milne, was published in the *Transactions of the Horticultural Society of London*, November 7, 1820, tom. iv., t. 9, accompanied by a coloured figure. Mr. Masters, of Canterbury, was one of the earlier raisers, having produced a hybrid between *P. alata* and *P. cœrulea*, which was figured in the *Bot. Reg.*

Of late years new forms have been raised in the gardens at Woodhatch, near Reigate, from *P. racemosa* × *P. quadrangularis* (*Gardeners' Chronicle*, Dec. 22, 1881, p. 732). Eynsford Gem, a lovely hybrid form, raised by Mr. Geeson, when at Exeter, between *P. racemosa* and the white form of *cœrulea*, known as Constance Elliot (see *Gardeners' Chronicle*, July 11, 1885). *P. Kewensis* × was raised at Kew in 1888, out of *P. Kermesina* by *P. cœrulea*. Messrs. Haage & Schmidt have also sent out some splendid hybrids between *P. racemosa* and *P. Londoni* ×. These were described, and some figured in the *Gardeners' Chronicle*, April 21, 1883. Mr. Munro also raised, about 1868, numerous hybrids between *P. alata* and other species, which were described in these columns.

Our space will, however, not allow us to mention the numerous French and German hybrids, but in

this connection we must not overlook the achievements of Mr. Smythe, of Basing Park Gardens [see Supplement in present issue. Ed.] the raiser of *Tacsonia Smythiana* ×, between *T. mollissima* and *T. Volxemi*. Mr. Smythe also exhibited a dwarf crossed Bean at the Royal Horticultural Society's meeting last year, under the name of Goliath, which the Committee spoke very highly of, and wished to see again. It was the result of twelve years' crossing and re-crossing the Runner Bean (*Phaseolus multiflorus*) with the dwarf French Bean (*Phaseolus vulgaris*), and it has produced the well known scarlet flower of the Runner Bean, with thick fleshy pods of excellent flavour, a great improvement on all existing varieties.

Henderson & Son, of Pineapple Nursery, distributed in 1850, *Viola stricta grandiflora*, of my raising. It was, I believe, the first cross with the *Viola* and *Pansy*.

Mr. Smythe also raised several tree Carnations, distributed by Messrs. Cannell and Messrs. Low, and a great many varieties of *Amaryllis*, which Messrs. Williams & Sons distributed. [See Supplementary sheet. Ed.]

HENRY WEEKS.

I WAS born in the year 1866 in the village of Fooks Cray, in Kent. I had to start work at an earlier age than most lads. When I was twelve years old, my old schoolmaster, who was an enthusiastic gardener, obtained a situation for me as garden-boy at Frognaal, the seat of the late Lord Sydney, Fooks Cray, Kent. After serving three years here, I obtained through the same influence another situation in the neighbourhood, where I stayed three years. From here I went back to Frognaal as kitchen-gardener under Mr. T. Crasp. After serving two years in this capacity, I was promoted to be foreman of the kitchen-garden and pleasure-grounds, which post I filled for two years.

While at Frognaal, I saw *Chrysanthemums* grown on the big bloom system for the first time. They were, however, then in their infancy as compared to what they are at the present day. About this time I read an article on *Chrysanthemums* in which it was stated that it was impossible to obtain mature seeds in this country, and I determined that if I ever was in a position to do so, I would try and disprove that notion, but this was done before I started, and, strange to say, one of those who matured seeds was Mr. Shea, of Fooks Cray.

After serving for four years at Frognaal, I obtained, through Messrs. Veitch & Sons, of Chelsea, a situation as foreman of the French and Italian flower gardens at Stanwick Park, Darlington, under Mr. Wm. Higgin, gardener to the Dowager Duchess of Northumberland. To him I owe in a great measure my present position. I bought a couple of books on elementary botany, and passed many what would have been dull evenings reading them. When I left that place, I knew those books by heart, and I have felt very thankful for it ever since. A knowledge of botany, if only slight, is of great service to a gardener.

After being at Stanwick two years, I obtained a situation as gardener to the Hon. and Rev. G. W. Bourke, at Pulborough, in Sussex. This was not a move upwards, but it placed me in a better position to assist my mother. While here I made my first attempt at cross-fertilising the *Chrysanthemum*, but without success. After I had been at Pulborough about two years, I obtained a situation in the plant-houses at Elvaston Castle, but had only been there two or three months when I was offered the situation of general foreman at Thrumpton, which I accepted, and I succeeded Mr. Geddes as head-gardener in 1893. With a deal of estate-work, I do not find much time in the ordinary working hours to pay the attention I should like to a great many things, still I think I may add,

that our garden will compare favourably with many; but it is in the *Chrysanthemum* world that I am best known. All these have to be seen to in what would otherwise be my leisure hours; but if I had no other return for my labour, the pleasure of watching them open in their great variety would be ample recompense to me.

I have the last three years been paying as much attention as I could find time for to the cross-breeding of *Hippeastrums*, and should say I have raised some very finely-coloured selfs; but being unable to get up to the London shows, I cannot tell if they are up to the present-day standard or not. Another class of plants which I have just started upon is flowering *Cannas*, and I trust I shall be able to give a good account of some seedlings I have soon to flower.

CHRYSANTHEMUM RAISING.

When I first came to Thrumpton, the *Chrysanthemum* Mrs. Alpheus Hardy was much thought of, on account of its novelty. I was much struck with its purity of colour, but could do nothing with it on account of its making weak roots; but the second year I struck some cuttings, and grew them on single stems in 3½-inch pots; the buds appeared late, but they all produced beautiful blooms like balls of snow. I was so much struck with this that I decided to make another attempt at fertilising, and although most of the other varieties were over, yet I found a quantity of pollen on a bush of *Puritan*. I went over the blooms carefully, but either the pollen was not good, or the blooms were too far gone for me to obtain very good results; but I was elated some time after to discover that I had got seed, though these numbered only four. From these seeds I obtained the varieties *Lady Byron*, certificated October 28, 1895; *Mrs. H. Weeks*, First-class Certificate, November 11 of the same year; and *Mrs. G. Carpenter*, certificated the following year. Hitherto my attempts had been confined to plants in large pots, but my success with this variety suggested the advisability of growing them in small pots, so the year following that in which I obtained the four seeds previously mentioned, I struck a batch of cuttings late in the summer from which I obtained about 200 seeds. The result of these was very disappointing, as in my anxiety to obtain seed, I had paid no attention to the varieties I was employing as parents; some which might have made good varieties were so ungainly in habit that I did not feel justified in growing any of them again. The next year I determined to work on different lines, keeping habit in view above everything, with the result that I have now a strain which leaves very little to be desired, as out of the set of this year's novelties, only two of them attain a height of 6 feet, while five do not reach 3 feet, and seven varieties from 3 feet to 4 feet 6 inches.

Last year's batch exceeded my most sanguine expectations, for, besides being awarded certificates for nine varieties, I had quite as promising a reserve stock for next season. The varieties certificated were: *Mrs. Wm. Cursham*, on October 24; *Lady Crawshaw*, Emily Towers, *Mrs. Coombe* and *Henry Weeks*, on October 31; *Miss Annie Hills* (incurved), Nov. 14; *Mrs. Barkley*, *Edith Dashwood*, on Nov. 21. At this meeting of the National *Chrysanthemum* Society Floral Committee I was awarded a Silver Medal for a collection of sixty seedlings, and I received a First-class Certificate for *Madam J. R. Cadbury* in December. Besides these, there are several varieties sent out this year by Mr. Norman Davis, which I feel sure will be certificated eventually.

I have never cared for the incurved sorts, but at the wish of several growers I tried my hand the year before last, but only went at it in a half-hearted way, only fertilising one head; but it struck me afterwards that they must be more easily fertilised than the Japanese section, but not being sure, I took careful notice last autumn, and have come to the conclusion that such is the case, as I scarcely troubled with them and yet I got more

seed from three heads of these than I can get so far from a score of Japanese.

There are several things connected with this branch of *Chrysanthemum* culture which one needs to take note of. In the first place, either soil or cultivation, or both, appear to be prime agents in the matter of pollen-bearing, as some varieties which I have grown for years have not produced a grain of seed, while the same varieties in other collections bear seed in abundance. Also, that flowers of dark colours, yellow and intermediate shades of colour, produce it more abundantly than do white flowers. This may be caused by the same conditions. It is therefore necessary to make a note of those varieties, so as to have a good percentage of pollen-bearers. Seedlings, with very few exceptions, bear abundance of pollen the first year, but I have never seen it afterwards on many of them.

Another thing I have observed is, that such varieties as Thos. Wilkins and W. Seward, which produce conspicuous bracts in the flower-heads, are more easily fertilised than those which do not possess them, or on which they are less evident.

to be worked upon. If the latter is backward, this is not necessary.

As soon as the first row of florets on the plant that is intended to be the seed-bearer are fully expanded, they are cut back carefully with a pair of grape scissors, and if the variety is a true Japanese, all the florets are drawn out except the outer row, as I find these give a greater percentage of double flowers than those towards the centre; and in a Japanese it is essential that the centre should be full, but in the case of incurved, and incurved Japanese varieties, this is not necessary, as in my opinion they are apt to become confused if they are too double, so these are simply cut back to expose the stigma, and the pollen is worked on florets quite near the centre. When fertilisation has taken place, a little weak manure-water is given, and as soon as the seed is ripe, the fertile ones are carefully selected and sown at once, as if allowed to get too dry, the small seed leaves appear unable to burst the outer husk. Most of the seeds will be out of the soil in from eight to ten days if placed in an interme-

Cannas of a few years ago were very tall plants, with small and late dull red, narrow flowers, and they were grown exclusively for their foliage effects. How has this transformation come about?

In the first place, it should be said that there are many species of *Canna*, and about a half-dozen of these were well known to gardeners at the opening of the century. About 1830 the *Cannas* began to attract much attention from cultivators, and the original species were soon variously hybridised. Crossed seeds, and seeds from the successive generations of hybrids, introduced a host of new and variable forms. The first distinct fashion in *Cannas* seems to have been for tall, late-flowering forms. In 1848, Année, a cultivator in France, sowed seeds of *Canna nepalensis*, a tall oriental species, and there sprang up a race of plants which has since been known as *Canna Annéei*. It is probable that this *Canna nepalensis* had become fertilised with other species growing in Année's collection—very likely with *Canna glauca*. At any rate, this race of *Cannas* became popular, and was to its time what the French dwarfs are to the



BEN SIMONITE
(See p. 52.)



HARRY TURNER
(See p. 52.)

METHOD OF PROCEDURE.

My mode of procedure is as follows:—From about the middle to the end of the month of July, I take cuttings from plants which were planted in the open ground in the spring, and insert these thickly in 3½-inch pots, and place in a bold frame till rooted, when they are shaken out, and potted singly into the same sized pots, using poor soil, as they appear to be more fertile in a semi-starved condition. They are then returned to the frame, and lightly damped overhead night and morning, if the weather is bright; and as soon as the plants are re-established, the lights are removed, until there is danger from frost, when the lights are put on at night and taken off in the morning. All side-shoots are pinched out, and when the bud shows, all side-buds are rubbed out. Early in October the plants are taken to a Peach-house, where the trees are bare of leaves, and kept there till they show the colour of the floret, when they are removed to a house having a night temperature of 50°, and a day temperature of about 55° without sun. Those intended for pollen-bearers are kept a little warmer, according to the forwardness of the female parent, which it is

diated-house. After this, the treatment is about the same as that advised for exhibition-plants, with the exception of a few, which often refuse to run up a leader, and do nothing but throw up clusters of suckers. These are shaken out, and all the shoots rubbed out and planted out on an old hot-bed, and keeping close for a week or two, when they will go away all right.

With few exceptions, seedlings should not be discarded under three years' trial, the exceptions being those with ungainly habits, and those with poor florets. *Henry Weeks*. [Mr. H. Weeks' portrait appeared in last week's issue, p. 23. Ed.]

CROZY.

"Few plants have shown more remarkable evolutions in very recent years than the *Cannas*. At the present time, the Crozy *Cannas*—so named from Crozy, of Lyons, France, who has introduced the greater number of them—are most popular. This type is often called the French Dwarf, or the Flowering *Canna*, and it is marked by a comparatively low stature, and very large and showy spreading flowers in many colours; whereas the

present day. The plants were freely introduced into parks, beginning about 1856, but their use began to wane by 1870 or before. Descendants of this type, variously crossed and modified, are now frequently seen in parks and gardens.

The beginning of the modern race of dwarf, large-flowered *Cannas* was in 1863, when one of the smaller-flowered Costa Rican species (*Canna Warscewiczii*) was crossed upon a large-flowered Peruvian species (*Canna iridiflora*). The offspring of this union came to be called *Canna Ehemanni*. This hybrid has been again variously crossed with other species, and modified by cultivation and selection, until the present composite type is the result. Seeds give new varieties, and any seedling which is worth saving is thereafter multiplied by divisions of the root, and the resulting plants are introduced to commerce." *L. H. Bailey*, in "*Plant Breeding*," p. 140-2.

We also reproduce the following note, which appeared in our columns in June, 1897:—

"I began," says M. Crozy in Moller's *Deutsche Gärtner-Zeitung*, "hybridisation between *Canna Warscewiczii* and *C. nepalensis*, a variety with large yellow flowers, and very long creeping tubers. My first *Cannas* obtained from this cross were named Bonet and Plantier, the latter of which showed

green foliage and orange flowers. The first one came close to C. Warszewiczii, with dark red-brown foliage and pretty large flowers, was very free flowering, and a favourite for some time. After this, by crossing with C. aureo-pecta, I succeeded in getting hybrids with yellow-spotted flowers, which year by year grew larger and rounder. I then tried to get an early bloomer, and finally succeeded in obtaining a type which was very floriferous. I constantly threw inferior plants away, and kept only the best.

"As to the number of crosses raised by me, I suppose that I have raised, without exaggeration, some 180 to 200 varieties, which, step by step, showed improvement over the older kinds. Among my varieties not yet in commerce, are Cannas with flowers measuring from $\frac{1}{4}$ to 6 inches in diameter. These have all very glowing colours, and bear immense flower trusses.

"My constant zeal for superior varieties show successes every year in regard to colour as well as size and number of flowers. The flowers now are borne more erect, are of better substance, and show broader, rounder petals, and some are of a size not known before.

"These Cannas for our climate have the advantage of being dwarf and early flowering, and they stand rain and other adverse weather conditions well, which the older varieties do not."

As regards the new type of Cannas seen in the varieties Austria and Italia, M. Crozy states he awaits the competition of these without fear, and comments adversely on the lack of substance and early wilting of the flowers.

"We may add," says the *Gärtner-Zeitung*, "that M. Crozy is known in Nancy, France, under the name of 'Papa Canna'; and one of his best novelties is named 'Papa Canna.'"

The Canna may be described as a subject of comparatively recent development; a few of its forms were in English gardens for years before a happy inspiration induced Mr. Alex. Roger to introduce them into his sub-tropical arrangements at Battersea Park thirty years or so ago, which was the means of popularising the Canna as an ornamental decorative plant; and what was so well and effectively done at Battersea Park was speedily imitated by others, and so considerably more importance than formerly attached to it. That the Canna is an old inhabitant of our gardens there can be no doubt, for Parkinson in his *Paradiseus*, gives a description of one with "yellow flowers, spotted with red."

It may be assumed that any improvements in Cannas were due to the efforts of continental florists, and others. It may be that the Peruvian C. iridiflora was employed for fertilising purposes on to C. indica and its allies; the former, while not suited to our English out-door climate, can be bloomed in the open air in Paris gardens, and it is natural to suppose its value as a parent was not overlooked by the early improvers. Mr. W. Robinson in his *English Flower Garden*, informs us that "Foremost among the raisers of new varieties may be named M. Année, a French amateur." He commenced about forty years ago, and raised several varieties during the sixties and later, which bear his name; and it is believed that, like later raisers, he employed C. iridiflora in his crosses.

By 1877 considerable additions had been made to our cultivated Cannas, and M. Jean Sisley, of Lyons, made use of some of them, and obtained by crossing two mentioned in the list then given, viz., *Maréchal Vaillant* and *Député Héron*, a large-flowered crimson-scarlet variety, which in its turn was employed as a parent with excellent effect. M. Chate, M. Louis Van Houtte, and others, were also engaged in this work, and generally with good results.

But it is to M. Crozy, of Lyons, that we largely owe the race of splendid large-flowered Cannas, so popular in the present day. It is not difficult to imagine M. Crozy taking up the work at the point where M. Jean Sisley concluded, and so giving an impetus to the development of the Canna, which has resulted in forms of the highest value. The newer French and other varieties are of dwarf growth, very unlike the earlier forms which M. A. Roger employed at Battersea Park; as, for instance, C. Ehemanni. Some are scarcely more than 18 inches in height; some are from 4 to 5 feet, with intermediate statures; they have ample leafage, in some cases tinted with bronze and wine-colour; and for house decoration they are now much grown. If the shortness of our summers, and the uncertainty of our autumns, fail to produce a succession of

bloom when the plants are cultivated in the open air in this country, in greenhouses and conservatories they are much more persistent. One remarkable feature in the later varieties is the large size, and varied markings and combinations of tints seen in the flowers. Awards to new varieties need now to be made with due caution, as they increase rapidly, and from various sources. Ed. (See Supplementary sheet).

THE PANSY AND VIOLA.

THE history of the Pansy has been so frequently told as to have become almost an oft-repeated tale. But it is of much interest, and the details may be briefly given at this important conjuncture in matters horticultural.

As far as floricultural records afford reliable information, it was about 1810-1812 that the work of improvement of the Heartsease commenced in earnest. Whether the first to take the Viola tricolor in hand, our wild Love-in-Idleness, was Lady Mary Bennet, the daughter of one of the Earls of Tankerville, who had a garden at Walton-on-Thames, and with the assistance of her gardener, Mr. Richardson, raised improved seedlings; or Lady Monk and her gardener; or Mr. Thomson, gardener to Lord Gambier, of Iver, can scarcely be determined. It would appear that all took part in the work; though I am inclined to think it was Thomson who contributed most to the remarkable success which attended their efforts. It was about 1811 when Lord Gambier gathered in the grounds of Iver a common yellow and white Heartsease, and taking them to Thomson, requested him to cultivate them. "I did so," writes Thomson, "saved the seeds, and found that they improved far beyond my most sanguine expectations. In consequence thereof I collected all the varieties that could be obtained. From Brown, of Slough, I had the blue, and from some other person whose name I do not now recollect, a darker sort, said, then, to have been imported from Russia." After raising seedlings for four years, he named the first of his seedlings Lady Gambier, and then commenced a series of naming, extending over several years, and continued to our time.

Meanwhile, Hogg, of Paddington; Brown, of Slough; Young, of Epsom; Mountjoy, of Ealing; Henderson, of London; J. & W. Lee, of Hammer-smith; Allan and Rogers, of Battersea; Silverlock, of Chichester; and others, took up the work, followed later by Dickson, of Edinburgh; Paul, of Paisley; Hale, of Stoke; C. Turner, of Slough; Downie, of Edinburgh; and various florists, until the time came when the culture of the show Pansy in the south became extremely difficult, through the appearance of a disease, which carried off the plants by the hundred.

In the north, and especially in Scotland, the show or English Pansy is still cared for, and new varieties are raised annually and put into commerce; though in the south the large fancy-type has almost entirely taken its place in gardens, and especially for market work.

The story of the origination and subsequent improvement of the Belgian or fancy Pansy was so recently and fully told in the previous volume (p. 343), that it is only necessary to state, by way of continuity of the subject, that John Salter, first at Shepherd's Bush, next at Versailles, near Paris; and finally at Hammersmith, originated and improved the type, which M. Mielles, of Lille, and other continental raisers advanced to a high state of perfection by 1868; and from the leading varieties of which Mr. William Dean raised fine seedlings, which, finding their way into Scotland, were warmly welcomed by the Scotch florists, the climate being so well suited to their growth and fine development of bloom. Strains of high quality are now common; Bath of Wisbech, S. Pye of Garstang, W. Sydenham of Tamworth, are among the leading English raisers. In Scotland, Laird of Edinburgh, Dickson of Edinburgh, Dobbie and Lister of Rothesay, Paul

of Bridge-of-Weir, Forbes of Hawick, Campbell of Altyre, and others, are present-day raisers of new varieties, though so fine have been the productions of the past twenty years, but little substantial improvement can be noticed in the novelties of recent years; stoutness of substance is a prime gain.

Professor Hillhouse, at the Viola Conference, held in Birmingham in 1895, appeared to be of opinion that V. lutea, which he asserted to show "remarkable variability in colour, varying as it does from pure blue to pure yellow, with every possible transition between;" and V. Rothomagensis, the Rouen Heartsease, had played some part in the early history of the cultivated Viola, the former especially.

The early use of the Pansy and Viola as bedding plants was greatly due to Mr. J. Fleming, who while in charge of the gardens at Cliveden, in the fifties, raised some seedlings which he used very extensively in his spring garden. About 1859-60, Mr. James Grieve, then with Messrs. Dicksons & Co., Edinburgh, and Mr. John Baxter, of Dal-dowie, near Glasgow, made use of V. lutea and other species as seed parents, crossing them in various ways. Then came the boom with Viola cornuta by Mr. John Wills about 1863, and this induced some persons to set about crossing such material as they had; and V. cornuta Perfection, V. lutea grandiflora, and others appeared. Messrs. Dickson & Co., Edinburgh, and my brother, Mr. A. Dean, at Bedford, were both active as raisers, and during the seventies I sent out several new varieties, including Blue Bell, which originated as a chance seedling, and has outlived most of its contemporaries.

Dr. STUART, of Chernaide, N.B. (see Supplementary sheet), commenced his valuable work with the Viola about 1872-73, by making crosses between V. cornuta and Pansy Blue King, and soon raised new varieties which were warmly welcomed, and while others fell aside from the march of improvement, he laboured for the production, and that most successfully, of a rayless section, and subsequently obtained the miniature type also, with their mossy growth and small well-shaped flowers.

The work of my brother, Mr. W. Dean, done twenty years or so ago, while at Walsall, must not be forgotten. He raised and sent out several distinct varieties; and both seed-saving from selected varieties and cross-fertilisation were had recourse to by him, and True Blue, a rich, deep-tinted Viola, still remains an excellent and popular bedder.

A number of raisers are still busy at work producing new varieties, which are so numerous that it would appear invidious to particularise, and the Viola is now largely employed in our summer bedding arrangements, and almost invariably with excellent effects.

What is wanted is a race of early-flowering varieties for use as carpet plants in the spring garden in March, April, and May. Such a race would be very welcome to gardeners, who find it difficult to carpet their bulb-beds with plant which will be in flower simultaneously with the Hyacinths, Tulips, Daffodils, &c., and furnish blossoms when these have gone out of flower. R. D.

THE INDIAN AZALEA.

It is difficult to say who took the lead in crossing the various species and varieties of Azalea indica which came to us from China. From early times the "Indian Azalea," like the Camellia japonica, Chrysanthemum indicum, Præonia moutan, Rosa indica, have been cultivated in the gardens of China and Japan, and numerous varieties have been brought to Europe. The varieties raised by European gardeners are there not sprung from a homogeneous species, but from numerous races and varieties which have been under cultivation for centuries, and probably had among them artificial as well as natural hybrids and crosses. Planchon (see *Die Pflanzen Mischlinge*) states that the Indian

Azaleas may be referred to three sub-species, which he differentiates as *Breyni*, *Kämpferi*, and *Simsii*. Maximowicz inclines to two type species, viz., *A. ledifolium*, with four; and *A. indicum*, with five sub-species. Mr. Smith, of Norbiton, was one of the first to cross-breed, and about 1830 he raised a variety named *speciosa*; from this came an improved form he named *Smithi*; and later still, *splendens* and others. The striped varieties are regarded as descendants of *A. variegata*, for it has been observed its progeny have a tendency to produce blotched and striped flowers, and they partake also of the *A. variegata* habit.

Perhaps one of the earliest of English raisers of

that the greater majority were of continental origin. By that time it may be said that the raising of seedlings had passed into the hands of foreigners, chiefly Belgians and Frenchmen, and fine double-flowered varieties, as well as single-flowered, were produced in great numbers. In the early seventies, M. Louis Van Houtte sent over to one of the meetings of the Royal Horticultural Society a number of very fine single and double-flowered varieties, which were regarded as great advances, and they became very popular, and the production of new varieties still goes on. Not a few varieties have originated as sports, not only in Europe, but also in China and Japan.

ORCHID CROSSES.

As with other important classes of plants in which the hybridiser has intelligently worked, in the matter of forming an opinion of the gains in Orchids by his agency, it is profitable to pass in review the species acquired by importation, which represented the family in gardens before the home-worker began to effect their inter-crossing; and then, to turn from the species and varieties and consider the very large number of beautiful and useful hybrids which the hybridiser has evolved, some few of them superior in beauty to the species used in obtaining them. A larger proportion equal in beauty to the species, and all possessing some distinct feature, if it be only in the matter of flowering at an intermediate season, which render them distinct gains to gardens.

In the larger and showier genera, the good results are very evident; and now that the fruits of former labours are being perfected, good novelties come rapidly, as will be seen when it is considered that during 1897 and the first half of 1898 no fewer than fifty hybrid *Cattleyas*, *Lælias*, and *Lælio-Cattleyas* have been deemed worthy of Certificates by the Orchid Committee of the Royal Horticultural Society, and many others shown in an immature condition which will doubtless receive awards when more fully developed.

A glance at the names of the raisers and exhibitors disclose results only to be expected, viz., that Messrs. Jas. Veitch & Sons, the earliest in the field, and who have had the benefit of the assistance of such earnest workers as the late John Deminy and John Seden, bear off "the lion's share" of the honours which their beautiful hybrids fully entitle them to. Among amateurs, Norman C. Cookson, Esq., in conjunction with his able gardener, Mr. Wm. Murray, has done great things; so also the popular President of the Royal Horticultural Society, Sir Trevor Lawrence, Bart.; and among the thousands of hybrids as yet unflowered in the nurseries of Messrs. Sander & Co., Messrs. Charlesworth & Co., Messrs. Hugh Low & Co., and others, a large number of beautiful things are sure to appear, the innumerable tiny plants in each establishment giving ample warrant that the industry of raising hybrid Orchids is not intended to collapse for want of interesting material.

On the Continent, the names Linden, Maron, Bleu, Mantin, Vuylsteke, Peeters, and others appear with honour, and their products are of equal merits to those obtained in the British Isles, to say the least of them.

There is also another branch of Orchid-raising from seeds which might well be more fully developed, and run concurrently with the hybrid branch, and that is, the raising of fine varieties from seeds uncrossed, and perpetuating and improving by selection the best forms already in gardens. That there is a good field in this direction has been proved by Norman C. Cookson, Esq. securing an improvement of the coveted *Cypripedium Lawrenceanum* Hyeaenum, and by a few other cases of a similar nature, and which among the plants in a wild state no doubt gives the chief factor in securing the fine varieties which the amateurs so keenly compete for when they appear among importations.

Among other gentlemen worthy of honourable mention for their work in Orchid hybridisation, are Sir Wm. Marriott, W. E. Brymer, Esq.; C. C. Hurst, Mr. T. W. Thornton, Reginald Young, Esq.; Drewett O. Drewett, Esq.; Captain Hincks, and Chas. Winn, Esq. In Baron Schroder's gardens Mr. H. Ballantine has raised some important hybrids; and in the gardens of R. I. Measures, Esq., Mr. H. J. Chapman has done good work; Mr. T. W. Bond, gardener to C. L. N. Ingram, Esq., also having produced a number of desirable hybrids, especially among *Cattleyas* and *Lælias*. J. O'B.

MESSRS. SANDER & CO.'S HYBRID ORCHIDS.

For many years the hybridising of Orchids has been carried on by Messrs. Sander & Co. at St. Albans. The first attempts were made, as with



FIG. 25.—*DEUTZIA DISCOLOR PURPURASCENS*. (SEE P. 46.)

Indian Azaleas was Mr. Philip Frost of Dropmore Gardens, who succeeded in raising some novelties, which between 1830 and 1840 passed into the hands of Messrs. Knight & Perry of Chelsea for distribution. Mr. Frost made an experiment by sowing seeds of a white variety, and raised a varicoloured progeny from it.

It was possibly such material as the foregoing which came into the possession of Ivery, of Peckham, and Ivery of Dorking, and others, and led to the raising of *Admiration*, *Criterion*, *Queen Victoria*, *Iveryana*, *Beauty of Reigate*, and others, and from these various raisers produced seedlings which were named and distributed. A lengthy list of varieties published twenty-two years ago shows

Crosses have been made with considerable success between *A. indica* and *A. amensu*; one of the first was *A. Caldwelli*, raised by Messrs. Caldwell, Knutsford; and Mr. W. Carmichael was also successful in raising some valuable varieties from *A. indica* *Stella*, crossed with *A. amensu*. In addition, that form of *A. sinensis* known as *mollis* has been used in a variety of crossings with *A. indica*, and also with *Rhododendron ponticum* and others, with more or less success.

Mr. Vervaeke, of Ledeborg, has been so successful in raising new varieties, as illustrated at the Ghent show this spring, that we select him as a representative of a group of distinguished Belgian raisers (see Supplementary pages). R. D.

many other workers in the field, as a sort of amusement, and the crosses then made were effected by Mr. F. Sander himself. Later, when good results gave interest to the subject, in conjunction with his energetic manager, Mr. J. Godseff, the extent of the operations was increased, with the result that soon a special department had to be organised for the hybrid Orchids, and Mr. Maynard, who is now pursuing his occupation in the United States, had charge of the department for some years, and with the best results. Recently, Mr. Armstrong, who previously did good work with Chas. Winn, Esq., at Birmingham, has taken charge of the St. Albans' hybrids, and doubtless the good standard will be maintained.

Among Cypripediums, Messrs. Sander & Co. have been very successful, a large number of good new ones have been raised by them; and in the favourite genus *Cattleya*, &c., we find credited to them *C. x Lord Rothschild* (*Gaskelliana x aurea*), *C. x Ballantinei* (*Trianae x Warscewiczii*), *C. x Burberryana* (*intricata x superba*); *Laelio-Cattleya x C. G. Roebling* (*L. purpurata x C. Gaskelliana*), *L.-C. x Frederick Boyle* (*C. Trianae x L. anceps*), *L.-C. x Kranzlini* (*C. Mossiae Wagneri x L.-C. x elegans*); *L.-C. x Maynardi* (*L. Dayana x C. dolosa*); *L.-C. x Mrs. Astor* (*C. Gaskelliana x L. xanthina*); *L.-C. x Sanderæ* (*L. xanthina x C. Dormaniana*), and a fair proportion of other showy hybrids. *J. O'B.*

ROSES.

To go into the history of cross-breeding in Roses would demand much more space than we can now give to it; moreover, it has on more than one occasion been treated of in our columns. We may specially refer to the magistral paper of M. Crépin in our columns, 1895, January 19, p. 76; and to the full account given in the Jubilee numbers (see June 12, 1897). All we can do now is to mention a few of the more prominent Rose-breeders of later times. In this connection we may mention the late Henry Bennett, who raised many "pedigree" Roses, mostly crosses between Hybrid *Perpetuals* and *Teas*, amongst them being *Her Majesty*, *Mrs. John Laing*, and *Viscountess Folkestone*. The veteran William Paul, of Waltham Cross (see Supplementary sheet), has always taken a leading part as a cross-breeder and a fluent writer. To enumerate all the choice productions that have emanated from Waltham would be impossible; it must suffice to mention some of the more recent, such as *Sappho*, *Medea*, *Queen Mah*, *Enchantress*, and *Empress Alexandra of Russia*. In the hands of his son the work is likely to go on valiantly, so that we look forward to many more Beauties of Waltham.

Mr. Dickson of Newtownards, Ireland (see Supplementary sheet), is another representative Rose-raiser, and if he had done nothing more than give us *Mrs. W. J. Grant*, he would have done enough to hand his name down to a grateful posterity; *Earl of Dufferin*, *Helen Keller*, *Margaret Dickson*; while *Bessie Brown* is one of the sensations of the season.

Of Mr. George Paul's productions may be mentioned *Cheshunt Hybrid*, *Mrs. Reynolds Hole*, *Sultan of Zanzibar*, *Paul's Single White*, and many others.

How many of these Roses were simply raised as selected seedlings, and not as the result of intentional cross-breeding, we cannot tell, but of Lord Penzance's beautiful and fragrant *Briars* the history has been given in the *Rosarian's Year Book* for 1892. Ed. (See Supplementary sheet.)

DEUTZIA DISCOLOR PURPURASCENS

(SEE FIG. 25, P. 45.)

For the possession of this most distinct and beautiful hardy shrub I am indebted to the kindness of the director of the *Muséum de l'Histoire Naturelle* at Paris, more commonly known as the *Jardin des Plantes*, who sent it to me some three or four years ago when still very scarce, in fact, almost unknown in European gardens. It is one of the

many fine hardy plants sent to the Museum garden from China by the collectors sent out by the French Government, probably the Abbé Delavay. It was distributed some little time ago by the well known French nurseryman, M. Victor L. Lemoine, O.L.H., who has used it as one of the parents of his beautiful new hybrid *Deutzia* (*gracilis* being the other parent), named *D. gracilis rosea* and *D. gracilis venusta*, which he is now sending out for the first time. *W. E. Gumbleton.*

CULTURAL MEMORANDA.

GLORIOSA SUPERBA.

A WARM, moist temperature is necessary to grow and flower these plants well, and the pots should not be over-large. Three or four strong bulbs should be placed in a well-drained 10-inch pot, filled with sandy loam, small lumps of peat, and plenty of sharp sand, and then started in a fairly brisk heat, not affording much water for a time. The strong shoots which will be thrown up should be supported with sticks, or attached to a wire stretched across a house near the roof. When the pots get filled with roots, clear soot-water or weak liquid manure may be applied occasionally. The surface should be top-dressed twice during the season, and when growth ceases, the quantity of water afforded the plants should be gradually lessened, the bulbs being wintered in a warm place.

JUSTICIA CARNEA.

Plants that were struck from the tops of old plants in the spring, and grown on in an intermediate temperature in small pots, make, when small, useful decorative material. If four or more heads of bloom are required, if only one per plant, the top of the stem should be nipped off; but when only one head is wanted, the laterals should be removed, the crown flowers being retained.

JASMINUM REVOLUTUM.

This well-known inhabitant of our gardens is much admired when grown as a bush. Last summer I noticed on the lawn at Mrs. Gray's garden at Birchington, Isle of Thanet, a large bush covered with bloom. Slips taken in the spring and early autumn, and put under a hand-glass in sandy soil, soon make roots in a shady position. *H. Markham.*

LAW NOTES.

Re FRANK FREEMAN PAGE, LATELY RESIDING AT STONECOT NURSERY, LONDON ROAD, SUTTON, NURSERYMAN.

THE statement of affairs filed under this failure shows gross liabilities amounting to £1444 14s. 6d., of which £1277 12s. is due to unsecured creditors. The assets are returned at £426 10s. 10d., from which £153 12s. 6d. has to be deducted for the claims of preferential creditors payable in full, leaving nett assets at £272 18s. 4d., and showing a deficiency of £1004 13s. 8d. The debtor alleges his failure to have been caused through "insufficient returns to pay working expenses until last year, and loss through failure of Mushroom and Tomato crops."

A SINGULAR CLAIM.

(*W. C. Spittle v. Spencer & Co.*)

At the Wandsworth County Court, before his Honour Judge Lushington, Q.C., Mr. William Charles Spittle, market gardener, of Ashen Grove Farm, Wimbledon Park, sued Messrs. Spencer & Co., the well-known aeronauts, of Holloway, to recover the sum of £30, as compensation for damage to growing crops near Southfields, owing to the descent of a balloon on the land. Mr. H. E. Jones appeared for the plaintiff, and Mr. Colam defended. The defendant had paid £2 into court. The plaintiff's case was that about 600 people were attracted to the spot where the balloon descended, and, as a consequence, his crops were much damaged. After hearing evidence on both sides, his Honour was of opinion that the amount paid into court, £2, was sufficient, and he therefore gave judgment for the defendant, with costs.

ORCHID NOTES AND GLEANINGS.

VANDA AGNES JOAQUIM.

WHEN calling at Bletchley Park the other day, the beautiful country residence of H. S. Leon, Esq., I saw a fine strong plant, about 4 feet high, of this *Vanda* bearing a spike with several flowers open. I think this is the second plant only that has flowered in this country since its introduction, about five years ago. This hybrid *Vanda* (*Hookera x teres*), has beautiful flowers, but the fine purple colouring of *Hookera* is almost lost in it, and little trace of this parent remains beyond the rather broad cuneate-formed labellum. There are several more plants of it here, and the whole seem to be treated to a somewhat cooler and less moist atmosphere than is usually given to this class of *Vanda*. Mr. Hislop took up *Orchid*-crossing some years ago, and is now the fortunate possessor of a very large progeny, from *Lælia Digbyana*, with many kinds of *Cattleyas* and *Lælias*. This offspring is now very healthy and robust, some among them showing strong flower sheaths; and there ought to be some agreeable surprises in store from this batch, if one may venture to judge from the crosses pointed out.

A peep at the grounds shows a very large extension during the past two years, and it is satisfactory to note how well the many large golden *Yews* are doing, these being brought from a nursery and planted since the extension. Mr. Hislop is using a lot of golden *Privet* for grouping with fine effect. *A. Ingram.*

TWO RARE NATIVE ORCHIDS.

It may be of interest to some of your readers to know that the sweet little summer *Spiranthes* (*Spiranthes æstivalis*), and the purple-leaved *Helleborine* (*Epipactis purpurata*, Smith), are both found in plenty within a dozen miles of the great metropolis—the *Spiranthes* at Chislehurst, and the *Helleborine* at Farnborough, both in Kent. In our standard works on botany, the summer *Spiranthes* is only recorded from Hampshire, Worcestershire, and the Channel Islands; while the purple-leaved *Helleborine*, found in Bedfordshire and Worcestershire, has quite escaped notice by both Bentham and Hooker. The *Spiranthes* grows in dampish ground, by the stream-side, and is readily cultivated in our gardens; while the *Helleborine* inhabits deep loam on chalk, in shady, woody situations, but in its cultivation I have never succeeded. *A. D. Webster.*

HOME CORRESPONDENCE.

CHLOROSIS IN A ROSE.—I have recently had my attention drawn to a H.P. standard Rose, of which one of the smaller branches, stems, thorns, leaves, and flower-stalks are entirely of a creamy-white colour, and the flowers are the natural colour. I have seen many times a few leaves come with splashes of white and yellow, but never before an entire branch. It has carried a good number of perfect flowers—in fact, it seems quite as vigorous as the rest of the Rose. The variety is in the way of the *Earl of Dufferin*. Have any readers of the *Gardeners' Chronicle* ever met with such a freak? Is it possible to perpetuate it, as the branch can contain no chlorophyll? *W. P. Bound, The Gardens, Bill Hill.*

BRITISH FERNS.—On p. 26 in last week's issue I am, unfortunately, made to say that "I possess a collection of these charming plants which contains the best forms of every British species," a statement which I beg to be allowed to contradict, as it is neither true in substance nor in fact. In many respects my collection is comparatively poor, although it has been lately enriched by contributions from such well-known specialists as Mr. C. T. Druery and Mr. E. J. Lowe, to the former of whom the offending phrase is evidently intended to apply. I am extremely sorry this inadvertence should have occurred, as I regard myself as a mere novice on the subject of British Ferns. *C. B. Green, Acton, W.*

GARDEN HYBRIDS.—With much that Sir W. T. Thiselton Dyer has written on p. 31, I am in agreement, but may I be allowed to respectfully suggest that the frequent use of the word "hybrid," in seedsmen's catalogues especially, and among the gardening fraternity generally, as applied to particular strains of florists' flowers, &c., is an error, or rather a misconception, when highly bred is merely the meaning they desire to convey; just as we say high-bred when speaking of pedigree in domestic animals and cage-birds. Few men can claim to have collected and saved, and, for that matter, sold, more seeds of *Cinerarias*, *Calceolarias*, *Primulas*, *Cyclamens*,

It is merely a matter of opinion, and altogether arbitrary. The species of *Cattleya* and *Lælia* are admitted by the best authorities to be very closely allied, and might even be reduced to sections of one genus; but while that is admitted, the two are kept separate as much for convenience sake as anything else. Until it can be definitely settled as to what should constitute a genus, authorities will never agree as to what is, or is not, a bi-generic hybrid. In practice it will be found that many plants which have long been considered to belong to different genera will inter-cross. The remarks you make about birds offer another strong case in point. So various are the

several nurseries—belonged to C. Coum (Miller), Canon Ellacombe wrote to me, saying that he knew the late Mr. Atkins, who had told him that the *Cyclamen* he had called by his own name was a hybrid between *C. persicum* (latifolium) and C. Coum, that it was not hardy, and that it was soon lost. As for crosses between those hardy *Cyclamens*, which are in common cultivation in English gardens, their flowering seasons are so well marked and so different, that they do not get a chance of forming spontaneous hybrids. Amongst the many names in nursery and bulb catalogues, I have found only four hardy species, counting C. Coum and C. ibericum as one, for whatever



FIG. 26.—*KALANCHOE FLAMMEA*.

(See Report of Royal Horticultural Society's Exhibition, p. 58, col. 1; also *Gardeners' Chronicle*, July 10, 1897, p. 22.)

Gloxinias, *Pansies*, *Begonias*, &c., than I have done during the twenty years—1868 to 1888—I was in the service of the late Messrs. Lucombe, Pince & Co., of the Exeter Nurseries; and fewer men can claim to have visited so many of the parks, gardens, and gardeners, so often and so regularly as I did during the latter portion of that long service, whence I think my notion that high-bred, as applied to strains, was originally meant, and not hybrid at all. Again and again, during recent years, I have stirred up this subject of hybridism in the gardening press and that of the feathered world, and one of my notes brought forth the following valuable discourse from a high authority, which will just now, I hope, prove of some service: "Doctors do not yet by any means agree as to what should constitute a species, nor even a genus.

opinions of ornithologists about the affinities of birds, that the science is simply an intricate labyrinth of synonymy. If the authors cannot agree as to the genera, they cannot state what is, and what is not, a bi-generic hybrid. Our opinion is that the hybridisation of plants, and the breeding of different species of birds together, is merely a case of sexual affinity." Wm. Napper, 28, Telcott Road, Chelsea, S.W.

HYBRID CYCLAMEN.—In reference to Sir W. Thiselton Dyer's mention of *Cyclamen Atkinsii*, on p. 31, I do not pretend ever to have seen a hybrid *Cyclamen*; but two years ago when I had been writing notes on the cultivation of hardy *Cyclamens*, and had mentioned that all the *Cyclamen Atkinsii* I had ever seen—and I had collected them from

C. ibericum (Goldie) may be when collected as a wild plant, the *C. ibericum* of nurseries is C. Coum (Miller) and nothing else. The four hardy kinds with me are (1) C. Coum (Miller), flowering time January to March; comes up freely from seed, colour and leaf very various. (2) *C. hederasifolium* (Aiton), syn. *repandum*, flowers April and May; rather tender here; flowers, dark crimson or white, fragrant. (3) *C. europæum* (Lin.), flowers end of June and July, very fragrant; flower shape and size of that of C. Coum—does poorly with me. (4) *C. neapolitanum* (Tenore), flowers in August and September; every shade of colour from dark crimson to white, leaves very various; seed ripens abundantly, and comes up readily, flowering in the open ground the third year. This species is figured in Sowerby's *Botany*, under two or three

names as British; and is figured as *C. europæum* in Bentham's *British Flora*. I have never seen specimens of the naturalised species, but from the readiness with which *C. neapolitanum* establishes itself in gardens, and the difficulty I have always found—and, I believe, others have found—in establishing *C. europæum* as a hardy plant, I should say that *C. neapolitanum* (Tenore) is the so-called British species. I have had also *C. cilicium* (not *C. cilicium*), Boissier,* whether true or not I do not know, but it did not prove hardy. *C. Wolley Dod*, Edge Hall, Malpas.

THE PINE-APPLE.—I quite expected that the article on "Pine-apple Culture," by Mr. Coomber, in your issue for July 1, would have induced some of our noted growers of this fruit to reply. As the name of Barnes (formerly the gardener here) is introduced among other good growers of the past (and probably of the present day), I venture to offer a few remarks thereon. In the first place, I may say that there is only about one-half the number of plants fruited here to-day than was the case twenty-five or thirty years ago. There are two common causes for reduction, the first being that employers expect far more flowering and foliage plants grown for indoor decoration of the mansion, especially the former, than was then the case, as well as a succession of Melons and Tomatoes, the latter looked for pretty well throughout the entire year, and in many instances the glass structures which once contained a good collection of Pines, are at the present day utilised for the cultivation of the plants mentioned. The other reason being not quite so convincing, namely, that the returns for produce marketed, are not so good as formerly. I shall be within the mark when I say that one-half of the big establishments dispose of their surplus Pine-apples in this way. It is quite certain that employers having two or more country seats, and gardening carried out with spirit in each place, cannot consume all the produce grown. In my case, having a dozen or more of Pine-apples on hand, and my employers abroad, I wrote to a well-known salesman in Covent Garden only ten days ago, asking if there was likely to be a fair sale for them; and he replied, "There is practically no market for home-grown fruit, the St. Michael's taking their place; good fruit, 4 to 6 lb. selling for as many shillings." The most I ever made was 8s. each for good Queens from 5 to 6 lb. each; and I suppose twenty years ago a fruit of this description would have fetched 15s. to 20s. each. The labour is not over-great, as your correspondent says, for if overhauled at the end of August or early in September and replunged, they are right until March comes again, when some may require potting and the suckers put in. These should be taken at different times, so as to keep up a succession as far as is practicable. I must take mine in a smaller state than Mr. Coomber, for he advocates 8-inch pots to start with. Mine go in 4½-inch, 5½-inch, and 6-inch, respectively, and fruiting them in 10-inch pots instead of 12-inch, as advocated by him. This last-sized pot, when well rammed with loam, is rather a heavy one for a man to shift about; and I think quite as good fruit is grown in the smaller pot. *James Mayne, Bickton, Devon.*

FLAVOUR IN MELONS.—A recent note with respect to the culture of Melons with the object of securing higher flavour in the fruits, seems to have in it a somewhat dogmatic bias, though probably not intentionally so. The assumption that Melon-plants grown in troughs or shallow boxes over pipes, are unable to produce fruits so fine or of such high flavour as is found in fruits on plants grown in pits or frames, or where a greater body of soil is provided, seems contrary to general experience. Some of the most delicious Melons tasted in recent years have been grown in troughs, nearly all growers now realising that plants do not need such extensive root ranges as was formerly given them, but that with a restricted area and some suitable feeding, better results are produced. (?) But there is this fact about the best of Melons, that no matter how grown, the getting of high flavour even in the finest varieties of repute is quite a lottery. One fruit may be delicious, three may be very commonplace, and all from the same plant. Sometimes a large Melon is first-rate in flavour; sometimes quite a small and almost an

imperfectly formed one. Externally the fruits may be perfect in appearance, and beautifully netted, yet not good in flesh. Even fruits may have a delicious perfume and yet be quite commonplace in flavour. Aroma is no safe guide in the matter. I do not think the Melon-grower exists (or that the variety exists) who can guarantee high flavour from any one fruit or from many. Melons have gained little because of so much interbreeding. Some, when diverse coloured flesh varieties have been inter-bred, have given hard white or green flesh externally, and soft, succulent red flesh in the centre. Very many of such fruits crop up amongst new ones, and they are always worthless. We must seek further for the secret of securing flavour in these fruits than is furnished by greater root areas. *A. D.*

MILDEW ON VINES.—In last week's issue of the *Gardeners' Chronicle* I perceive Mr. Wm. Smythe does not agree with the practice of employing hot water on Vines as a cure for mildew. As others and myself have used it, and found it to be a certain cure, it would be interesting to know why he objects to its use, seeing that he thinks water at 130° Fahr. would be a good remedy for any plants infested with mealy-bug. Now, if good for the one, why not for the other? My own experience in using flowers-of-sulphur is, that one application is not enough, whereas one application of hot water has proved effectual. There is no doubt that most of us have in our time resorted to the use of sulphur for plants attacked with mildew; but why should not hot water be as efficient a remedy as sulphur? in my case I have found it better. *G. Littlewood.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, S.W.

Hybrid Orchids.—Generally, these plants are fairly easy of cultivation once they have passed through the earlier stages of growth, and become of a size amenable to ordinary Orchid-house treatment. Experience teaches us that home-raised hybrids are more tractable than their parents, each succeeding year the growth being stronger, and root-production greater; and up to a certain age, varying in different crosses, single leads are produced, and these in the course of time afford chances for division if that be called for. In the earlier stages, one great need of these plants is a sweet rooting-material, and failing which, the progress of the plants is slow. Providing the work be carefully and thoughtfully executed, little or no harm comes from frequent repotting, the growing roots eagerly seizing upon the fresh material. Almost everyone having to do with Orchids has attempted the raising of seedlings with more or less success, and in some instances ideas of practice have been formulated calculated to bring about the more speedy realisation of their efforts. From what I can gather nothing makes a better seed-bed than the surface of any well-conditioned material in which an Orchid is already growing. Oft-times, seed is sown on well-prepared surfaces, but the sower's hopes are not realised, a few seedlings springing up where he least expects to find them. For instance, some *Dendrobium* seedlings were raised at this place on soil in which some *Thunias* were growing, and which contained a preponderance of loam, and strange to say, in almost every case, the seedlings were found in the loam.

Lælia and *Cattleya* Hybrids succeed under the same kind of treatment as that given their parents, and I think that often our non-success is due to over-zealous care rather than to any inherent difficulty in the seedlings themselves. Choice plants are isolated and special treatment is applied, with the result that they fall victims to kindness. Let all Orchids be afforded a suitable kind of treatment, and then all varieties will thrive more or less. Certainly, in some few cases, special details have to be attended to; the very fact that a plant is the result of crossing different species or genera, renders it necessary that the cultivator should consider the idiosyncracies of both parents, and aim at a compromise between them. For example, *Lælia-Cattleya Digbyano-Trianæi*: here we have a moderately cool growing, winter-flowering *Cattleya* united to a warm-growing, summer-flowering

Lælia, the resultant progeny being as might be conjectured, as near as possible of an intermediate nature. To meet the mixed wants of this lovely hybrid, it is necessary to grow it in a warm house, and rest it in a much cooler one, or growth would follow so quickly after flowering that the plant would not have the necessary time to recover from the exhaustion consequent upon flowering. When we know the parents of these plants, there is little difficulty in choosing the proper kind of treatment. My method is to generally take into consideration the weak points of the parent plants, and treat the hybrid accordingly, the more robust character of the other parent aiding me in my efforts.

THE HARDY FRUIT GARDEN.

By G. HERRIN, Gardener to J. B. FORTESCUER, Esq., Dropmore, Maidenhead.

Raspberries.—These fruits are ripening fast, and should, therefore, have some kind of protection from thrushes and blackbirds. Previous to putting nets over the plantations, suckers springing up between the rows of stools should be destroyed, and where more than three or four canes arise from a stool the rest should be pulled out. The current year's canes should be loosely tied together, and when the fruiting canes are tied to lengths of wire, or to stakes, a framework or support of some kind, at a height of from 7 to 8 feet, must be erected to carry the netting so that the fruits may be conveniently gathered without much need for disturbing the net. Stout stakes fixed 12 to 15 feet apart with a galvanised wire on the top, strained tightly and fixed by a staple driven in to each stake, make a good framework for carrying nets. The nets should be allowed to fall to the ground; or, a piece of galvanised wire netting 2 feet deep may be run round the piece of land, and the fish netting secured to this and thus be kept dry. If a more temporary support for the netting is desired, a flat bit of wood, T shaped, a foot or so in length, may be fixed with one nail on the top of the posts, to support the same.

Gooseberries are ripening fast, and will likewise need to be protected. Owing to the thorny nature of the bushes it is not prudent to lay netting on them, but some form of support must be erected, like that advised for Raspberries, but with shorter supporting poles. Before pulling the nets over the bushes let the leading-shoots be stopped, and others where growth is dense cut back somewhat closely. When Gooseberries are grown together in a square it is a boon to a gardener to have the plantation permanently wired in with galvanised wire-netting, small enough in the mesh to exclude not only thrushes &c., but tom-tits and bullfinches. In one or two instances where this kind of protection is given, the bushes have not been more infested with insects than others unprotected, notwithstanding the doleful consequences predicted by the champions of the birds.

Grafts should be examined, and when it is seen that the ligatures are cutting into the rind, the grafting-clay and the ties should be removed. If the scions are growing freely most of the shoots growing from the stock may be rubbed off; the stronger—a few only—may be left about 8 inches long, to draw sap to the stem, otherwise it will be long in acquiring strength. Scions likely by reason of top-heaviness to be blown out, should be secured to a short piece of stick made fast to the stock.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener to the Dowager Lady HOWARD DE WALDEN, St. James's House, Malvern.

Begonia Gloire de Sceaux.—This fine, late, winter-flowering *Begonia* is a very effective decorative plant when grown to a large size, a plant grown in a 5-inch pot conveying not the slightest idea of the possibilities of the variety when at its best. It is necessary, therefore, to start in the spring months with strong healthy cuttings, and these having been repeatedly shifted when the state of the roots showed this to be necessary, will at the present time be in large 4½'s. As soon as the roots begin to run round the side of the pot, transfer the plants to larger pots, say, of 7 or 8 inches. When strongly grown, this *Begonia* freely makes lateral shoots, and assumes a pyramidal form. Any of the plants of about the indicated size which have not yet thrown out laterals, should be forced so to do by nipping out the leading points. It will

* The classical form of this word is *cilicium*, as E. Boissier, the namer, wrote it (see *Fl. Orient.*, vol. iv., p. 11, and *Index Kewensis*), not *cilicium*, as often erroneously spelt.

be necessary to afford them another shift at a later part of the season, the size of the flower-pots chosen for this repotting being suited to the strength of the plants, 8-inch or 9-inch pots not being too large for the last re-potting of strong specimens. In order to preserve the beauty of the foliage, the plants should not be damped over-head, but the syringe may be freely used between the pots below the leaves during fine weather. A watch should be kept for thrips, which sadly cripple and disfigure the plants by feeding upon the succulent growths and the under-sides of the leaves. This variety should be cultivated in the stove, and shaded during bright sunshine.

Begonia Gloire de Lorraine.—The plants of this variety should be shifted into larger pots when well-rooted, but judging from the excellent specimens frequently seen growing in 5-inch and even smaller pots, it does not appear to be necessary in the last re-potting to exceed 5 inches in width. The flowers should not be allowed to develop on those plants that are required to afford a display in the autumn.

Manettia bicolor.—Plants which have been raised from cuttings, as advised in a former calendar, should be growing freely in 4½-inch pots, being shifted into 6-inch ones before they get pot-bound. Afford a compost consisting of three parts loam, one part peat, and some silver sand. It will be necessary to provide some kind of trellis, to accommodate the large amount of growth which the plants make by the time they are in full flower. They should be grown near the glass in a warm, moist house, and should be freely syringed, in order to keep them clear of thrips, which are partial to the foliage.

Campanula pyramidalis.—Let some weak manure-water be applied twice a week to those plants of a flowering age, which are being grown on for the decoration of the conservatory.

FRUITS UNDER GLASS.

By W. STAGHELL, Gardener to the Right Hon. W. H. Lowe, Wood Ashton, Trowbridge.

The Early Vinery.—In most gardens, Vines will have been cleared of the bunches; but in vineries in which Grapes are still hanging, a little shade will be required over black Grapes, in order to preserve their colour. The Black Hamburgh soon loses colour if exposed to much sunlight after the fruit is ripe, and other varieties are similarly affected, but less quickly. Continuous ventilation of the vinery will be required, whether the Vines are cleared of fruit, or the ripe fruit still hanging on them. It is a good practice to slightly shorten the laterals on the earliest Vines in order that the basal buds may develop fully, otherwise the buds furthest removed from the stem will become the stronger. No hard pruning should be done at this season, for fear of back buds starting to grow. The border should be afforded water, and liquid-manure well diluted and clear whenever it appears to be in need of moisture, and a mulch of strawy manure afforded. If any kind of insects infest these early Vines, the present is a suitable season to make clearance of them. Mealy-bug may be dealt with partly by using water at a temperature of 150°, escaped insects being destroyed by touching them with methylated spirit. If a petroleum emulsion be applied with the hot water, and kept well agitated, it forms an effectual and safe insecticide in the hands of those experienced in its use. Thrips may be eradicated by the same means, or by fumigating with the X.L.-All compound. Red-spider cannot long endure being vigorously syringed with clear water, or the leaves dusted with flowers-of-sulphur, applied by means of a syringe in the form of a wash. If the latter method be employed, more than one application will be needed, sulphur not adhering regularly and evenly on the smooth leaves. Sulphur mixed with milk, and the hot-water pipes coated therewith, is a capital anti-red-spider means.

The Succession Vinery.—In order that the density of bloom and depth of colour may be preserved for some time, the ventilators should never be quite closed, otherwise moisture will condense on the fruit, spoiling that pleasing bloom that is so much valued in the Grape. Damping-down should be less frequently practised; do not, however, keep the vinery unwholesomely arid, but afford moisture according to weather conditions, otherwise red-spider will quickly increase. Vines whose roots are in

borders outside the vinery, should be mulched as previously recommended. If the soil is light and porous, cowshed-litter is better than that from a stable, it being more retentive of moisture. Unless rain falls in sufficient volume to penetrate deeply, water will have to be applied after the mulch is laid on the border. If the border has a steep slope and the surface is compacted, lightly dig it with a fork prior to affording water. As a stimulating manure for Vines, nothing is safer or more beneficial than decayed night-soil; but for the borders it should be well incorporated with dry soil or burnt ballast, more especially if it be not much decayed. This will deodorise it and avert a nuisance. It should be lightly pointed in, and a mulch put over all before water is applied. A light dressing of this manure may be applied to any Vine at any stage of growth. Vineries in which are growing thin-skinned Grapes, such as Foster's Seedling and Madresfield Court, must be carefully ventilated and have the damping down modified to suit their requirements, otherwise trouble will arise; and the borders must be kept in an uniformly moist state, as any excess of water afforded after a period of drought, always induces cracking.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Budding Roses.—The propagation of Roses by budding is far the easiest system, and the work may be done now, or before the end of August is reached. It is necessary to ascertain that the bark will part easily from the inner-wood before commencing the operation. Select your bud from firm shoots of the present year's growth, and remove the leaf, but leave about half-an-inch of the leaf-stalk at the base of the bud. To prepare a bud, cut away a portion of the wood surrounding it down into the pith, then remove the woody portion from under the bud, drawing it away carefully without injury to the base of the bud. Make a clean longitudinal cut now on the stem where the bud is intended to be placed, and from the middle of this cut another one should be made crossways, thus forming as nearly as possible the letter T. Insert the bud immediately afterwards, and bind with worsted or matting, leaving the bud only exposed. Tea-Roses when budded on standard Briars do not form good heads, neither will they withstand severe frosts. A few of the Hybrid Teas, such as Captain Christy, La France, and its sport, Duchess of Albany, Marjorie, and Rainbow, will succeed; but the best varieties to form standards are the vigorous-growing hybrid perpetuals. Rose-trees after flowering are sometimes attacked with blight, and to keep them clean it may be necessary to syringe them with insecticides, such as Kilmright or tobacco-juice and soft-soap of moderate strength. Mildew, too, often makes its appearance after hot, dry weather, but may easily be kept under by puffing with the Malbec-bellows, some anti-blight mixture, or dusting over and under the leaves with black sulphur.

Pinks.—These plants are easy of cultivation, and well repay the gardener for his trouble. Their chief requirements are a well-drained loamy soil, sand and decayed stable or cow-dung-manure, and an aspect fully exposed to the sun. Pinks when employed as edgings to walks, should be planted 1 foot from the Box or other margin, and 9 inches from plant to plant; when fully grown they form a line of beautiful glaucous foliage. The show and lace kinds are the more delicate, and it is necessary that the pipings be struck under hand-lights or cold frames. Select some of the stronger shoots, remove a few of the lower leaves without damaging the buds, cut off the tips of those retained with a sharp knife, and cut the base of the piping close under a joint of firm growth. Throw them when made into a vessel holding water; and when a quantity is made, dibble them in a bed of sandy loam, 2 or 3 inches deep, and 4 inches apart, fixing them firmly, and finally sprinkle some river or coarse sand over the surface. Afford water, and let the frame be closed and shaded from bright sunshine; give the cuttings an occasional sprinkling until rooting has taken place. At this stage air must be admitted, gradually at first. The best of all Pinks, Mrs. Sinkins, strikes readily if strong pipings are dibbled into prepared ground, and kept moist. Pinks should not remain in the same soil more than two years, or they will diminish in size, and the

flowers become very small. A selection of the best white varieties are alba maxima Her Majesty (rather a delicate constitution), Albino, and Snowflake; Boiard is a fine white flower, with bright-red lacing; John Ball is a rich, dark plum-coloured variety; Sarah, fine white, with dark-red centre; Lowlander, red; and Ernest Ladham, a very free, fine large flower, with deeper centre of pink.

Carnations and Picotees.—The best method of propagation to adopt is layering, but when the shoots are too short, propagation by pipings must be had recourse to. Layering should begin about the middle of the present month. A compost consisting of sand, loam, leaf-mould, and rotten manure in about equal parts should be placed round the plants to be layered, having first scooped out a depression the depth of 2 inches. The best shoots should then be stripped of the basal leaves, and cut with a sharp knife half through the shoot just below a joint, carrying this cut in a slanting position up through the joint, so that the knife emerges just above it. The layer should then be pegged down in the prepared soil, the operator being careful not to break or let the tongue close upon the shoot from which it is slit. The layer may be buried to the depth of 1 to 1½ inch. When a few plants are layered all round a plant, apply water with a fine-rose can, just so as to settle the soil above the layers. In dry weather, water should be afforded occasionally, but not so heavily as to lay bare the layers.

Screens and Hedges.—Those consisting of Yew, Holly, and other evergreens, which have to be kept of small width, may be clipped this month, so as to allow the plants to make a small amount of growth, which will take off the stiff appearance.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Parsley.—A good breadth should now be sown on a warm border, where in hard weather glass or other protection can be readily afforded; and the land should be in good heart, and before proceeding to sow, it must be made moderately firm. The drills (for it is better drilled) should be made at 10 inches apart, and deep enough to allow of a good mixture of fine soil mixed with soot and wood-ashes being first strewn in the bottom of the drills. If the soil is dry, water should be applied heavily a few hours before sowing the seed. Myatt's Garnishing Parsley is a useful variety, but the very dense, curled leaves do not withstand frost to the same degree as the more moderately-curved varieties. When the seedlings are in a fit state to plant, thin them out to 3 or 4 inches apart, and plant the best of the thinnings either in cold frames or at the foot of a south wall.

Turnips.—Two or three breadths may be sown at intervals of ten days, and if the land has been occupied with some light crop, and is in good heart, no deep digging should be done, but the surface afforded a dressing of manure, or of soot and guano, and be pricked up 3 inches in depth. Let it be raked over with a wooden rake, and then draw the drills at 16 inches apart. Encourage a rapid growth by watering the drills if the weather prove hot and dry; thin out the plants early, and frequently dress the plants with a mixture of soot, lime, and wood-ashes.

Spinach, &c.—A large sowing of Spinach for autumn use may now be made, sowing again in about a fortnight. In order to have a vigorous plant, the land should be prepared thoroughly, i.e., it must be deeply dug or trenched, after a heavy dressing of rotten manure has been applied. After the digging is finished, apply a dressing of root, turning it in slightly with the spade; make level, and trample it firmly and evenly, then proceed to draw drills 1½ foot apart, or sow rather more thickly in beds, 3 lines in a bed, with 2 feet alleys between the beds. The varieties Monstreux de Viroflay, and Victoria, are large-leaved, very hardy and productive. A few rows of the Spinach-Beet may be sown in drills drawn at 18 inches apart. Sow at intervals good breadths of Endive and Lettuce. Radishes, Mustard and Cress, &c., should be kept up by frequent sowings on cool borders. Herbs should be cut and dried as fast as they become fit to do so; these should be neatly tied up in quantities and properly labelled, so as to avoid any confusion later on.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JULY 15	Horticultural Show at New Brighton.
TUESDAY, JULY 18	Royal Gardeners' Orphan Fund, Annual Dinner.
WEDNESDAY, JULY 19	Newcastle-on-Tyne Horticultural Show (two days). Cardiff and County Horticultural Show (two days).
THURSDAY, JULY 20	Rose and Horticultural Shows at Sidcup and Salterhebble.
FRIDAY, JULY 21	National Carnation and Picotee Society's Exhibition at Crystal Palace.
SALE.	
FRIDAY, JULY 21	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period July 2 to July 8, 1899. Height above sea-level 24 feet.

1899.	JULY 2 TO JULY 8.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			At 9 A.M.		DAY.	NIGHT.	RAINFALL.	At 1-foot deep.		
			Dry Bulb.	Wet Bulb.				At 1-foot deep.	At 2-foot deep.	At 4-foot deep.
SUN.	2	W.N.W.	57.7	53.7	62.0	52.1	0.11	62.5	61.1	57.7
MON.	3	W.N.W.	55.6	53.8	62.5	54.0	0.02	61.4	60.9	57.8
TUES.	4	N.W.	60.6	56.8	66.5	54.1	...	60.3	60.1	57.8
WED.	5	N.N.W.	63.9	58.2	74.3	49.5	...	60.9	60.1	57.8
THU.	6	N.W.	68.0	63.9	77.2	55.4	...	63.9	60.5	57.8
FRI.	7	N.N.W.	69.8	63.9	79.9	55.0	...	65.9	61.5	57.8
SAT.	8	N.N.W.	68.9	63.0	77.5	58.7	...	67.7	62.7	57.9
MEANS...	...	...	63.6	60.0	71.5	54.1	Tot.	63.2	62.1	57.8

Remarks.—The weather during the first part of the week was rather dull and cloudy, the latter part being very bright and warm.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—63.4°.

ACTUAL TEMPERATURES:—

LONDON.—July 12 (6 P.M.): Max. 80°; Min. 62°.

PROVINCIA.—July 12 (6 P.M.): Max. 49°, off Cromer; Min. 58°, Holyhead.

Fine, warm; some rain.

GREAT pains were taken to make this gathering a success, and it was so to a large extent; but a larger gathering of botanists to meet the foreign visitors would have been more graceful. The first day's proceedings comprised a visit to the exhibition, staged in the large Vinery. This was so extraordinarily interesting that it is a pity it could not have been continued

next day in a cooler place. Then came a luncheon to the foreigners and to the committees, after which the business of the Conference commenced. Our readers will be able to judge for themselves of the value of the communications, of which we publish an abstract. Unfortunately, they cannot appreciate the excellence of the lantern demonstrations and other illustrations given by Mr. WEBBER, of the United States Department of Agriculture, Dr. WILSON, M. DE VILMORIN, and others; nor can we give any adequate idea of the spirit and wide scope of the discussion which followed.

In the evening the dinner of the Society took place at the Hôtel Métropole, of which a few notes appear on p. 60.

The following comprises the substance of the remarks made by Dr. MASTERS on opening the business of the Conference:—

Our first duty, and a very pleasant one it is, is to welcome our foreign guests, our friends



HERBERT J. WEBBER.

(United States Delegate to the Conference)

from across the sea, as I prefer to call them, to thank them for their presence here to-day, and to express a hope that their sojourn among us may be both agreeable and profitable. At the same time, we regret that some, such as Dr. Focke, the historian of hybridisation, has not been able to preside over this meeting, as we had hoped he might have done. Nor can we at such a meeting do other than express our abiding regret at the loss, though at an advanced age, of the great hybridiser, CHARLES NAUDIN.

Our next duty is to thank the council of the Royal Horticultural Society for this opportunity of meeting once more in these time-honoured gardens to discuss what I venture to think, is one of the, if not the most, important subject in modern progressive experimental horticulture. I use the words "progressive" and experimental, because I believe that the future of horticulture depends very greatly on well directed experiment.

So far as the details of practical cultivation are concerned, we are not so much in advance

of our forefathers. We have infinitely greater advantages, and we have made use of them, but if they had had them they would have done the same. We are able to bring to bear on our art not only the "resources of civilisation," to a degree impossible to our predecessors, but we can avail ourselves also of the teachings of science, and endeavour to apply them for the benefit of practical gardening. We are mere infants in this matter at present, and we can only dimly perceive the enormous strides that gardening will make when more fully guided and directed by scientific investigations. One object of this Conference is to show that cultural excellence by itself will not secure progress, and to forward this progress by discussing the subject of cross-breeding and hybridisation in all their degrees, alike in their practical and in their scientific aspects.

To appreciate the importance of cross-breeding and hybridisation we have only to look round our gardens and our exhibition-tents, or to scan the catalogues of our nurserymen. Selection has done and is doing much for the improvement of our plants, but it is cross-breeding which has furnished us with the materials for selection.

A few years ago by the expression "new plants," we meant plants newly introduced from other countries, but, with the possible exception of Orchids, the number of new plants of this description is now relatively few.

The "new plants" of the present day, like the Roses, the Chrysanthemums, the Fuchsias, and so many others, are the products of the gardeners' skill. From Peaches to Potatoes, from Peas to Plums, from Strawberries to Savoys, the work of the cross-breeder is seen improving the quality and the quantity of our products, adapting them to different climates and conditions, hastening their production in spring, prolonging their duration in autumn.* Surely in these matters we have out-distanced our ancestors.

But let us not forget that they showed us the way. I do not propose to dilate on the share which CAMERARIUS, MILLINGTON, GREW, MORLAND, and others, at the close of the seventeenth century had, in definitely establishing the fact of sexuality in plants, but I do wish to emphasise the fact that it was by experiment, not by speculation, nor even by observation, that the fact was proved, and I do wish to show that our English gardeners and experimenters were even at that time quite aware of the importance of their discovery, and forestalled our HERBERT and DARWIN in the inferences they drew from it. In proof of which allow me to quote from a work of RICHARD BRADLEY, called *New Improvements of Planting and Gardening, both Philosophical and Practical*, published in 1717, cap. ii. After alluding to the discovery of the method of the fertilisation of plants, he says (p. 22):—

"By this knowledge we may alter the property and taste of any Fruit by impregnating the one with the Farina of another of the same class; as, for example, a Codlin with a Pearmain, which will occasion the Codlin so impregnated to last a longer time than usual, and be of a sharper taste; or if the Winter Fruits should be fecundated with the Dust of the Summer kinds, they will decay before their usual Time; and it is from this accidental coupling of the Farina of one with the other, that in an Orchard where there is Variety of Apples, even the Fruit are gathered from the same Tree differ in their Flavour and

* See some interesting observations of MACFARLANE on the period of flowering in hybrids as intermediate between that of the parents, *Gardeners' Chronicle*, June 20, 1891; and on the structure of hybrids, May 8, 1890.



WILLIAM PAUL, V.M.H.



T. F. RIVERS, V.M.H.



C. C. HURST



JOHN DOMINY (the late).



JOHN SEDEN, V.M.H.



R. A. ROLFE.



GEORGE PAUL



HENRY CANNELL



ALEX. DICKSON



PROF. HUGO DE VRIES.



M. DUVAL.



VICTOR LEMOINE.



LIBERTY H. BAILEY.



A. DE LA DEVANSAYE.



B. LATOUR-MARLIAC.



OTTO FROEBEL.



C. MARCÉ



H. L. DE VILMORIN.

DISTINGUISHED



J. VERVAENE.



ALBERT TRUFFAUT



LUTHER BURBANK.



PÈRE CANNA CROZY AÎNÉ



ERNEST CALVAT.



A. G. JACKMAN



T. ARMSTRONG.



W. LAXTON



ERNST BENARY (the late)



DR. STUART.



REV. F. D. HORNER, M.A., V.M.H.



LORD PENZANCE.



DR. J. H. WILSON.



REV. PROF. HENSLOW V.M.H.



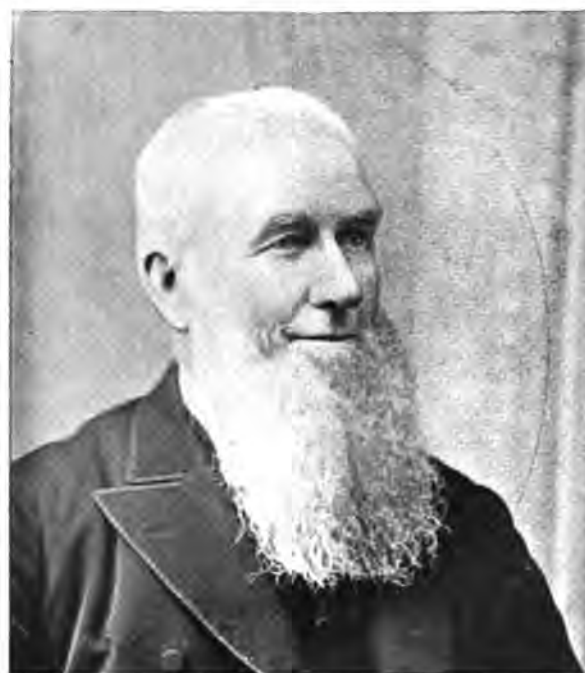
SIR MICHAEL FOSTER, K.C.B.



W. SMYTHE



W. CULVERWELL



JOHN LAING.

DISTINGUISHED

times of ripening; and, moreover, the *Seeds* of these Apples so generated, being changed by that Means from their Natural Qualities, will produce different kinds of Fruit if they are sown.

"Tis from this accidental coupling that proceeds the numberless varieties of Fruits and Flowers which are raised every day from *Seed*."

"Moreover, a curious Person may by this knowledge produce such rare kinds of *Plants* as have not yet been heard of, by making choice of two *Plants* for his Purpose, as are near alike in their Parts, but chiefly in their *Flowers* or *Seed* vessels; for example, the Carnation and Sweet William are in some respects alike, the *Farina* of the one will impregnate the other, and the *Seed* so enlivened will produce a *Plant* differing from either, as may now be seen in the garden of Mr. Thomas Fairchild, of Hoxton, a plant neither *Sweet William* nor *Carnation*, but resembling both equally, which was raised from the *seed* of a *Carnation* that had been impregnated by the *Farina* of the *Sweet William*."

Here we have the first record of an artificially-produced hybrid, and you will remark that this was more than forty years before KOLREUTER began his elaborate series of experiments. FAIRCHILD was the friend and associate of PHILIP MILLER, and of a small knot of "advanced" thinkers and workers who banded themselves together into a "Society of Gardeners."

"He is mentioned," says JOHNSON in his *History of English Gardening*, "throughout BRADLEY's works as a man of general information, and fond of scientific research, and in them are given many of his experiments to demonstrate the sexuality of plants, and their possession of a circulatory system. He was a commercial gardener at Hoxton, carrying on one of the largest trades as a nurseryman and florist that were then established. He was one of the largest English cultivators of a vineyard, of which he had one at Hoxton as late as 1722. He died in 1729, leaving funds for insuring the delivery of a sermon annually in the church of St. Leonard's, Shoreditch, on Whit Tuesday, 'On the wonderful works of God in the Creation; or On the certainty of the resurrection of the dead, proved by the certain changes of the animal and vegetable parts of the creation.'"

FAIRCHILD was thus not only the raiser of the first garden hybrid, but the originator of the flower services now popular in our churches.

We do not hear much of intentionally-raised hybrids from this time till that of LINNÆUS, in 1759.* The great Swedish naturalist, having observed in his garden a *Tragopogon*, apparently hybrid between *T. pratensis* and *T. parvifolius*, set to work to ascertain whether this conjecture was correct. He placed pollen of *T. parvifolius* on to the stigmas of *T. pratensis*, obtained seed, and from this seed the hybrid was produced.

About the same time (that is, in 1760), KOLREUTER began his elaborate experiments, but these were made with no practical aim, and thus for a time suffered unmerited oblivion.

Some years after, the President of this Society, THOMAS ANDREW KNIGHT, and specially DEAN HERBERT, took up the work, with what splendid results you all know.

It is curious, however, to note that objections and prejudices arose from two sources. Many worthy people objected to the production of hybrids, on the ground that it was an impious interference with the laws of Nature. To such an extent was this prejudice carried, that a former firm of nurserymen, at Tooting, celebrated in their day for the culture, amongst other things, of Heaths, in order to avoid wounding sensitive susceptibilities, exhibited as new species introduced

from the Cape of Good Hope, forms which had really been originated by cross-breeding in their own nurseries.

The best answer to this prejudice was supplied by DEAN HERBERT, whose orthodoxy was beyond suspicion. He, like LINNÆUS before him, had observed the existence of natural hybrids, and he set to work experimentally to prove the justness of his opinion. He succeeded in raising, as ENGLEHEART has done since, many hybrid *Narcissi*, such as he had seen wild in the Pyrenees, by means of artificial cross-breeding. If such forms exist in Nature, there can be no impropriety in producing them by the art of the gardener.

In our own time, REICHENBACH, judging from appearances, described as natural hybrids numerous *Orchids*. VERTCH and others have confirmed the conjecture by producing by artificial fertilisation the very same forms which the botanist described.

It remains only to speak of another respectable but mistaken prejudice that has existed against the extension of hybridisation. I am sorry to say this has been on the part of the botanists. It is not indeed altogether surprising that the botanists should have objected to the inconvenience and confusion introduced into their systems of classification by the introduction of hybrids and mongrels, and that they should object to hybrid species, and much more to hybrid genera; but it would be very unscientific to prefer the interests of our systems to the extension of the truth.

I may mention two cases where scepticism still exists as to the real nature of certain plants: *Clematis Jackmani* of our gardens, raised, as is alleged, by Mr. JACKMAN, of Woking (*Gardeners' Chronicle*, 1864, p. 825), was considered by M. DECAISNE and M. LAVALLÉE* to be a real Japanese species, and not a hybrid. This may be so, but there is no absolute impossibility in the conjecture that the Japanese plant and the cultivated plant originated in the same way. Again, Mr. CULVERWELL's supposed hybrid between the Strawberry and the Raspberry has been pronounced to be no hybrid, but to be *Rubus Leesii*. But what, we may ask, is *Rubus Leesii*? It appears to be a sterile form more closely allied to the Raspberry than to the Strawberry. Is it not possible that Mr. CULVERWELL has produced it artificially?

The days when "species" were deemed sacrosanct, and "systems" were considered "natural" have passed, and DARWIN, just as HERBERT did in another way, has taught us to welcome hybridisation as one means of ascertaining the true relationships of plants and the limitations of species and genera.

DARWIN's researches and experiments on cross-fertilisation came as a revelation to many practical experimenters, and we recall with something akin to humiliation the fact that we had been for years exercising ourselves about the relative merits of "pin eyes" and "thrum eyes" in Primroses, without ever perceiving the vast significance of these apparently trifling details of structure.

It would occupy too much time were I to dilate upon the labours of GAERTNER, of GODRON, of NAUDIN, of NÆGELI, of MILLARDET, of LORD PENZANCE, of ENGLEHEART, and many others. Nor need I do more than make a passing reference to the wonderful morphological results obtained by the successive crossings and inter-crossings of the tuberous *Begonias*, changes so

remarkable that a French botanist was even constrained to found a new genus, *Lemoinea*, so widely have they deviated from the typical *Begonias*.

For scientific reasons, then, no less than for practical purposes, the study of cross-breeding is most important, and we welcome the opportunity that this Conference affords of extending our knowledge of the life history of plants, in full confidence that it will not only increase our stock of knowledge, but also enable us still further to apply it to the benefit of mankind.

With our present issue we publish a series of abstracts of the papers presented to the Conference, for facilities in preparing

which we are indebted to the Secretary of the Society. We also give, in continuation of the series given last week, a large number of portraits of men eminent as raisers, and especially of those who have enriched our gardens with the results of their experiments in cross-breeding and hybridisation. Many of these gentlemen are mentioned in other columns in connection with their own specialty, but concerning others we may here add a few remarks.

WILLIAM PAUL, V.M.H., celebrated as a raiser of Roses, Hollyhocks, and other flowers, is alluded to under the head of roses in another page.

T. F. RIVERS continues the work so ably commenced by the celebrated THOMAS RIVERS, and has enriched our gardens with a number of improved varieties of hardy fruits, many the result of selection but others of intentional cross fertilising. Of Nectarines, for instance, the Sawbridgeworth firm has introduced among others, Lord Napier, Newton, Advance, Albert Victor, Byron, Darwin, Improved Downton, Pine-apple, Spencer, Victoria, Cardinal, and Early Rivers. Many excellent Peaches, too, has Mr. RIVERS raised, including the handsome and large-fruited Thomas Rivers, now being shown by the firm, but which is not yet in commerce; and the same is true of Plums, &c. These varieties have not only increased our stock, but have much extended their season.

C. C. HURST is mentioned in our note concerning the *Orchids* (p. 45).

JOHN DOMINY is remembered with honour as the first *Orchid* hybridiser, prompted thereto by Dr. HARRIS, of Exeter. What has come from this, our pages sufficiently show. See also our notes on hybrid *Orchids* (p. 45).

JOHN SEDEN's career is alluded to in other columns (p. 41).

Mr. ROLFE has devoted himself to the study of *Orchids*, and has specially concerned himself with the question of natural hybrids and their limitations.

GEORGE PAUL, of Cheshunt, has contributed to another column a brief account of his cross-breeding operations. See under the head of *Roses* (p. 46).

HENRY CANNELL, a man of enterprise and energy, which others admire, but few can imitate. His greatest successes in cross-breeding have been in *Primulas*, *Chrysanthemums*, zonal *Pelargoniums*, *Begonias*, *Gloxinias*, *Dahlias*, *Cannas*, and many other plants.

ALEX. DICKSON, of Newtownards, is alluded to under the head of *Roses* (p. 46).

Professor HUGO DE VRIESE, the Professor of Botany at Amsterdam, has dived into the deepest mysteries of horticulture, and lately has established a race of twisted *Teasels*, concerning which he spoke at the Conference, and

* *Aman. Acad.*, ed. GILBERT, vol. I, p. 212.

* LAVALLÉE, *Les Clematites à Grands Fleurs*, p. vi. and p. 9, tab. iv.: *Clematis Hakonenziæ*.

which are of great value to the speculative botanist. An abstract of his paper is printed in another column.

M. DUVAL of Versailles, a Chevalier of the Legion of Honour, one of the foremost French nurserymen, has a claim to admission on this occasion by reason of his work among the Bromeliads, Gloxinias, Anthuriums, and other plants. His exhibition of hybrid Bromeliads was one of the finest of the exhibits.

VICTOR LEMOINE, a Chevalier of the Legion of Honour, needs no introduction to English readers. We have on former occasions had an opportunity of alluding to his manifold work, and an instructive paper from him on "Hybrid Lilacs" is given in the present issue.

PROF. L. H. BAILEY.—It is with great regret that we are unable to announce PROF. BAILEY as one of our visitors, his engagements preventing him from coming among us at this season. His numerous books have a philosophical interest far beyond the majority of gardening books, and in the present connection we may specially mention his *Plant Breeding*. PROF. BAILEY, who was born on a fruit farm in Michigan, in 1858, graduated at the Agricultural College of that state in 1882. For two years he acted as assistant to Asa Gray, as much beloved here as in his own country. After that he was Professor of Horticulture and Landscape Gardening at his Alma-mater, and is now occupying a similar position in Cornell University, Ithaca, New York. The paper which he contributed to the Conference is summarised in another column.

M. A. DE LA DEVANSAYE, of the Château de Fresne, near Angers, the President of the District Horticultural Society, is an enthusiastic raiser of Anthuriums, and has raised many of the most striking forms. An abstract of his paper is given in another column.

B. LATOUR-MARLIAC, the raiser of the splendid hybrid Water-Lilies, contributes a short paper, and particulars are given on p. 41.

OTTO FROEBEL, an eminent Swiss Nurseryman, is known for his work with Begonias, hardy Water Lilies, and Anthuriums.

CHARLES MARON. For a reference to the work of this gentleman see p. 41.

HENRI L. DE VILMORIN, with his brother MAURICE DE VILMORIN, was an attendant at the Conference. Both are too well known to require introduction.

J. VERVAENE, of Ledeberg—one is almost tempted to say which one? for VERVAENE is an honoured name in Belgian horticulture, and M. J. VERVAENE has been selected as a representative of the large body of Belgian raisers who have devoted their attention to the Indian Azalea. In our report of the late exhibition at St. Amand, Ghent, we had occasion to mention M. VERVAENE as the most fortunate of the prize winners, so far as Azaleas are concerned.

M. ALBERT TRUFFAUT, a Versailles nurseryman, is well known in this country, and is specially occupied with the hybridisation of the Bromeliads. His son is doing excellent work in connection with the chemical analysis of plants and the preparation of appropriate manures.

LUTHER BURBANK is one of the most successful hybridisers of plants which the United States has yet produced. We extract the following from an American Journal:—He was born March 7, 1849, at Lancaster, Mass. In 1870 he purchased a small tract of land at Lunenburg, Mass., where he began his career

as a horticulturist, and where his first work for the science was consummated in 1873, when he originated the Burbank Potato. In 1875 he removed to Santa Rosa, Cal., where to-day he has extensive grounds and a large collection of Lilies and many other plants, shrubs, and trees. Always an indefatigable worker, Mr. BURBANK has run the whole gamut of horticultural experiment, and has many times duplicated his first success with the Potato. He grew more than a million seedlings to establish a new race of Gladiolus; and the Canna, Iris, Calla, and the Rose, have also responded to the masterly touch of this adept hybridiser. Raspberries, Blackberries, Walnuts, Quinces, Prunes, and many other fruits have been developed to man's greater good at his garden of the Pacific, but it may be said for his work that his best introductions are yet to come—at least, that is his opinion. It requires much time and close attention to properly segregate, classify, test and propagate, and after having secured the desired improvement, the work increases in value and results in geometrical ratio as time progresses, one life affording only a good beginning for others to build upon.

The work of M. CROZY, to whom we owe so many of our fine Cannas, is alluded to in another column (p. 43).

ERNEST CALVAT's work with the Chrysanthemum is summarised in another column (p. 41).

A. G. JACKMAN bears an honoured name, as anyone who remembers Clematis Jackmanni must admit. The raiser of this fine plant, which some say is a Japanese species, has joined the majority; but his son continues the work, and has lately sent out a group representing crosses between C. coccinea and other species and varieties, many of which were shown at the Congress.

T. ARMSTRONG, the hybridiser at Messrs. Sanders' establishments, is alluded to under the head of Orchids (p. 45).

W. LAXTON continues the work commenced by his father, and is well known for culinary Peas and for the cross-bred Strawberries, of which we may mention Royal Sovereign as his greatest success, and Mentmore the most recent of his gains, the worth of which has still to be gauged.

ERNST BENARY, a veteran taken from us in 1893, is known as the raiser of an endless series of fine things. His work is continued by his son.

Dr. CHARLES STUART, Chirnside, Berwickshire, has laid all lovers of the bedding Viola under lasting obligation to him. He commenced operations with the Viola in 1874, by taking some pollen from the well-known bedding Pansy Blue King, and impregnating Viola cornuta with it. His first batch of seedlings were all blue-flowered, and generally of a compact habit. He next took pollen from a pink garden Pansy, and fertilised some of the flowers from the first cross, which gave him greater variety of colour. The selected varieties from this cross were propagated and sent to Chiswick Gardens for trial, and six Certificates of Merit were awarded. It was suggested to him at this time that a rayless white Viola would be an acquisition, which induced him to search his seedlings for any indication of such an one; and in 1887 he found such an one, and this was the commencement of what is known as the Violetta strain, the popular race of rayless Violas. Violetta proved the mother of a huge progeny of rayless types, and from the host

obtained from it have come many fine varieties, including the miniature section. The Aquilegia, the gold-faced Polyanthus, and other subjects, have engaged Dr. STUART's attention, and as a raiser of such he has achieved considerable success.

Rev. F. D. HORNER, genial man and thorough florist, is best known as a raiser of Auriculas, but by no means confines his attention to these plants. Among his best Auriculas are Monarch, Glow-worm, and a fine yellow self called Buttercup.

LORD PENZANCE's reputation is, and will for ever be, fragrant for his experiments with Sweet Briars. See also p. 46.

Dr. WILSON, of St. Andrew's, contributed a series of lantern illustrations connected with hybridisation, especially of Passion-flowers, Albucas, &c., which were highly appreciated (see p. 56).

Rev. Prof. HENSLOW, V.M.H. is the Professor of Botany to the Society, and Secretary to the Scientific Committee. For many years he has rendered valuable service to the Society, and his lectures are highly appreciated. Prof. HENSLOW's paper is given in another column (p. 54).

Sir MICHAEL FOSTER, K.C.B., more familiarly known as Professor FOSTER, or may we without offence say as MICHAEL FOSTER, was unfortunately prevented from presiding over the Conference on the second day. He is an enthusiastic horticulturist, and a raiser of hybrid lilies.

WILLIAM SMYTHE tells his own tale in another column, and a similar remark applies to WILLIAM CULVERWELL (see p. 42).

JOHN LAING.—What is to be said of this veteran hybridist? It is enough to mention the Tuberous Begonias, though we should have plenty to do if we went at length into his services to Horticulture.

HARRY TURNER (p. 43), following in his father's steps, is known in the world of Roses, Auriculas, Carnations, Dahlias, and other things. His success as a raiser in these genera has been marked.

HERBERT WEBBER (p. 50) is one of the representatives of the United States Department of Agriculture who has been sent over by the American Government to honour us by his presence. Mr. WEBBER and Mr. SWINGLE have charge of the hybridisation department, and are effecting much good. One special object in view is to produce an Orange sufficiently hardy to withstand the occasionally severe winters of Florida.

BEN SIMONITE.—No northern florist is held in greater esteem and more thoroughly trusted than BEN SIMONITE (see p. 43); as an accomplished florist, cultivator, and judge of florists' flowers he is in the foremost ranks. Of a singularly modest and retiring nature, there is an entire absence of self-assertion; he elects to be estimated by what he does rather than by what he says. The value of his work is seen in the way it is appreciated, and the trust reposed in him. Wherever he is appointed as a judge of florists' flowers, there is entire confidence in his awards. If any man can be said to know aught of the hidden mysteries of the flowers he loves and tends, it is BEN. He comes of a stock of florists with an abiding passion for florists' flowers, which seems hereditary in the family. It is with the Auricula especially that his labours as a raiser have been most successful: of green-edged, Talisman, Rev. F. D. Horner, John Hannaford, and Shirley Hibberd; white-edged, Frank

Simonite and Heather Bell. As a horticultural collaborator with the Rev. T. D. Horner, he has been the means of putting into commerce several of the new varieties raised by Mr. HORNER. The Tulip, Carnation, Chrysanthemum, and other flowers come also under his care. How, in the smoky environs of Sheffield, he manages to grow things as he does, is a question which can be answered only by a consideration of that persistence which overcomes difficulties and says it shall be done. One of the worthiest of present-day florists is BEN SIMONITE, of Sheffield.

HONOUR TO BRITISH HORTICULTURE.—His Majesty the King of the BELGIANS, by decree signed at Laeken on June 27 last, has conferred on Dr. MAXWELL T. MASTERS, the Editor of the *Gardeners' Chronicle*, the honour of Officer of the Order of Leopold.

PARLIAMENT STREET.—A splendid opportunity is now afforded for adorning this fine thoroughfare with trees, and softening and harmonising its harsher features. We observe that some of the officials object, but so far as we can see, there are no objections that cannot at this stage be obviated. It is objected, also, that some of the trees on the Embankment will have to be removed. This should have been done long ago, and saved much of the mutilation which is now imperative. The Plane is a forest tree, and demands plenty of space; but there are other trees of smaller dimensions that would be equally ornamental, and not too large for street use. The great difficulty is that the nurseries do not at present contain them in sufficient numbers, but were a demand to spring up, the supply would soon be forthcoming.

HYBRIDISATION.—*American Gardening*, a journal directed by our old colleague, Mr. LEONARD BARRON (the son of BARRON of Chiswick), has offered a series of prizes for the best essays on hybridisation. The three most successful essays have already been published in *American Gardening*, viz., that by Mr. G. W. Oliver, Dr. J. H. Wilson, and Professor F. A. Waugh. Necessarily, they are concerned with the same subjects that are occupying so much of our attention this week, so that it is not necessary to do more than allude to them as valuable summaries.

FIERCE HAILSTORM AT CANTERBURY.—A most fierce hailstorm swept over Canterbury on Saturday afternoon, July 8, and with it a thunderstorm of great violence. A waterspout broke in the vicinity of Hollow Lane, and damage was done to furniture and house property, fruit and Hop plantations, corn crops, and market-garden produce, many of the fruit orchards having been nearly stripped of their crops. The hailstones were cubic in form, and some measured 1 inch square, and weighed 1 oz. each. Owners of glasshouses suffered heavily, one nurseryman having over 1000 panes of glass broken. The city moat was filled with water. At Nackington, on the old Dover-road, the water washed down hedges, and tore up asphalted paths. The storm had not a very wide belt, the north of the Stour valley not being affected; but towards the south and east the damage was considerable.

TWISTED VALERIAN.—Messrs. BARR & SONS send us a plant of Valerian in which the stem is twisted on its axis. It is hollow in the interior, and dilated at the upper end, so that the stem resembles a Carrot in shape. This spiral torsion is not uncommon in certain plants, such as the Teazel, and sometimes the peculiarity becomes hereditary, and is transmitted by the seed. Professor HUGO DE VRIES, of Amsterdam, who took part in the Hybridisation Conference, has paid much attention to this subject. He was good enough to send us seed from a twisted Teazel which he had raised during two or three generations; but probably

from a difference in climate, or variation in some other of the factors which go to make what is called the "environment," the seeds with us produced only straight stems of the ordinary character.

GREAT INDUSTRIAL FLOWER-SHOW.—The new schedule has been issued for the "One-and-All" Flower-show, to be held at the Crystal Palace in August, in connection with the Annual Co-operative Festival. The schedule this year is in two parts, forming two illustrated pamphlets, running into about 140 pages, and containing offers of prizes calculated to stimulate every kind of horticultural excellence amongst working-men, women, and children, throughout the kingdom. The prizes, over 1000 in number, include a Silver Champion Cup by Countess GREY; Gold, Silver, and Bronze Medals, by the Agricultural and Horticultural Society; a Silver Cup by Miss WILMOTT, V.M.H.; an original Water-colour Drawing by Miss MARIE LOWE (Mrs. HENSLEY); special prizes offered by many Co-operative Societies; £150 by the Crystal Palace Company; and £200 by the Council of the Agricultural and Horticultural Association. The increase in the number and variety of classes is very notable. One new class is a novel departure in the direction of educational judging. The judges are to announce the points of excellence, &c., upon which these particular Awards will rest, the object being to instruct exhibitors and growers in what is good and what bad in each kind of garden-production. The photographic classes have been extended to thirty-four in number, and are this year divided into two sections, the first of which will be judged from a horticultural point of view, and the second by their artistic merits as photographs. Copies of either schedule may be obtained free of charge from the Hon. Secretary, Mr. EDWARD OWEN GREENING, at 3, Agar Street, Charing Cross, W.C.

STRAWBERRY: "VEITCH'S PERFECTION."—We have received for tasting a very excellent sample of this variety from Mr. A. BATEMAN, gardener at Brixworth Hall, Northamptonshire. It is a large conical or wedge-shaped fruit, as wide as it is high, deep crimson in colour with embedded seeds, and an agreeable amount of acidity combined with its sweetness. A very desirable variety, as we might well suppose, would be the case in a cross between British Queen and Waterloo. When suitably packed the fruit travels well; which, unfortunately, in the case of those sent to this office, was not the case. It is a very prolific variety.

LIVE SEA-APPLES.—Most of our readers will remember the loss at the end of last year, of the Dominion liner, *Labrador*. She went on to a reef in the vicinity of Mull during a fog, and a cargo of splendid Apples was lost to a waiting market. But the inhabitants and the various quadrupeds of Iona and Mull had a fine time of it with the choice Canadian fruit, until the barrelled fruit thrown up on the shore was declared to be unwholesome—saturated as they were with seawater. Beyond high-water mark the seed took root, and to-day we are told that the stems are already from 2 to 5 inches high, and the plants healthy and vigorous. The crofters are engaged in transplanting the strongest roots to their gardens. It will be curious to gain further particulars concerning the growth of these live Sea-apples.

WEST INDIA FRUITS.—The report of the Commission which was sent to the West Indian Islands to inquire into the causes of the bankrupt condition of the various industries in the colony was published in these columns at the time of its issue, and it was felt that the Government would be justified in holding out a helping hand in order that a fresh start in life might be given to people who had suffered long and struggled manfully against adverse fortune. There had been too much of the one-basket system; our Government is about to help to inaugurate a new state of things, and we may here briefly epitomise what

it is the Colonial Department has made up its mind to do. A contract has been signed by Mr. CHAMBERLAIN with the Jamaica Fruit and Produce Association for direct fruit and passenger service between this country and Jamaica, and there are now four steamers being built on the Clyde and the East Coast to run between Southampton and Jamaica, the running to begin in May of next year. This contract will last for five years, and the ships will run fortnightly. The steamers will be fitted for fruit carriage, and will have storage sufficient for at least 20,000 bunches of Bananas; a few passengers will also be carried. The subsidy proposed to be paid is £10,000 per annum, of which the government will contribute half, to be increased to £12,000 if more passenger accommodation is required. Of course, fruit other than Bananas may be carried, but taste seems to have set that way, and we are asked to believe that 3 lb. weight of baked Bananas are quite equal to seven times that weight of Wheaten bread. It is further stated that Banana flour may be profitably utilised for the nursery as well as the adult cuisine; but the flour could, of course, be most profitably manufactured where the fruit is produced, as sugar where the cane is ripened.

PARIS UNIVERSAL EXHIBITION.—The organising Committee of the International Arboricultural and Pomological Congress of 1900, which recently held a meeting in the offices of the Universal Exhibition, was constituted as follows:—President, M. CHARLES BALTET, nurseryman, President of Class 45 (fruit-tree culture). Vice-Presidents, M. DELAVILLE, Prof. of Horticulture; M. NANOT, Director of National School of Horticulture. General Secretary, M. NOMBLOT, nurseryman. Secretary, M. DAUTHENAY, Assistant-editor of *Revue Horticole*. Treasurer, M. GEORGES BOUCHER, nurseryman. Members, MM. Bois, Canon, Abel Chateau, Lucien Chauré, Director of the *Moniteur de l'Horticulture*, Coulombier, Crapotte, Honoré Defresne, Fauquet, Jamin, Lapiere, Professor Leroux, Leroy, d'Angers, Loiseau, Martinet, Director of the *Jardin*, Noël, Opoix, H. Saginer, Manager of the *Journal de l'Agriculture*, Salomon, Henri de Vilmorin, Maurice de Vilmorin, Vitry de Montreuil. The Session will be held on September 13 and 14, 1900, in the Palais des Congrès. The programme is in course of preparation, and will be published as soon as is possible.

THE WEATHER.—A heavy thunderstorm, writes the gardener at Blankney, accompanied by a terrific hail-storm, swept over the district round Lincoln between the hours of 1 and 2 o'clock on the 12th inst., during which time the wind blew with hurricane force from S.S.W., breaking large branches from Elms and other trees in the grounds, and scattering small branches everywhere. Much damage was done to garden crops, tender things like Beans, Vegetable-Marrows, Lettuces, &c., being very badly broken, and the foliage perforated by the hail-stones, which were very large.

ARUNDINARIA AURICOMA.—Three or four good-sized specimens of this species are flowering in the Bamboo-garden at Kew. By some it is considered a variety of *Fortunei*, and named *A. Fortunei aurea*. The habit is somewhat similar, but looser, more vigorous, and less inclined to branch. The leaves are nearly twice as broad, and recurve along both edges when unfolded; while in *A. Fortunei* they retain an upward curve. Both agree in being densely clothed on both sides of the leaf and on the sheath with short down, which gives a satiny feel to the leaf, and is the more noticeable to the eye on a dewy morning. *A. auricoma* is well worthy of general cultivation; the soft, clouded yellow leaves, relieved by lines of bright green, being extremely pretty. Altogether, it is one of the prettiest of the dwarfier species of Bamboo. Other Bamboos, looking very fresh and attractive just now, are:—*B. nagasima*, *B. palmata*, *B. disticha*, *B. pygmaea*, *Arundinaria glauca*, *A. Falconeri*, *A. nitida*, and *A. chrysanthra*.

THE HYBRIDISATION CONFERENCE.

THE arrangements made by the Royal Horticultural Society to collect into a "record" what information had been obtained upon the great subject of Hybridisation were commenced in Chiswick Gardens on Tuesday last, July 11. Dr. Masters, F.R.S., occupied the chair, and the substance of his introductory speech, setting forth the objects the Conference hoped to attain, and extending a welcome to all taking part in the proceedings, whether Britishers or "friends from across the sea," is given in our leading article on p. 50.

The Conference was held in a tent erected near to the Council-room in the Gardens, and the attendance throughout, notwithstanding the great heat, was satisfactory. The programme for the first day was adhered to pretty closely, and below we are able to give summaries of all the papers read.

HYBRIDISATION AND CROSS-BREEDING AS A METHOD OF SCIENTIFIC RESEARCH.

Mr. W. Bateson, M.A., F.R.S., read the first paper, which dealt with "Hybridisation and Cross-breeding as a Method of Scientific Research." It was he with whom the original idea of the Conference started, and he is an example of the broad-minded men that are to be found in the ranks of the zoologists. He said that he had accepted with great pleasure the invitation of the committee to address a gathering of persons interested in the subject. Such an opportunity could not be better used than in pointing out exactly what are the legitimate aims of the methods in question, and what it may be hoped that they will prove. He assumed that the scientific importance of this work lies primarily in its direct bearing on the problem of species.

Though we now believe all forms of life to be connected in descent, yet the fact that they are divided into species is certainly true. The existence of species is a fact that must be faced. How did they arise in evolution?

The two great difficulties besetting all theories of descent are—

I. If the variations leading to specific differences are small, how can they matter?

II. Why are such initial variations not lost in inter-crossing?

Here comes in the work of the breeder, and his experiments are the only ones which can answer these questions. By such work, Mr. Bateson said, it had already been shown both that variation was often large, and that varieties were discontinuously produced; that such varieties are perpetuated in crossing, and are not, as a matter of fact, obliterated.

This work is to show us which variations are thus discontinuously produced, and which are not; we have speculated long enough on the general theories of evolution; it is better to attack the special case of—How did species A arise from species B.

Taking hairiness and smoothness as typical forms of variation, it was shown that in *Matthiola incana*, *Lychnis vespertina*, and *Biscutella levigata*, though the relation is in each case a discontinuous one, the mode by which the discontinuity is maintained is different. Plants of these species were produced illustrating the experiments made by Miss E. R. Saunders in Cambridge, from which these results have been obtained. Here the test of cross-breeding revealed at once that variety and type might stand to each other in various physiological relationships. We talk of "species and varieties" as though the phenomena denoted by these terms are homogeneous. By the test of breeding it is shown that whole sets of distinct phenomena are confused together under these headings. Using the metaphor of chemical science, it is by cross-breeding that the genetic properties of species and varieties must be examined, as the affinities of chemical bodies are.

In this way the confused mass of contradictory properties, which are now attributed to species, may be unravelled, and we may be delivered from the fruitless debates on this unprofitable subject.

As a practical point Mr. Bateson stated it is by experimental crossing of nearest allies that the work should be begun. It is essential, he continued, that the records should be statistical. Such statistics might at first be rough, but a few notes as to the proportion of offspring, which shows the various characters, are absolutely necessary.

Mr. Bateson in conclusion, emphasised that those who would take part in such work, would earn the gratitude of posterity, and in all probability lay the foundation of a new science of natural history.

HYBRID ANTHURIUMS.

Monsieur A. de la Devansaye contributed a paper upon "Fertilisation in the genus Anthu-

rium," in which his previous work upon kindred subjects was briefly alluded to.

[For Aroids, see the *Flore des Serres et des Jardins de l'Europe*, vol. xxii (1877), p. 37; and for Anthuriums, the succeeding volume, p. 26, as well as the *Revue Horticole*.]

Two laws already laid down as governing fertilisation and variation in the genus Anthurium were repeated, while a third was added, and strongly emphasised. These are as follows:—

1. Fertilisation is usually only effected in the genus Anthurium when the flower containing the pistil to be ripened, and that from which the pollen is brought, have sprung from a different batch of seeds.

2. The bringing into use of pollen from a different species of the same tribe (say *Spathiphyllum*, for example) has a beneficial result. Fertilisation is assured, and variations in the colour of the flower or form of the foliage often arise.

3. In spite of good cross-fertilisation, there are cases where little or nothing new is seen in the first or second generation, and then the experiment is usually abandoned forthwith, and the seeds destroyed. This proceeding is a very great mistake, for it is necessary under the circumstances to wait, for the desired variations may be produced in the third or fourth generation, as a result of the disturbance caused by cross-fertilisation. If a variation should arise in the first crop, few individuals will show it. The seedlings from these will give a greater percentage of the "variety," which may come up to a half in the third generation, and to 75 or 80 per cent. in the fourth. Further remarks upon the selection necessary to fix the "variety" concluded Monsieur de la Devansaye's observations.

HYBRIDISING AS A MEANS OF PANGENETIC INFECTION.

PROFESSOR DE VRIES explained that Pangenetic infection means the transference of particular qualities from one species to another by means of crossing. Darwin assumed in his Pangenesis that each single peculiarity was represented in the living matter of the cells by a distinct unit. Such unities must, therefore, be capable of isolation and of transmission to allied species.

Many cases in horticultural practice come under this head, but in a scientific way our knowledge on this subject is extremely deficient. Two cases were treated of and illustrated. First were shown twisted stems of *Dipsacus sylvestris torsus*, the new race with hereditary twisting, raised by Professor de Vries, and of a cross between this race and the ordinary teasel, *Dipsacus fullonum*, raised by Professor Le Monnier, at Nancy. It was pointed out that the twisting in the two stems of the hybrid, which were demonstrated, was developed to the same high degree as in the seven stems of the parental form, shown for comparison.

In the second place, it was attempted to gain a smooth form of *Lychnis diurna* by crossing the ordinary hairy form of this species with a newly-detected hairless or glabrous variety of *L. vespertina*. The hybrids of the first generation were all uniformly hairy, but in the second generation they split up in a multiform mixture, in which the characters of the two parental forms were mixed in all possible combinations. Between these it was easy to find the desired glabrous form, having, in all other respects, the characteristics of a true *L. diurna*. Such plants were isolated, and fertilised artificially. In the following generation, the new variety proved itself to be fully constant. Of 390 plants, all were glabrous, and of the type of *L. diurna*. The transfer of the hairlessness, which was the aim of the experiment, was therefore completed in the course of three to four years.

A glabrous variety of *Lychnis diurna* was found some fifty years ago by Sekera near Mürchengrätz, and described under the name of *L. Presli*. It was shown to be identical with the hairless hybrid form, an original specimen of Sekera being shown in comparison with living specimens of *L. vespertina* glabra, and of the new *L. diurna* glabra.

The result of the experiment was, therefore, to copy the *Lychnis Presli*, Sekera, which is acknowledged by many writers also as a good species, and which probably originated in the Bohemian Alps from *L. diurna* by following a totally different way.

HYBRIDISATION AND ITS FAILURES.

Rev. Prof. Henslow remarked that any discussion on hybrids necessitates the preliminary enquiry as to what is a species? It may be defined as being known by a collection of presumably constant characters taken from any or all parts of the plant. Bentham superadded that all the individuals of a species are presumably descended from a common parent. Knight and Herbert, as well as other botanists of their day, found it necessary to introduce the element of hybridisation, for it was thought that if two so-called species produced fertile offspring, they must be really one species, and so, said Herbert, "Botanists must entrench themselves within the genera."

Systematists, however, cannot test the point, and therefore cannot utilize physiological affinities in their diagnoses; the result is, consequently, sometimes unsatisfactory, because the number and kind of characters sufficient to indicate a genus or a species is arbitrary, and when it is reduced to a single feature, though theoretically members of the groups would presumably cross, they are often found not to do so. Thus, both an inferior and a superior ovary are found in the genus *Saxifraga* and in *Begonia*; but it is really the sole difference between *Liliaceæ* and *Amarylhidaceæ*, yet no cross exists between any member of these two orders.

False Bigeners.

Again, *Lælia* and *Cattleya* cannot be at all sharply distinguished, unless it be by the single feature of the number of pollen-masses; yet they cross as easily as two varieties of the same species.

Now, *Rhododendron*, *Rhodora*, and *Azalea* are as well differentiated morphologically as any three genera usually are; but they happen to cross, and the question arises: Why are they not still to be regarded as good genera?

Constitutional Affinity.

To take a particular genus, Herbert found that some closely, i.e., morphologically allied species of *Crinum* would not cross, while more distantly allied species—in the opinion of some they should be distinct genera—readily crossed. From this and other experiences, he drew the conclusion that it was really a question of "constitution," as much as of "form." That while the rule holds good that plants which are nearly alike in form are more likely to cross, yet it is not always so. Observing that sub-aquatic species of *Crinum* failed to cross with more xerophilous species, he thus regarded the failures as due to constitutions induced by external conditions.

Similarly, it frequently happens that groups of species from the same country will readily cross among themselves; but will not ally themselves with other groups of widely separated countries. Thus, the East Indian *Rhododendrons* refuse to unite with American and Asiatic forms; yet they have produced the "greenhouse" forms in great numbers, with varieties of colours. The same observation holds good sometimes with varieties. Thus, some French strains of *Scarlet Pelargoniums*, though fertile *inter se*, fail when crossed with English varieties.

Prepotency.

Another cause of failure is excessive prepotency. Taking a normal hybrid as being morphologically intermediate between the two parents, it is now known that either parent may be so excessively prepotent, as not only may the offspring show some considerable inclination towards the parent, but it may practically suppress all features of the other. M. Millardet, in crossing the alpine with the Virginian Strawberries, called them "false hybrids."

Non-reciprocity.

This is another puzzling cause of failure; for a

cross may sometimes be readily produced one way, but all attempts to raise offspring by crossing the parents in the opposite way may totally fail.

Partial Hybridisation.

This gives only too frequent and disappointing results. It is due to the fact that the development of the pollen-tube may stimulate the surrounding tissues into growth, without its effecting any impregnation of the ovule itself: so that every external appearance of a successful result may be offered by the enlarged and full-sized fruit; yet there may not be a single seed within containing an embryo.

False Inferences.

It has often been found, both by Herbert and later experimenters, that perseverance may be ultimately crowned by success after many disappointments. For the impregnation is so susceptible to external conditions—irrespective of morphological affinities—that a species may fail to be crossed, or to cross another, in one season; but such can be effected in another. Some have even asserted that the time of day may make all the difference between success and failure in certain cases. Or, again, even if progeny be obtained, they may be sterile for years, yet finally bear good seed; hence, an expert has no need to despair, in all cases, when he is anxious to secure some special result, as Nature is as likely as not to reward him for his perseverance. *George Henslow.*

EXPERIMENTS ON HYBRIDISATION AND CROSS-BREEDING.

Mr. C. C. Hurst, F.L.S., was able in his paper to give a number of conclusions based upon his own observations, and to bring forward evidence, sometimes for, but more often against, generally accepted ideas as to the characters of hybrids.

With regard to inheritance by hybrids among the Orchideæ, Mr. Hurst pointed out that what we understand by varietal characters, though of great practical importance, are so indefinable, so uncertain, and so fleeting, as to be traced with difficulty, even in the second generation. Specific features, on the other hand, are more lasting, while generic ones persist but little changed for a number of generations, and would not easily breed out.

As bearing upon the impression that varieties are prepotent, the question was treated in more detail under several headings.

(1) The tendency is admitted, especially when varieties are fertilised with their own pollen; exceptions are, however, by no means rare.

(2) The chief exceptions are apparently in cases where the parents or ancestors have been variable.

(3) Slight variations are seldom inherited.

(4) Abnormal sports are, for the most part, transmitted wholly, or not at all.

(5) Distinct varieties, as a general rule, transmit their qualities in different degrees—sometimes wholly, sometimes partly, sometimes not at all.

(6) When the same variations are found in both strains they may be traced in the second or following generations, but seldom otherwise, as mentioned above.

(7) A law of Partial Prepotency, advanced in the paper, is offered as a possible explanation of the varied results in the inheritance of varietal characteristics.

In speaking of generic hybrids, which, as a rule, combine the specific characters of their parents in fairly equal proportions, seven cases were reviewed where the reed-like species of *Epidendrum* were prepotent in every instance when crossed with species of *Cattleya*, *Lælia*, and *Sophranitis*. Also fifteen others, where more distinct genera, mostly of different tribes, have been crossed together, and in every case have reproduced the seed parent almost exactly, both in generic and specific conformation. The explanation offered was, that this is the result of a kind of parthenogenesis, the pollen probably not having power to fertilise the egg-cells in the ordinary way, but exerting sufficient influence to cause them to start growth.

Primary hybrids, we were told, do not by any

means differ so widely from the parent as secondary ones. [Compare Monsieur Devansaye on *Anthuriums*.] Sex has but little influence *per se*, and in some recorded cases the resulting offspring from both reverse and obverse crosses were practically identical.

Further, in connection with primary crosses, Mr. Hurst exemplified the meaning of his term Partial Prepotency. A certain part of one individual hybrid may show the configuration of one parent; a sister plant may, so far as that is concerned, exemplify the other, while a third hybrid from the same cross may combine in the portion under consideration, the structure of both original species. In colour the exact reverse may be the result. A fraction of the hybrid has alone been considered; repeat the process for all the components of the plant, and the scope for variation, under the circumstances, may easily be understood.

The law of Partial Prepotency is founded by Mr. Hurst, he said, upon practical observations with regard to the genus *Paphiopedilum* = *Cypripedium*.

The above remarks, it was pointed out, do not agree with the idea that a hybrid leans first towards one parent and then towards the other, for while it may favour, say, the seed parent in evident characters, in minute details it may reproduce the seed parent. [See Monsieur Morel's remarks upon the *Clematis* à Ville de Lyon, p. 5.]

Passing on to variation in secondary hybrids, twenty-four individuals of a *Paphiopedilum* exhibited at the Conference were alluded to. They all came from the same capsule, produced by a hybrid between two species when crossed with a third. The parent hybrid failed to show in its leaves, the special colour of one of its immediate ancestors, but the grandchildren reproduced it strikingly. Statistics were then given that do not support the current opinion as to the absolute sterility of hybrids. Ninety distinct genera, said Mr. Hurst, are recorded in which fertile hybrids have been obtained, and only these where all are practically infertile.

Sterility was a term used by Darwin simply to denote diminished fertility, and this occurs in hybrids undoubtedly, but more owing to diminished power in the males than to anything else. In *Paphiopedilum*, of crosses made between distinct species 95.05 per cent. were fertile; of hybrids crossed with pure species, 91.82 per cent., while only 60 per cent. of the pure species produced seed when fertilised with pollen from hybrids.

Diminution of fertility in hybrids has already been noted by Darwin, Dr. Focke, Dr. Masters, and Professor Macfarlane in plants, as well as by Professor Ewart in the case of zebra hybrids. It is not, however, confined to hybrids, for it occurs within the limits of a single species; for example, certain races of *Primula sinensis* raised by Messrs. Sutton & Sons, are difficult to propagate on this account, and Mr. Hurst ascribed diminished fertility rather to conditions of life than to difference in form or constitution brought in through hybridisation.

The stability of hybrids next took up Mr. Hurst's attention, and his statistics did not give the impression that self-fertilised hybrids revert to a parent form when propagated by seed. Out of five hundred seedlings of a hybrid *Berberis* no less than 90 per cent. reproduced the parent form faithfully and well, and not a single individual reverted wholly to either grandparent.

The increased vigour of hybrids is a well-known fact, and Mr. Hurst puts it down as abnormal growth due to out-crossing the strength of a primary hybrid, he obtained, being reduced to the normal again by in-breeding in the second generation. In discussing the limits of crossing, it was computed that while four species have been combined in *Gladiolus*, and five in *Rhododendrons*, no less than twenty-seven genera of Orchideæ, many, belonging to different tribes, have been linked together by hybridisation, while possibly there may yet be more.

As a rule for breeders it was held out that

success might be hoped for within the limits of a tribe, and, generally, experimenters were exhorted not to be discouraged by even several failures, and recommended, in the interests of science, to keep an accurate record of their work whether successful or otherwise.

SECOND DAY, WEDNESDAY, JULY 12, 1899.

Sir Michael Foster, K.C.B., Sec. R. S., it was much regretted, being unwell and unfortunately confined to his room, the Rev. Professor Henslow, M.A., V.M.H., very kindly took his place, and presided over the second meeting of the Conference, held on Wednesday afternoon at the Westminster Town Hall. In re-opening the proceedings, Professor Henslow expressed his opinion that there was no necessity for a second address from the chair, and contented himself with making a few brief but pertinent remarks in his usual delightful manner upon the value of the Conference. This, he said, depended in a great measure upon the way in which scientific and practical interests were discussed together. As representing the former side himself, he had to own that botanists did not do all the giving, as they were able to get much valuable information from horticulturists, and, indeed, the two bodies of workers had really to make progress hand in hand.

The lantern demonstrations by Mr. Webber, from the U.S. Department of Agriculture, and from Dr. Wilson, of St. Andrew's, were very instructive. After the meeting, a discussion, *de omnibus rebus*, including copyright in new plants, was indulged in, and proved very acceptable to the auditors.

THE WORK OF THE UNITED STATES DEPARTMENT OF AGRICULTURE IN PLANT HYBRIDISATION.

Mr. Herbert J. Webber, one of the special envoys from the United States department of Agriculture, gave an account of their work which bears on the question in hand. The department is conducting a series of experiments upon a number of plants, including among others the Orange, Lemon, Pomelo, Pine-apple, Pear and Grape, as well as Wheat, Indian-corn, Cotton, Tomatoes, Carnations, Holly-hocks, and Aquilegias.

The speaker discussed the general work which is in progress, and illustrated individual cases of interest by means of lantern-slides. One of the most noteworthy, but at the same time difficult fields of investigation at present pursued, is the production of hardy races of Oranges and Lemons, by hybridising the hardy *Citrus trifoliata*, which is a deciduous, trifoliate-leaved plant, of very distinct character.

Of forty hybrids of the common Orange ♂, and *C. trifoliata* ♀, twenty-nine resemble the female-parent almost wholly, while the remaining eleven are clearly intermediate in character. The latter show the effect of the Orange in their increased vigour and larger leaves, with elongated central lobes and laterals, which show a tendency to decrease in size as well as in their evergreen habit. Of fourteen reciprocal hybrids—orange ♀ × *C. trifoliata* ♂—nine have unifoliate leaves entirely, resembling the mother-parent; and five have them with three lobes like the male, but with the central one elongated and larger than in the typical trifoliata.

A special point is the complication which arises through the occurrence of polyembryony in *Citrus* fruits, for besides the embryo developing from the egg-cell proper, which is the only one affected by hybridisation, several other embryos are produced adventitiously from the nucellar tissue of the mother plant.

Seedlings from adventive embryos naturally reproduce the mother parent truly, showing no effects of the hybridisation. A number of photographs was exhibited where several seedlings were seen developing from a single seed, one showing the effect of hybridisation, the others not.

Of 126 hybrids of the Pomelo (*Citrus decumana*) ♀ and Orange (*Citrus aurantium*) ♂, 106

resemble the mother, and, as is almost invariably the case with a few, the rest take after the male parent. Of 103 reciprocal hybrids, 95 were like the Orange, and 8 like the Pomelo. These experiments were undertaken with the view only of obtaining new valuable varieties.

In other crosses, notably in one where it was sought to unite the loose and easily removable skin of the Mandarin Orange (*Citrus nobilis*) with the features of the common kind, the same large proportion of plants favoured the seed parent, and a smaller number the pollen parent, which ever way the cross was made.

Experiments to improve the staple of Upland Cotton were also reported upon, and others of which the result is expected to be a tawny cotton similar to the Egyptian kind, which will be suitable for growth in America. It is hoped also to increase the yield of Indian corn by hybridising the best races commonly grown with distinct varieties, such as the largekerneled Peruvian Corn.

HYBRIDS OF PASSIFLORA, ALBUCA, RIBES, AND BEGONIAS.

DR. J. H. WILSON, F.R.S.E., illustrated some remarks upon hybrids he has obtained, by means of a fineshow of lantern slides. Among the *Passifloras*, a cross between *Passiflora Buonapartei* ♀ × *P. corulea* ♂ has been named Margaret Wilson, and was figured in the *Gardeners' Chronicle* for February 11, 1899. The first-mentioned *Passiflora* has a winged quadrangular stem, in the second this is slightly five-angled, and the hybrid's stem has the same number of angles, but they are well marked. The flower is structurally a mixture of the two parents from all points of view. The anthers, though well developed, contain but little pollen, and this abnormal. More remarkable is the peculiarity shown by the ovaries: either these contain crumpled, coloured rays, like the coronal ones, or else a miniature ovary, with three styles and stigmas. These structures arise by proliferation of the floral axis at the base of the ovary, but the invaded ovaries are not abnormally enlarged, nor do the ovules seem to be reduced in number. The flowers first produced are most prone to develop the structures above described, while those at the ends of branches have almost always normal ovaries. Assiduous pollination has not yet produced perfect seeds.

A hybrid between *P. alba* and *P. Buonapartei* (St. Rule) has three-lobed leaves, like its seed-parent, while the pollen-parent's are ovate. In the previous case, where the seed-parent (*P. corulea*) had five, or sometimes seven-lobed leaves, the hybrid had invariably three lobes, and if a mean between, ovate and three-lobed leaves has been obtained, two-lobed structures might have been looked for in the present case. The form has not hitherto produced seed. In the third hybrid between *P. Constance Elliott* ♀ and *P. alba* ♂, the leaves are often five-lobed, as in the first, but mixed with the three-lobed form characteristic of the other parent. A fourth cross between *P. alba* and *P. edulis* has also resulted in seedlings, but neither these nor the last have yet flowered.

Dr. Wilson briefly alluded to the crosses among eight or nine species of *Albuca* which he has raised to the number of seventy or more. Details as to their usual intermediate character, and to the prepotency of *A. prolifera*, so far as its erect white flowers went when crossed with the drooping blossoms of *A. minor*. Details as to structure in leaves were illustrated by photomicrographs.

Like two or three other experimenters, Dr. Wilson has crossed the Black Currant and Gooseberry, but he has not obtained fertile seed. The pollen of neither parent species takes effect, but a fruit is now ripening as a result of bringing pollen from *Ribes divaricatum*. An interesting point is, that while the larvæ of the Gooseberry-sawfly will not attack Black Currant, it is only too ready to feast on the odourless leaves of the hybrid.

In *Begonia*, by crossing tuberous kinds with *Begonia coccinea*, many stages intermediate in habit were obtained; some plants retained all their

branches, others shed the outer ones by a process similar to leaf-fall; while others, again, approached the tuberous condition. A few details with regard to other experiments concluded an interesting contribution.

HYBRIDISATION VIEWED FROM THE STANDPOINT OF SYSTEMATIC BOTANY. By R. Allen Rolfe, A.L.S., Kew.

The author gave a summary of his paper, commencing with some remarks of Dean Herbert's of the way his early experiments in hybridisation were received by systematic botanists, who believed that such experiments would tend to confuse their systems. The practice of hybridisation had since made enormous progress, but was still regarded with disfavour by many systematists, who failed to realise how frequently it was carried on in nature, some going so far as to deny that it took place to any considerable extent, if at all, and explaining away the numerous supposed wild hybrids by variation, or mistakes on the part of those who professed to recognise them, whom they described in not very complimentary terms as "hybrid-mongers." By degrees, however, it was being recognised that the views of these individuals were entitled to more respect, for a considerable number of these supposed natural hybrids had been reconstructed artificially, by crossing the supposed parents together. The author then proceeded to enumerate examples of such plants, taken from the genera *Epilobium*, *Narcissus*, *Tagopogon* (raised by Linnaeus himself), *Verbascum* (quite a series of them), *Digitalis*, *Geum*, *Salix* (at least a dozen), *Hieracium*, *Rubus* ("that class of undecided forms in the face of which all the efforts of botanical describers miscarry"), the hybrid *Oxlip*, two *Sarracenias*, and a few other plants, beside something like a dozen *Orchids*, one of which he only recognised at the exhibition on the previous day, though as a wild hybrid it had been known for several years. In *Hieracium*, particularly, many so-called "new species" had recently been described, both on the Continent and in Britain, which had no right to the title. On the other hand some authors had recognised a number of natural hybrids, combining the characters of others with which they grew, and at least four combinations had been effected between distinct species, one of which did duty in botanical works under no less than eleven spurious specific names. In various other cases what had proved to be one variable hybrid had originally been described not as one, but as several species. In several groups of plants natural hybrids were evidently much more common than was generally admitted, but even sceptics could no longer deny the hybrid origin of those which had been reconstructed artificially. Hybrids certainly broke down the limits between species, sections, and even genera in a few cases, which no doubt accounted for the want of sympathy with which artificially raised ones were regarded by systematists, but the fact must be faced that they also occurred in nature, and could not be ignored. They could not be classified either as species or varieties, and when their true rank was understood many of the difficulties now attending the classification of the latter would vanish. He hoped to see many more experiments undertaken with the view of clearing up the origin of these intermediate and doubtful plants which at present were the bugbear of systematists.

HYBRID POPPIES.

M. Henry de Vilmorin directed attention to two new forms of Poppies, both of which—and particularly the second—he claimed to be plants of real merit for horticultural purposes. In each case *Papaver bracteatum* was crossed with *P. somniferum* to begin with; while in the second instance, the hybrid was further crossed with *P. orientale*, which M. de Vilmorin considers to include *P. bracteatum*. The special point of interest is that an annual has been crossed successfully with a perennial. A fine series of water colour drawings illustrated M. Vilmorin's remarks.

DISCUSSION.

As one or two contributors of papers were not present in person to read them, there still remained some little time at the disposal of the Conference, which was devoted to a general discussion. The Chairman set the ball rolling by pointing out what a small amount of attention had been paid during the proceedings to the microscopic structure of hybrids, except by Dr. Wilson. The latter worker, he said, had mentioned Mr. McFarlane's paper on "The Histology of Primary Hybrids," and expressed his opinion that in secondary ones the characters of ancestral species would be much more difficult to trace. Professor Henslow was able to endorse this from his own minute and detailed examination of Messrs. Veitch's greenhouse *Rhododendrons*, though it must be remembered that they all arose from species presumably nearly allied in structure, and hailing from the same part of the world. With hybrids derived from species of markedly different conformation, such as might depend upon adaptation to a different climate for instance, the task of picking out specific points which were not found to exist with hybrid *Rhododendrons*, might be rendered possible. Then Mr. Burbidge brought before the meeting the very great difficulties that had arisen, and do still arise, in systematic work through the Latin names, which have been, and are given, to horticultural hybrids. This speaker was in favour of none but English names being applied; but if the old practice was

continued, one should adopt some such plan as combining two generic or specific names, or parts of them, as had been done by Dr. Masters and Sir Michael Foster, and of which the word *Lælo-Cattleya* was another instance. In some cases it was stated that classical names had been given to hybrids with the express reason, and to relate, of hiding their real origin. One reason for it, it will be remembered, was hinted at in Dr. Masters' address. The Rev. G. H. Engleheart, M.A., addressed the meeting upon the difficulty of finding the results of others' experience in hybridising, all the records being scattered about, and he suggested that a handbook should be compiled with a view to saving hybridisers much time and trouble. Another point with a practical bearing raised by the same speaker was with regard to the present condition of affairs, where the inventor could protect the results of his brainwork and labour, but anyone rather than the raiser of a new variety obtained the pecuniary reward for the pains taken.

Mr. Geo. Paul, as one commercially interested, spoke upon the same subject, saying that legislation might well be introduced, but Mr. Bunyard, following, showed a way in which a raiser could ensure whatever profit he required by raising sufficient stock before distributing any, and putting a sufficiently high price upon each plant sold. He had often told Mr. Rivers how the latter had given away his varieties, for he (Mr. Bunyard) had sometimes, with his facilities and skilled men, raised a bigger stock in a short time than Mr. Rivers himself had in hand.

He pointed out that legislation would be powerless to preserve the rights of the raiser of a new variety or a new plant; prunings might be conscientiously thrown upon the rubbish-heap, but someone else might give them away, and as many plants as there were cuttings struck, or buds inserted, could be reared elsewhere by persons who had no paid for the privilege.

Mr. Willet Hays, of the United States, pointed out how the work of experiment stations might help the producer of a new variety by testing it in various parts of the country, and by proving its adaptability to the region and other advantages, at the same time as it was being made known to growers, and before it was distributed.

Mr. WILLIAM CUTHBERTSON, Rothsay, said he had this summer bloomed Mr. E. J. Lowe's hybrid between an *Aquilegia* and *Clematis Montana*. The plant resembled an *Aquilegia*, but the flower was half saucer-shaped and without spurs. It was bearing seed, and to anyone who wished a few seeds for scientific purposes he would have pleasure in sending them. Some years ago he had tried another of Mr. Lowe's hybrids, one said to be between a *Sunflower* and a *Dahlia*, but at the time he was not impressed with it and had not grown it since.

SOCIETIES.

ROYAL HORTICULTURAL.

(CHISWICK, JULY 11.)

THE exhibition in connection with the Hybridisation Conference was held in the Great Vinery, and the excessive heat in the building was exceedingly trying to those who wished to thoroughly examine the various hybrids shown, and to take particulars of their pedigrees. The exhibition contained many most interesting plants, but there were no instances of hybrids between unexpected species or genera to cause a sensation. In regard to the award of the Veitch and Williams Memorial Medals, the judges chosen to examine the hybrids have reported to the Council of the Society, and it has not yet transpired to whom the medals will be awarded.

The Orchid, Floral, and Fruit and Vegetable Committees awarded a number of First-class Certificates and Awards of Merit, and a list of these is given below, except certain awards that were made to plants growing in the gardens, which are held over. These novelties include varieties of Peas, a yellow-fruited Raspberry, a Strawberry, Carnations, Delphinium, Sweet William, Caladium, Roses, and some valuable Orchids.

If the Society went to Chiswick more frequently, the arrangements in connection with the exhibitions might be expected to become more perfect. In respect to the luncheon, it was surely an unintentional omission that invitations were not extended to the Press. In consequence of this, most of the representatives, who had by no means a light task at Chiswick, were compelled to leave the gardens to obtain the necessary refreshments, and thus there was lost most valuable time. The luncheon was quite informal, and beyond the usual loyal toasts, and an expressed welcome to the foreign guests, there were no speeches.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. Chas. E. Shea, J. F. McLeod, W. Bain, J. H. Pitt, J. Jennings, W. Howe, C. R. Fielder, Chas. T. Drury, E. H. Jenkins, C. J. Falter, R. Wilson Ker, R. Sydenham, J. W. Barr, Geo. Paul, H. B. May, Chas. Jeffries, Ed. Beckett, J. Fraser, Jas. Walker, Ed. Mawley, and H. Turner.

HYBRID AND OTHER NEPENTHES AND SARRACENIAS.

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, showed a collection of *Nepenthes*, and a carl

attached to each indicated the parentage of these cross-bred varieties. These particulars we reproduce, but most of the plants are well known, and need no description. The name of the female parent is in each case written first. N. Wittel, from N. Curtisi (Gardener's Chronicle, Dec. 8, 1887, p. 689) and N. sp.; N. Cheloni, from N. sp. and N. Rafflesiana; N. Mastersiana figured in the Gardener's Chronicle, Feb. 23, 1884, p. 249, in two varieties with pitchers of different degree of colour, from N. sanguinea and N. Khasiana. A very fine plant of this was shown with handsome deeply coloured pitchers. N. Dicksoniana, from N. Rafflesiana, figured in Gardener's Chronicle, Sept. 30, 1882, pp. 424, 425; and N. Veitchi, figured in Gardener's Chronicle, Dec. 17, 1881, p. 781; N. cylindrica, from N. Veitchi and N. hirsuta glabrescens; N. mixta, figured in Gardener's Chronicle, Jan. 14, 1893, p. 46, in two varieties, from N. Northiana and N. Curtisi, a variety that partakes more of the size of N. Northiana and the colour of N. Curtisi; N. Tiveyi, one of the newer ones and very valuable, from N. Curtisi superba f. and N. Veitchi. In form the product is intermediate, but in colour more resembles the female than male parent; N. formosa, from M. Cheloni f., and N. distillatoria; N. Morganiae, from N. Phyllamphora f., and N. Sedeni. The pitchers of this variety are much larger than the male parent, and a new one, N. Balfouri, from N. mixta and N. Mastersiana. The seedling has broad leaves some five inches wide, and the largest pitcher was just under 8 inches long. The pitcher is more or less brown, but by cultivation the spotting may be more developed. The rim is that of N. mixta, but the lower portion of the pitcher is inflated like that of N. Mastersiana, and not like the even pitcher of N. mixta.

The Sarrafcenias included S. exoniensis from S. purpurea f. and S. crispata; S. Melanorhoda, from S. Stevenii f. and S. purpurea; S. Cheloni from S. Mooreana f. and S. purpurea; S. Courtii from S. purpurea f. and S. pallidissima; S. Wrigleyana from S. Drummondii f. and S. pallidissima, N.

CROSS-BRED ROSES.

Messrs. PAUL & SON, Cheshunt, showed blooms of a number of roses, principally garden varieties. For instance, a variety raised between C. Souper and Fortune's Yellow, showing the habit of Fortune's Yellow with foliage intermediate, and flowers nearly white; Rose Dawn, figured in Gard. Chron., July 23, 1898 (Supplement), was a cross from Caroline Testout with Mrs. Paul; Scarlet Climber is a large semi double variety with bright rose-coloured flowers, a variety from a cross between Crimson Rambler and Beauté Inconstante; Psyche, figured in Gard. Chron., May 7, 1898 (Supplement), was a cross between Crimson Rambler and Golden Fairy. Many other roses of various sections, of Messrs. Paul & Son's own raising were shown. Many of the crosses showed that C. Crimson Rambler has been a favourite variety for use in the breeding of garden varieties, in consequence no doubt of its vigorous and free-flowering habit.

Messrs. Wm. PAUL & SON, Waltham Cross, Hert., exhibited an interesting collection of new roses; foremost among these were Tennyson, a grand flower of the hybrid Tea section. It is a seedling of White Lady, producing large very handsome blossoms of a pearly white, shaded with flesh colour and pale pink. A basketful of Alexandra was most attractive; it is a rich coppery yellow, and from the appearance a first-class bedding rose. Chameleon is an interesting bedding Tea rose, somewhat resembling Anna Ollivier but with a very heavy blotch of a purple tint at the base of petals. Boadicea promises to be a good Tea-scented variety. The flower is large, high centred, and of a rich pink and ivory white tint, but perfectly distinct from other Tea roses of its colour. This firm also exhibited Waltham Standard, a hybrid perpetual resembling Alfred K. Williams, but of a brilliant carmine colour; also of Climbing Belle Siebrecht syn. Mrs. W. J. Grant. From the strong growths shown, this promises to be a very valuable climbing pink climber rose. Other varieties shown were White Maman Cochet, pure white in colour, with a faint marking of bluish pink upon the edges of the petals, and Madame Cadeau-Ramey, a high-centred rose of a creamy white colour. Interesting striped sports of Paul Neyron were exhibited, named respectively, Panaches de Bordeaux and Coquette Bordelaise. The flowers are flat, and each petal prettily striped with a white mark down the centre, &c.

RHODODENDRONS.

Messrs. JAS. VEITCH & SONS, Ltd., exhibited a magnificent group of their hybrid intermediate house Rhododendrons (R. Javanicum x J. Jasmiflorum, &c.). Some of these have been figured and their pedigrees given in the Gardener's Chronicle, Feb. 1, 1896, p. 133, and elsewhere. A few of the very best, from a horticultural point of view, of those exhibited at Chiswick were Souvenir de J. H. Mangles, from a cross between Crown Prince of Germany x Javanicum, a very large plant with numbers of immense trusses of bloom soft salmon rose colour; Yellow Perfection from Lord Wolseley and R. Teymanni, having large flowers of a delicate pale shade of yellow; Ruby, of the R. Multicolor section; Mrs. Heale, of the same section and the only pure white variety yet obtained, and a seedling obtained from a cross between Princess Royal and R. Teymanni. This is one of the most recently raised varieties, and shows very distinctly the influence of both parents.

In connection with hybrids and hybrid raising, it is interesting to note a plant raised from a cross between Azalea Stella and Rhododendron Lord Wolseley. The seed was sown in October, 1888, yet with all the resources of the cultivator the plant after sixteen years is hardly 3 inches high. It would appear that the "mixing" of characteristics of two plants in this particular case has resulted in rendering the product almost incapable of growth.

A complete list of the Rhododendrons shown by Messrs. Veitch is given below in chronological order:—
Princess Royal: Javanicum x Jasmiflorum.
Princess Alexandra: Princess Royal x Jasmiflorum.
Maiden's Blush: Princess Alexandra x Brookianum gracilis.
Balsaminiflorum roseum: obtained from an unnamed seedling.
President: Crown Prince of Germany x Javanicum.
Yellow Perfection: Lord Wolseley x Teymanni.
Diadem: Javanicum x Duchess of Edinburgh.
Scarlet Crown: Duchess of Edinburgh x Javanicum.
Opheleia: Princess Alexandra x Javanicum.
Indian Chief: Crown Prince of Germany x Javanicum.
Aurora: " " " "
Purity: Teymanni x Taylori.
Imogene: " " " "
Rose Perfection: Princess Alexandra x Javanicum.
Ne plus Ultra: Javanicum x Duchess of Edinburgh.
Souvenir de J. H. Mangles: Crown Prince of Germany x Javanicum.
Jasmiflorum carminatum: Jasmiflorum x Javanicum.
Amabile: Princess Alexandra x Javanicum.
Taylori: Princess Alexandra x Brookianum gracilis.
Primrose: Maiden's Blush x Teymanni.

Then follows some unnamed seedlings.

MULTICOLOR SECTION.

Ruby: Jasmiflorum carminatum x Curtisi.
Ensign: Multicolor x Duchess of Connaught.
Nestor: Teymanni x Curtisi.
Rose Morn: Maiden's Blush x Curtisi.
Neptune: Minerva x Curtisi.
Baroness H. Schröder: Princess Royal x Javanicum.
Mrs. Heale: Multicolor x Princess Beatrice.

FERNS.

Mr. C. T. Druery, F.L.S., V.M.H., exhibited a number of plants and mounted fronds of some indubitable crosses between marked varieties of British species and one bi-generic hybrid, of which detailed descriptions were appended, which we give in *extenso*, as the evidence afforded by the material shown was very conclusive of the possibility, not merely of crossing ferns, but of enhancing thereby their value as decorative plants.

Osterach officinarum x Scolopendrium vulgare (E. J. Lowe).—Three fronds of this hybrid were shown, in which the combined characters of the two very distinct species were so clearly shown as to remove all doubts of the cross and its parentage. The fronds were of Osterach form, with the rounded crenate lobes of the species, which, however, become confluent at the tips of the frond; the profluous scales of the species were, however, entirely absent, and probably owing to this the texture appeared much thinner. The manufacture lay in the fructification, which, though sparse, unmistakably showed the faced parts of linear sori peculiar to Scolopendrium, merging towards the upper portion into single linear sori of the Asplenium type.

Athyrium filix-femina var. congestum excurrens (F. W. & H. Stansfield).—In this, A. f. excurrens of lax habit has all terminals abruptly terminate, with a long bristle-like extension of the midrib. A. f. congestum is a dense, dwarf form; the plant and fronds exhibited showed a dense, excurrent form, precisely embodying both characters. A. f. Cousensii plumosum (Druery), a combination of the pericardate character of A. f. pericardatum, Cousens, with the long falcate plumose pinnules of A. f. plumosum Kalothris, a very beautiful form.

A. f. f. Victoriae setigerum (Birkenhead).—The bristly, translucent, excurrent character of setigerum was clearly seen in conjunction with the true pericardate form of A. f. f. Victoriae.

Polypodium vulgare var. elegantissimum cristatum (Clapham).—A beautiful combination of P. v. bifida cristatum, with the fine dissection of P. v. elegantissimum. The partial reversion peculiar to the latter, bringing fronds or part fronds of true bifida cristatum in lieu of normal form. A plant of P. Schneideri was shown in conjunction with this, presenting precisely the same mixed features.

P. angulare polydactylum x P. a. lineare (Colam Jones).—This exhibit was a typical one of a great number of crosses effected with the first parents, evidence of which was seen in certain defects which were invariably transmitted, spoiling the plants, but establishing the parentage.

P. a. stipulatum, Cartmell, x P. a. grandiceps, Moly.—A very striking combination of the attenuate, stipulate, much divided pinnules of the first, with the heavy, corymbous head of the second, accompanied by a slight coarsening of the parts, showing latter's inflorescence in another direction.

P. a. rotundatum x P. a. cruciatum.—A cruciatum dwarfed and with rounded pinnules, and confinement of cruciation to upper half of frond—very distinct.

Scolopendrium vulgare var. supralineato-grandiceps (Stansfield).—S. v. supralineatum has an even intramarginal ridge, well within the upper surface, this appeared in conjunction with the ramocriate character of S. v. grandiceps.

S. v. plumosum (Stansfield), S. v. crispum diversifrons x S. v. laevarum.—A remarkable cross between S. v. crispum diversifrons, characterised by very plumose characters, and a corrugated surface which has been combined with the broad sagittate and crested basal lobes, and incised cristate character of S. v. laevarum, the result being very beautiful.

Mr. Druery also exhibited, on behalf of Mr. E. J. Lowe, a number of fronds of some more remarkable forms of Scolopendrium v. crispum, varied as to surface and cut edges, and developments generally to an extraordinary degree, showing rugose, muricate, and lacinate frills of great beauty. A plant of S. v. spirale rugosum was also very remarkable. These were sent to illustrate results

of multiple parentage; but quite independently of all controversy on this point, they formed admirable evidence of conjunction of diverse characters by crossing, and were greatly admired.

Mr. H. B. May, Dyson's Road Nursery, Upper Holloway, N., showed a large group of Ferns that had been raised in that establishment. It is interesting to remark that the whole of these very beautiful "forms" have been raised without the adoption of any system of intelligent crossing such as recommended by Mr. Druery. They have all appeared unexpectedly among the immense number of seedlings raised annually, and the name only of the spore-bearing parent can therefore be given. It may be remarked also that from one lot of sporelings from Pteris Victorice have been produced P. Regina, P. Regina cristata and corymbosa, and P. tremula variegata. P. tremula variegata has never been known to reproduce itself except by spores of P. Victorice. There were eighty-five varieties shown and the names of them are given below:

Adiantum cuneatum grandis (cuneatum); A. c. major (do.); A. elegantissimum (Waltoni diffusum); A. plumosum (do.); A. Schaeferi (do.); A. tenellum (do.); A. Hensleyanum (do.); A. Microphyllum (do.); A. parvipes (do.); A. ornatum (do.); A. elegans cristata (elegans); A. elegans compacta (do.); A. heterophyllum (do.); A. Reginae (Victorie); A. fasciculatum (fragrantissimum); A. acutur attenuatum (acutur); A. decorum gracilis (decorum); A. tenerum compactum (tenerum).
Asplenium Mayi (Baptisti); A. ornatum (do.); A. elegantissimum (do.); A. inclum (do.); A. coriaceum (do.); A. internata (Neo-Caledonia); A. apicidens cristata (apicidens); A. grandis (Mayi); A. majestica (do.).

Blechnum corcovadense undulata (corcovadense); B. Braziliense pallidum (Braziliense).
Davallia glabella (Tyermanii); D. rubella (do.); D. decurrens (bullata); D. insignis (elegans); D. filiensis effusa (filiensis); D. f. robusta (do.); D. f. gracillima (do.); D. f. magnifica (do.).
Gymnogramma Mayi (Parviana); G. flavescentia (do.); G. multiceps (Wetenhalliana); G. Wetenhalliana cristolata (do.); G. convoluta (do.); G. flavescentia cristata (flavescentia); G. grandiceps superba (grandiceps); G. rotundifolia cristata (do.); G. Alstonia superba (Alstonia); G. pulcherrima (schizophylla).

Lygodium dichotoma polydactyla (dichotoma).
Lastrea atrata variegata (atrata).
Lomaria ciliata major (ciliata); L. c. grandis (do.); L. c. princeps (ciliata major); L. c. undulata (do.); L. c. subvariata (do.); L. c. formosa (do.); L. c. atroviridis (do.).

Polypodium (Phlebodium) Mayi (glaucum); P. glaucum cristata (do.); P. aureum marginatum (aureum); P. a. concoloratum (do.).

Pteris Reginae (Victorie); P. R. cristata (do.); P. R. corymbosa (do.); P. tremula variegata (do.); P. tremula elegans (tremula); P. t. fasciata (tremula); P. t. grandiceps (do.); P. t. ramocristata (tremula Smithiana); P. Sammerai (Wimsettii); P. Wimsettii majus (do.); P. bauraria argentea (Bauraria); P. Mayi (albolineata-cristata); P. nobilis variegata (Mayi); P. serrulata gracilis (serrulata); P. s. g. multiceps (gracilis); P. a. gloriosa (Chiswick var.); P. a. complanata (serrulata cristata); P. a. densa (do.); P. eretica nobilis (cretica cristata); P. c. magnifica (do.); P. leptophylla princeps (leptophylla); P. Victorice gracilis (Victorie).

Nephrolepis exaltata plumosus (exaltata furcata); N. e. multiceps (do.); N. recurvata (Philippinense).

Messrs. JAS. VEITCH & SONS showed a group of about forty-two Ferns, supposed hybrids and sports, the parentage of which is unknown. These included Cymogrammas, Adiantums, Pteris, &c., also some of their hybrid Streptocarpus, and Begonias of the Rex section, between this species and B. Bunkei and B. decora, &c.

INSTANCES OF INTER-GRAFTED GENERA.

Messrs. JAS. VEITCH & SONS showed a group of plants in pots which were interesting as affording instances of plants grafted upon others of different genera, and thus relating to the complex problem of "Affinity." The specimens were: Eleagnus grafted on Hippophae; Chimonanthus grafted on Fraxinus; Castanea grafted on Quercus Bobur; Magnolia grafted on Liriodendron; Amelanchier grafted on Thunbergia; Pyrus aucuparia; Osmanthus grafted on Ligustrum and Phillyrea and vice versa; Rapirolepis on Crataegus pyracantha; Athrotaxis on Cryptomeria; Kalmia on Rhododendron; Eriobotrya on Rapirolepis and Mespilus germanica; Pyrus japonica on Mespilus germanica; Garrya on Aucuba; Olea on Ligustrum; Rosa Wichuriana var. on Rubus; Cotoneaster on Crataegus; Cupressus Nootkatensis on Thuja orientalis; Photinia on Mespilus; Lilac on Phillyrea; Crataegus on Mespilus; Genista on Laburnum; Phillyrea on Olea; Choisya ternata on Skimmia; Lilac on Ligustrum; Aucuba on Garrya; and Cytisus on Laburnum.

WATER LILIES.

Messrs. JAS. VEITCH & SONS showed in a tank of water some fine flowers of several varieties of M. Marliac's hybrid Nymphaeas.

These were also shown from the Gunnersbury House collection of Leopold de Rothschild, Esq., by Mr. Hudson, and formed a fine feature at the end of the staging upon the ground. The exhibit consisted of 20 forms and varieties, only a few of which are introduced plants, the rest being hybrids raised by M. Latour-Marliac. Of the former there were N. tuberosa, a large white from N. America, and N. odorata rubra (the Cape Cod Water Lily), both of which have presumably exercised their influence in the hybrids; others comprised N. odorata (pure white) and N. odorata minor; N. candidissima was also shown, so also was N. stellata in large numbers from a tank in the open air, the water in which was warmed. The finest of the many hybrids were N. Marliac's roses, specially fine and

quite distinct from *N. M. carnea*, also shown; *N. M. alba* like the preceding, was of extra large size and pure in colour; *N. M. Chromatella*, *N. M. Rubro-punctata*, *N. Gloriosa* and *N. Eliana*, the last two being the finest of the large flowered highly-coloured forms; *N. odorata rosacea*, *N. o. exquisita*, more deeply tinted than the preceding; *N. o. sulph. grandiflora*; *N. Laydokeri rosea* and *N. L. lilacea*; *N. flammea*, *N. fulgens*, *N. ignea*, and *N. sanguinea* were also conspicuous examples; *N. Caroliniana nivea* (a gem), *N. C. perfecta*, *N. pygmaea helvola* (the smallest of all the hybrids), and *N. Robinsoni* were also shown.

OTHER EXHIBITS.

Messrs. JAS. VEITCH showed plants of the hybrid *Escallonia Langleyensis* (figured in *Gard. Chron.*, July 10, 1897, p. 15, and July 2, 1898, p. 11), and the parents *E. Macrantha sanguinea* ♂ and *E. Phillyana* ♀. In almost all respects this true hybrid is midway in its characteristics between its parents, as was shown in the strength of habit, size of leaves, &c.

Messrs. WALLACE & CO., Kilnfield Gardens, Colchester, showed *Lilium Burbanki*, a pretty spotted Lily with reflexed sepals, raised by Luther Burbank from *L. Washingtonianum* f. and *L. Pardalinum*. The spike exhibited was described as a 'wa' one from bulbs planted last March, and not sufficiently strong to show its free-flowering habit, a habit obtained from *L. Washingtonianum*, also *L. Delhousei* from *L. Dalmaticum* and *L. Hansonii*. This is a small-flowered Lily, with sixteen or so flowers upon a spike, very stellate in form, deep brown in colour, with curious spotting. *Lilium occidentale* is a new species from California, with spotted flower, segments very reflexed.

From Messrs. BARR & SON came an exhibit of hardy flowers. *Campanula persicifolia alba grandiflora*, *Iris Monieri*, *Hemerocallis Aurantiaca major*, very lovely. *Lilium pardalinum Michauxii*, *Heuchera sanguinea splendens*. *Potentilla* in variety; also many beautiful varieties of *Iris levis*, notably a large double white variety named *Mimosa* and *Tomoyo*, a very large single white with lavender blue shades. *Delphiniums* were also shown well.

Messrs. JAMES VEITCH & SONS showed a plant in flower of *Kalo-rochea Langleyensis*, from *Kaloesanthus coccinea* f. and *Rochia falcata*. This is a hybrid obtained some years ago, that, if not valuable commercially, is a fine instance of ordinary hybridity, the plant being in many respects intermediary. The leaves are shortened and otherwise modified in the direction of the female parent, and the flowers and inflorescence show evidence of the same kind. In colour the hybrid is almost perfectly that of the *Kaloesanthus*.

M. MORIL, Lyons, France, showed a large number of flowers of *Clematis*, representing crosses effected between *C. coccinea*, and *C. Pitcheri*, *C. viticella*, and varieties of these species. In many of these varieties the pretty colours and extremely good form of the flowers were greatly admired. The intense heat, however, caused the blooms to wither a little.

Messrs. DUVAL & SONS, 8, Rue de l'Ermitage, Versailles, showed a magnificent collection of hybrid *Vriesias* and other *Bromeliads*, the varieties obtained being greatly admired by visitors who were interested in this class of plants.

M. DE LA DEVAUVE, Angers, showed a green-leaved *Anthurium* named *A. Fraxinense*, obtained from a cross between *A. crystallinum* × *A. colocasifolium*. The new plant has very handsome broad foliage, and the plant when further developed, promises to be very ornamental.

Mr. C. C. HURST showed sprays of *Berberis*, illustrating many crosses he has effected between *B. stenophylla* and *B. Darwinii*, and referred to in Mr. Hurst's paper.

Dr. J. H. WILSON, St. Andrew's University, showed illustrations and dried specimens of *Passiflora Margaret Wilson* raised by him from *P. Buonanaptea*, fertilised by pollen from *P. cerulea*, and fig. in *Gardeners' Chronicle*, Feb. 11, 1899, p. 89. Also of *Abutilon Incheape Belli*, a cross from *A. Megapota-nicum* = *veixillarium* variety, and *A. Darwinii*. Also several *Strawberries*, and a *Papaver*.

Mr. C. G. VAN TUBERGEN, Haarlem, Holland, showed *Lilium Marhan*, a very free flowered Lily from a cross between *L. Martagon album* and *L. Hansonii*. Also *Hymenocallis laphne*, from a cross between *H. speciosa* and *H. calathina*.

Mr. HUDSON, Gunnersbury House Gardens, Acton, showed a new species of *Nicotiana* (*N. sylvestris*), which, through being staged as a group, did not come under the particular observation of the Floral Committee. It was grown at Kew last season for the first time, where it gave especial promise for the future as a sub-tropical plant. The growth is vigorous and branching, the flowers being pure white, tubular, sweetly scented, pendulous, but expanded during the daytime, whilst towards evening they assume a horizontal position. As shown, the terminal corymbs were very effective; but later, when the lateral growths are in flower, they will be even more so.

From the Director of the Royal Gardens, Kew, was exhibited what many considered to be the best plant in the show. This was a new species of *Kalanchoe*, named *K. flammea*, from *Somaliand*, and mentioned in *Gardeners' Chronicle*, July 10, 1897, p. 22. There was a considerable group of these plants, each about 1½ ft. high, in pots. They were said to be eighteen months old, having been cultivated in an airy greenhouse, and some of the plants have been in flower for more than a month past. The flowers are produced in large compound umbels, and are very bright red (or as some describe it, orange-scarlet) in colour (see fig. 26, on p. 47).

From Kew also was shown *Dia × Kewensis*, from *D. grandiflora* and *D. tripetaloides*; also several hybrid *Aloes*, one from *A. latifolia* and *A. striatus*; *A. insignis*, from *A. drepanophylla* and *A. echinata*; *A. Lychni*, from *A. striatus* and *A. verrucosa*, and the very beautiful and well-known

hybrid *Passiflora*, *P. × Kewensis*, that resulted from a cross between *P. raddiana* and *P. carnea*.

Mr. R. I. LYNN, Cambridge Botanic Gardens, showed hybrid *Cinerarias*, in which the species *Senecio Heritieri*, *multiflorus*, *cruentus*, and *Tussilaginis*, had been crossed. One of the plants was described as consisting of the three first-named species, and the florists' *Cineraria*.

Messrs. DOBBIE & CO., Rothsay, N.B., showed Sweet Peas, &c.; and some choice Peas, both sweet and culinary, were shown by Mr. H. ECKFORD, Wem, Salop.

Mr. G. YIELD, Clifton Cottage, York, showed a hybrid *Hemerocallis* called *Pioneer*, from a cross between *H. aurantiaca* and *H. Thunbergii*. The colour of the flower is very intermediary, and the foliage rather larger than that of the female parent. The cross was made in 1896, and the flower shown being from a weak seedling, future flowers may be expected to be larger and better.

Messrs. G. JACKMAN & SON, Woking, showed flowers representing varieties of *Clematis lanuginosa* crossed with *C. Fortunei*, also crosses of *C. Jackmanii* and *C. patens*.

Mr. WILLIAM PRITZEN, Stuttgart, Germany, showed blooms of varieties of tuberous *Begonias* with fringed flowers. In this characteristic they were not more remarkable than that figured in these columns, June 6, 1896, p. 711; but the shades of colour in Mr. PRITZEN's specimen were peculiar.

AWARDS.

Caladium A. Sieberti.—A narrow-leaved variety from C. Refus and C. albansense. The leaves have very wavy margins, are dull-red in colour, but green towards the edges. From F. SANDER & CO., St. Albans (Award of Merit).

Caladium Marie Mitjana.—A fine rose-coloured variety, sent for trial at Chiswick by Mr. J. P. McLeod, Dover House Gardens, Roshampton (Award of Merit).

Carnation Heather Bell.—A border variety, having large yellow-ground flowers, with rose edgings; surface of flower when fully expanded rather flat; calyx excellent, non-splitting. From Mr. DOUGLAS (Award of Merit).

Carnation Rosalind.—A border variety, with dark maroon self-coloured flowers, of very good form. From Mr. DOUGLAS (Award of Merit).

Carnation The Baron.—A border variety, having flowers with a white ground, very deeply edged with maroon or deep crimson; rather high flower, and scented. From Mr. DOUGLAS (Award of Merit).

Delphinium Michel Lando.—A very deep blue variety, with immense spikes of large double flowers. From Messrs. JAS. VEITCH (Award of Merit).

A Rose, White Maman Cochet.—A very beautiful Rose, white, with faint marking of bluish-pink on margins of petals. From W. PAUL & SON, Waltham Cross (Award of Merit).

Rose Cadieu Ramey.—A hybrid Tea variety, very pale rose, creamy-white at base of petals; high-centred, and of very fine form. From W. PAUL & SON, Waltham Cross (Award of Merit).

Sweet William, "Elizabeth".—A variety of a peculiar tint of red, popularly described as "crushed Strawberry." From Viscountess ENFIELD, Dancer's Hill, Barnet (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. W. Thompson, H. T. Pitt, De B. Crawshaw, T. B. Haywood, F. J. Thorne, H. Ballantine, H. M. Pollett, T. W. Bond, J. Douglas, E. Hill, J. Jaques, W. Watson, W. H. White, W. H. Young, H. J. Chapman, and Jas. O'Brien, Hon. Sec.

The numerous exhibits well accorded with the objects of the Hybrid Conference, though in the matter of Orchids, perhaps, fewer really distinct and showy new plants appeared than at some of the ordinary meetings at the Drill Hall. Two plants were entered for the Veitch Memorial Gold Medal for the best hybrid Orchid not previously shown, the exhibits being the beautiful *Cypripedium × Schillerianum* (*Gowerianum × Rothschildianum*), sent by Captain G. W. LAW-SCHORFIELD (gr., Mr. Shill); and *Odontoglossum × crispum* *Halli* var. *Crawshayanum*, sent by De B. CRAWSHAW, Esq.; The *Cypripedium* was adjudged the Medal, but ultimately it was withdrawn, both plants having been previously exhibited, and therefore not eligible.

Sir TREVOR LAWRENCE, Bart., Driford (gr., Mr. W. H. White), staged an interesting group, the centre of which was a splendidly-flowered example of *Vanda × Miss Joaquim* (terres × *Hookeriana*), together with an inflorescence of *V. teres*. Other interesting exhibits were *Cypripedium × Elinor* (*Selligerum majus × C. superbiens*), with good examples of both parents, the fine specimen of *C. superbiens* (Veitch), having eleven flowers; *C. × grande atratum* (*longifolium × caudatum*), with the parents; *C. × Dominianum*, *C. × Clinkaberryanum*, with its parents; *C. Curtisii* and *C. Phillypense*; *C. × porphyrochlamys* var. *Fraseri*, with the plants from which it was derived; also *Masdevallia × Hinceliana*, *M. × Ajix*, and *M. × Parlatoneana*, with as many of their parents as were procurable in flower, a rule observed throughout the group, which also contained *Dia × Kewensis*, *Epiphronitis × Veitchii*, *Cattleya × Breanteana*, and other fine hybrids, including a noble *Odontoglossum × excellens*.

Messrs. JAS. VEITCH & SONS, Chelsea, staged a very remarkable group of hybrids, and the agents used in obtaining them, the whole serving as an excellent illustration of the good work which they have so untiringly pursued for so many years. The showy varieties of *Laelio-Cattleya × Aphrodite*, *L.-C. × Canhamiana*, and other fine hybrid *Laelio-Cattleyas*, in company with their scarcely less showy parents, made a really fine display.

Noticeable also was the delicately-tinted *Sobralia × Veitchii*, together with *S. macrantha*, and *S. xantholeuca*, from which it sprang; *Epiphronitis × Veitchii*, still the most brilliant of hybrids of moderate size; *Cattleya × End* (*Mossie × Warscewiczii*), the fine orange-scarlet *Epidendrum × radicante-vittatum*, *Dia × Veitchii*, *D. × Diores* var. *Clio*, *D. × Langleyensis*, and *D. × Kewensis*; *Phalenopsis × Luddie-vioacea* and parents, *Epidendrum × Wallisii-ciliare*, *E. × Langleyensis*, *E. × Eudresio-Wallisii*, *E. × O'Brienianum*, and other *Epidendrum*s, together with their progenitors in most cases, or one of them; *Masdevallia × Gairiana*, *M. × Inogen*, in two very dissimilar forms; *Laelio-Cattleya × Zephyra*, *L.-C. × Felix* (*L. crispata × C. Schilleriana*), one of the Domin set of Veltchian hybrids, or rather a *Sedenian* resurrection of it. With these were arranged *Odontoglossum × excellens*, with its parents, *O. Pescatorei* and *O. trimphans*, *Spathoglottis × aureo-Veillardii*, and various good hybrid *Cypripedium*s, &c.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), staged an effective group of fine showy things, comprising *Laelio-Cattleya × Aphrodite splendens*, *L.-C. × Canhamiana*, *L.-C. × eximia*, *L.-C. × Arnoldiana*, *Cypripedium × Gertrude Hollington*, *C. × macropterum*, *C. Stori candidum*, *Laelia tenebrosa gigantea*, and a noble form of *Cattleya Warscewiczii*, together with, in some cases, the parents of the hybrids.

Messrs. HUGH LOW & CO., Enfield, contributed an interesting group, the *Cypripedium*s being specially well represented by the noble *C. × l'Ansonii*, with its parents, *C. Morganii* and *C. Rothschildianum*; most of the other *Cypripedium*s, which included *C. × Alfred Hollington*, *C. × T. W. Bond*, *C. × Alice*, *C. × Milmanii*, *C. × macropterum*, *C. × De Witt Smith*, and *C. × Lawrencei-Mastersianum* being staged with their progenitors. Also in the group were *Cattleya crocata albena*, *C. Mendeli entfieldensis*, and *C. Gaskelliana entfieldensis*, all three good whites, with a slight tinge of colour; the fine *C. Gaskelliana rosea*, a brilliant dark scarlet *Dendrobium sanguineum*, the pretty *D. barbatulum*, &c.

Messrs. F. SANDER & CO., St. Albans, staged an interesting set of hybrid *Cypripedium*s, of which *C. × Lady Maple* (*Youngianum × Gowerianum*), with its delicately rose-tinted upper sepal was the prettiest. The others were *C. × Garbari* (*Lawrenceanum × Rothschildiana*), *C. × Duchess of Sutherland* (*Youngianum × Rothschildiana*), *C. × Premier* (*Beedense × Rothschildianum*), *C. × A. de Lairesse* (*Curtisi × Rothschildianum*), and *C. × Comte Adrien de Germiny* (*Swanlianum × Rothschildianum*).

De B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed the fine white *Odontoglossum crispum* "Mrs. De B. Crawshaw," and the finely blotched *O. c. Crawshayanum*.

M. CHAS. MARON, Brunoy, France, showed a fine group of showy hybrid *Laelio-Cattleyas*, among which the forms of *L.-C. × Aphrodite*, *L.-C. × callistoglossa*, and allied hybrids were very telling. One unnamed seedling, supposed to be between *Cattleya Schroderae* and *Laelia purpurata Schroderiana*, was a charming cream-white flower tinged with clear rose or peach-blossom tint. Three plants of M. MARON's hybrid *Laelio-Cattleya × radiata* (*L. purpurata × C. Walkerianum nobilior*), well represented it. *Laelia × nigrescens*, *L. punila × L. tenebrosa* was a distinct richly-coloured flower, and all the other pretty and distinct things, especially *L.-C. × Berthe Fournier* (*L.-C. × elegans × C. aurea*).

WALTER COBB, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes), showed the fine *Cypripedium × l'Ansonii*, and *Catasetum callosum* bearing flowers of both sexes, and therefore very interesting. C. L. N. INGRAM, Esq., Elstead House, Godalming (gr., Mr. T. W. Bond), showed *Cattleya × Firebrand* (*Schilleriana × Lawrenceana*), a pretty flower of good substance, with sepals and petals tinged with bright rose-purple, the front lobe of the lip being bright purple.

A. H. SWEE, Esq., The Grange, Hackbridge (gr., Mr. Humphry), sent the singular *Microstylis congesta*. C. C. HURST, Esq., Burbage, Hincley, sent an interesting exhibit of un-flowered plants of *Cypripedium × Phito*, raised from seeds obtained by Reginald Young, Esq., and in which the foliage exhibited the most remarkable variation, both in form and marking.

Mr. GEO. HANSEN, of Seble Track, Berkeley, California, submitted his useful and now well-known work of enumeration of hybrid Orchids and their derivation, for which the Committee recorded a Vote of Thanks.

AWARDS.

FIRST-CLASS CERTIFICATE.

Cattleya Harrisonii alba.—A true, absolutely white albino, from the Rev. F. PAYNTER, Stoke Hill, Guildford (gr., Mr. Cooke).

Laelio-Cattleya × Duraliana (*C. Luddemanniana × L. purpurata*).—A fine hybrid, of the usual form of the section. Sepals and petals tinged with rosy lilac, the large and peculiarly elongated front lobe of the lip dark claret-purple.

AWARD OF MERIT.

Laelio-Cattleya × Martini (*C. Mossie ♀; L. tenebrosa ♂*).—A pretty flower, comparable to *L.-C. × Gottoliana*, and bearing much resemblance to *Cattleya maxima*. Flowers lilac-rose, the lip heavily veined with purple. From Mr. CHAS. MARON, Brunoy.

Cypripedium Stonei candidum.—A distinct variation, in which the upper sepal is wholly white, some rose-coloured markings being on the reverse side. From Sir Frederick Wigan, Bart. (gr., Mr. W. H. Young).

Laelia tenebrosa gigantea.—A very large form, with brownish copper-coloured sepals and petals, and dark-rose lip, heavily marked with purple. From Sir F. Wigan, Bart.

Epilobium x *Charlesworthii* (D. cinnabarina x E. radicans).—A bright addition to the elegant, free-flowering, orange-scarlet hybrids of E. radicans. From Messrs. James Veitch & Sons.

Tailor-Cattleya x *Adolphus* (L. cinnabarina x C. Acklandiae).—A very quaint-looking little novelty, with Indian-yellow flowers, the sepals and petals bearing a few claret-coloured spots, and the rounded front-lobe of the lip being also rosy-purple. From the Rev. F. PAYNTER, Stoke Hill, Guildford (gr., Mr. Cooke).

Cypripedium x *Skullianum* (Gowerianum (Lawrenceanum ?), Curtissii) x *Rothschildianum*.—A grand flower, and one of the finest of its class. Dorsal sepal very large, white, very slightly tinged with rose, and bearing distinct purple lines. Petals long, and almost horizontally extended, of the form of those of C. Rothschildianum, but broader; pale yellowish-green, with a few white lines, and many dark chocolate blotches, those on the margin being hairy; lip large, brownish-rose. Stamens clearly indicating C. Rothschildianum. From Captain G. W. LAW-SCHOWILD, New-Hall-Hey, Rawtenstall, Manchester (gr., Mr. Shill).

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. J. W. Bates, H. Balderson, Alex. Dean, P. C. M. Veitch, James Smith, John Basham, Geo. Woodward, A. H. Pearson, Robt. Fife, J. Gleason, A. F. Barron, W. Pope, G. Norman, W. H. Divers, Prof. Hugo de Vries, Jas. H. Veitch, W. Poupard, J. Willard, G. T. Miles, Chas. Herrin, J. Clive, and S. Mortimer. LEOPOLD DE ROTHSCHILD, Esq. (gr., Mr. Hudson), Gunnersbury House, Acton, W., showed 10 varieties of dessert cherries in boxes, as packed for transit. These consisted of extra fine fruits of Black Circassian and Bigarreau Napoleon, both gathered from trees 50 years planted, and of which the crops are heavy; Early Rivers, Emperor Francis, Bigarreau de Schrecken from younger trees were equally fine, both in quality and size; other excellent kinds were Black Eagle, later than Black Circassian; Late Black Bigarreau, Frogmore Early Bigarreau, and Governor Wood. These fruits made a fine show, being illustrative of cherry culture within a few miles only of Charing Cross. The soil upon which these trees are growing is a light loam, resting on gravel overlying the London Clay (Silver-gilt Knight Medal).

Messrs. LAXTON & SONS, Bedford, showed dishes of Waterloo, Latest-of-All, and Climax Strawberries; also upwards of a dozen varieties of Culinary Peas.

A purple-podded Pea, named Nero, was shown by Sir THOMAS LAWRENCE, Bart., Bedford.

Messrs. W. PAUL & SON showed two early-fruited varieties of Apricot, named Early Boulton and Domazon. Standard trees were shown, well fruited.

AWARDS.

Raspberry, *Golden Queen*.—This is described as a cross between Raspberry Superlative and Rubus laciniatus. The fruits are large and of good quality, similar to Superlative, but in colour yellow. It will probably make a fine companion for Superlative. From Messrs. JAS. VEITCH & SONS, Chelsea (First Class Certificate).

Strawberry, *Lord Kitchener*.—Described as a cross between the varieties Waterloo and British Queen. The seedling is an excellent bearer, and will be a mid-season variety. The fruits are dark coloured, roundish in shape, of pleasant flavour, somewhat suggestive of Keen's Seedling. From JAS. VEITCH & SONS, Chelsea (Award of Merit).

Pea, *Glorie de Devon*.—A fine large Pea in long pods, which contain about eight or nine each. ROBERT VEITCH & SON, Exeter (Award of Merit).

HANLEY HORTICULTURAL FÊTE.

JULY 5.—The third annual exhibition was held on the above date, and was well attended by the public. The exhibits in general were far in advance in quality of those at the two previous exhibitions.

Groups of plants, arranged for effect, are a fine feature at this show; and very good indeed was the group covering 300 square feet, from Mr. Blair, gr. to his Grace the Duke of Sutherland, Trentham Hall, who won the 1st prize. *Odontoglossum crispum*, *Madevillias*, *Cattleyas*, *Codiazums*, *Cordylines*, *Acalyphas*, &c., were used to splendid effect, with larger growing ornamental species. Mr. J. CYPHER, Cheltenham, was 2nd.

Smaller groups, occupying 150 feet space, were shown by Gentlemen's Gardeners and Amateurs in the counties of Stafford, Chester, Salop, and Derby. Mr. Howson, The Elms, Hanley, was placed 1st.

The best group of Orchids in bloom on a space not to exceed 100 square feet, was shown by Mr. W. STEVENS, gr. to W. THOMPSON, Esq., Walton Grange, near Stone, who put up a lovely group of his well-known *Odontoglossums*, *Cattleyas*, and other species. Mr. J. CYPHER was 2nd with a very good group, in which were some very fine varieties.

Malmesbury Carnations were shown in groups of 100 square feet, and the best exhibit was made by Mr. P. BLAIR. A very nice group was also shown by Mr. Goodacre, gr. to the Earl of Harrington, Elvaston.

Mr. J. CYPHER had the best collection of twelve stove and greenhouse plants, including fine specimens of *Anthurium Scherzerianum*, *Erica ventricosa*, *Statice profusa*, *Crotona*, *Flambeau* and *Queen Victoria*, *Ixora nallifolia*, *Bougainvillea Sandersoniana*, and *Stephanotis floribunda*.

ROSES.

Roses were very finely shown. Messrs. A. DICKSON & SONS, Newtownards, Ireland, were 1st for a collection of forty-eight varieties; and Messrs. TOWNSEND & SONS, Worcester, 2nd.

For thirty-six varieties (open), Messrs. A. DICKSON & SONS and Messrs. TOWNSEND were again 1st and 2nd respectively.

Messrs. PERKINS & SON, Coventry, followed Messrs. A. DICKSON & SONS for twenty-four varieties; and Messrs. PEARSON & SONS, Chilwell, Nottingham, followed Messrs. DICKSONS in a class for twelve varieties.

Messrs. TOWNSEND & SONS had the best collection of twelve Tea Roses; and Messrs. DICKSON & SONS were 2nd.

The best dozen blooms of one variety was Mrs. John Laing, from Messrs. TOWNSEND & SONS.

In the amateurs' classes, the best collection of twenty-four varieties was shown by Mr. WILLIAM PYATT, Newcastle.

OTHER CUT-FLOWERS.

The best display of floral arrangement in a space of 20 feet by 5 feet, for which the 1st prize was £10, was made by Messrs. JENKINSON, Newcastle; Mr. WILLIAM VAUSE, Leamington, being a good 2nd; and a Manchester firm 3rd.

Messrs. JENKINSON & SON had also a very conspicuous success in the classes for bouquets of various descriptions.

A class for a decorated dinner-table with flowers, foliage, and fruit upon a table 8 feet by 4 feet, was a very pretty one: Mr. GOODACRE was 1st with a table neatly arranged with *Odontoglossums*, *Madevillias*, *Cattleyas*, and *Ferns*, also fine White and Black Grapes, Peaches, Nectarines, Melons, Strawberries, and Cherries. Mr. McINDOE, gr. to Sir J. W. PRASE, Bart., was 2nd; and Mr. J. EDMONDS, Bestwood Gardens, Nottingham, 3rd.

FRUITS.

The best collection of ten dishes of fruits was from Mr. GOODACRE, who had very fine Muscat and Black Hamburg Grapes, Frogmore Scarlet and Locking Melons, Bellegarde and Chancellor Peaches, Early Rivers and Elruge Nectarines, Strawberries, and Cherries. Mr. BANNERMAN, gr. to Lord BAGOT, Blithfield, was 2nd; and Mr. J. McINDOE, 3rd.

The best Black Hamburg Grapes were from Mr. GOODACRE; and the best exhibit of any other black variety, was from Mr. A. HALL, gr. to J. C. WATERHOUSE, Esq., Prestbury.

For Muscat of Alexandria Grapes, Mr. J. McINDOE was 1st; and for any other white variety, Mr. A. H. HALL won.

There were good Peaches, Nectarines, Melons, Figs, Cherries, and Strawberries, in special classes.

MISCELLANEOUS EXHIBITS.

There were trade exhibits from the following firms:—Messrs. CUTBURN & SONS, Highgate; J. VEITCH & SONS, Chelsea; HILL & SONS, Edmonstone; DICKSONS, LTD., Chester; OLIVER & SONS, Altrincham; BARR & SONS, London; HARTLAND & SONS, Cork; CHARLESWORTH & CO., Bradford; JONES & SON, Shrewsbury; CLAPHAM & SONS, Stockport; JARMAN & CO., Chard; COWAN & CO., LTD., Gatcombe, Liverpool; W. & J. BIRKENHEAD, Sale; WEBB & SON, Stourbridge; Mr. WM. SYDENHAM, Tamworth; Mr. PATTISON, Shrewsbury; Mr. ECKFORD, Wem, Salop; and the Executors of J. H. WHITE, Worcester.

NATIONAL ROSE, COLCHESTER.

JULY 6.—A few particulars, communicated by telegraph, of this show were given in our last issue. The enjoyment of the afternoon was marred by a storm of rain, accompanied by thunder and lightning, which lasted rather more than half an hour.

MIXED ROSES.

As Mr. BENJAMIN R. CANT's collection of thirty-six blooms (distinct), which won the Jubilee Trophy Class, was the best collection from the point of view of quality that has been shown this year, and included two Medal blooms, we append the varieties. Back row: Alfred Colomb, Madame Eugénie Verdier, Marie Baumann, Marchioness of Dufferin, Dupuy Jamain, La France, Ulrich Brunner, Marchioness of Londonderry, Marquise de Litta, Her Majesty, Gustave Pignanneau, and Mrs. John Laing. Centre Row: White Lady, Horace Vernet, Maman Cochet, Crown Prince, The Bride, Helen Keller, Mrs. Sharman Crawford, Prince Arthur (Medal Bloom), Innocente Pirola, Earl of Dufferin, Muriel Grahame, and Comtesse de Ludre. Front row: Mrs. W. J. Grant (Medal bloom), Mrs. Cocker, Dr. Andry, Comtesse de Nadailac, Madame Cusin, Bridesmaid, Tom Wood, Duchess de Morny, Madame de Watteville, E. Y. Teas, and Catherine Mermet. Messrs. D. PRIOR & SON, Mylands Nursery, Colchester, were 2nd; and Messrs. HARKNESS & SONS, Bedale and Hitchin, were 3rd.

Mr. B. R. CANT's 1st prize blooms in the class for seventy-two flowers, distinct, were also of very high quality. He was followed by Messrs. FRANK CANT & CO., Bralswick Nursery, Colchester.

Mr. B. R. CANT was again successful for 1st prize in a class for thirty-six trebles, and his most glorious triplets were of the varieties: Mrs. W. J. Grant, Earl of Dufferin, Madame Gabriel Luizet, Mrs. John Laing, Her Majesty, Duchess de Morny, and Marquise de Litta. Messrs. FRANK CANT & CO. were 2nd.

Messrs. D. PRIOR & SON won 1st prize for thirty-six blooms distinct, competitors in the two preceding classes being debarré. Throughout this class, in which were exhibits from Messrs. G. & W. H. BURCH, Peterborough, 2nd, and Messrs. J. BURRELL & CO., Cambridge, 3rd, the quality of the Roses was quite up to the average.

Messrs. D. PRIOR & SON were 1st in the same division for eighteen trebles, being followed by Mr. CHAS. TURNER and Messrs. G. & W. H. BURCH.

Colchester Firms Excluded.—Messrs. PAUL & SON, Cheshunt, won a class for twenty-four blooms, distinct, no grower within seven miles of Colchester to compete. Messrs. HARKNESS & SONS, and Mr. GEO. PRINCE, Oxford, were 2nd and 3rd respectively. There was not the fulness or weight in these blooms that characterised those in the open classes.

Amateurs.—Mr. E. B. LINDSELL's varieties which won the Amateurs' Jubilee Trophy were—Front Row: Her Majesty, Earl Dufferin, La France, Ulrich Brunner, Marchioness of Londonderry, Chas. Lefebvre, Mrs. John Laing, and Gustave Pignanneau. Centre Row: Marie Baumann, Maman Cochet, Horace Vernet, Muriel Grahame (Medal bloom), Prince Arthur, Innocente Pirola, Susanne Marie Rodocanachi, Merville de Lyon. Front Row: Mrs. S. Crawford, Capt. Hayward, Comtesse de Nadailac, F. Michelon, Souvenir d'Elise, Madame G. Luizet, White Lady, Madame E. Verdier. 2nd, Rev. J. H. PEMBERTON, Havering-atte-Bower, Romford, who had good and even flowers; 3rd, Mr. O. G. ORPEN, Hillside, West Bergholt, Colchester, and secretary to the Colchester society.

The Rev. J. H. PEMBERTON won the following class for thirty-six varieties, and though there was not the size and quality that was present in Mr. Lindsell's exhibit in the previous class, the flowers were good; Mr. LINDSELL was 2nd.

Mr. E. B. LINDSELL showed a beautiful exhibit of eight distinct trebles, La France and Madame Cusin being very effective.

Mr. O. G. ORPEN had the best nine blooms of any Rose other than Tea or Noisette in Kaiserin Augusta Victoria.

Among the growers of fewer than 2000 plants, Mr. ED. MAWLEY (who was busy and courteous as usual) was very successful, winning 1st prizes for eighteen blooms, distinct; six distinct trebles, and six blooms of any Rose other than a Tea or Noisette, showing in this class the variety Mrs. John Laing.

Of growers of fewer than 1000 plants, prizes were taken by Rev. A. C. JOHNSON, Chapel St. Mary; and Mr. J. T. THOMPSON, Round's Green, London, N.

In the Mayor of Colchester's class, the quality of Mr. O. G. ORPEN's Roses was capital. The varieties were—Her Majesty, François Michelon, La France, Gustave Pignanneau, Grand Mogul, Mrs. W. J. Grant, K. A. Victoria, Ulrich Brunner, Marquise de Litta, Sylph, Horace Vernet, and The Bride. The Rev. A. FOSTER-MELLIER and the Rev. J. H. PEMBERTON followed.

TEAS AND NOISETTES.

Messrs. FRANK CANT & CO. won the class for twenty-four blooms, distinct, with the following varieties:—Back row: Madame de Watteville, Muriel Grahame, Souvenir d'un Ami, Souvenir de S. A. Prince, Madame Cusin, The Bride, Catherine Mermet, and Maman Cochet. Centre row: Medea (very pretty), Golden Gate, Madame Hoste, Maréchal Niel, Cléopatra, Bridesmaid, Innocente Pirola, and Souvenir d'Elise. Front row: Sylph, Anna Ollivier, Ernest Metz, Jules Finger, Comtesse de Nadailac, Hon. Edith Gifford, Marie Van Houtte, and Ethel Brownlow. Mr. B. R. CANT followed; and in Mr. GEO. PRINCE's 3rd prize collection was a magnificent bloom of the lovely variety, Maman Cochet (awarded a Medal).

Messrs. HARKNESS & SONS won for twelve blooms, and following Messrs. BURRELL & CO., the 3rd prize was won by Mr. A. ACQUISTO GREEN, a new grower, who has commenced a nursery in the vicinity of Colchester.

AMATEURS.

The Colchester Medal and 1st prize, for eighteen blooms, distinct, was won by the Rev. A. FOSTER-MELLIER, with the following varieties:—Back row: Madame de Watteville, Madame Willermos, Catherine Mermet, Niphotos, Maman Cochet, Golden Gate. Centre row: The Bride, Comtesse de Nadailac, Innocente Pirola, Muriel Grahame, Souvenir de S. A. Prince, and Souvenir d'Elise. Front row: Souvenir d'un Ami, Bridesmaid, Marie Van Houtte, Sylph (capital), Corinna, and Hon. Edith Gifford. 2nd, OSWOND G. ORPEN, Esq.

Mr. ORPEN had the best nine blooms of any one variety in Souvenir de S. A. Prince; the Rev. FOSTER-MELLIER following with Anna Ollivier.

Of growers of fewer than 200 plants, the Rev. F. PAOR ROBERTS, Scole, and Mr. R. W. BOWYER won 1st prizes.

OPEN CLASSES.

Messrs. FRANK CANT & CO.'s varieties, which won 1st prize for twelve blooms of the newer Roses were: Mrs. Frank Cant, Tom Wood, Madame Cadeau Ramey, Marguerite Appert, Mr. F. W. Sanford, Antoine Rivoire, Robert Duncan, Ellen Drew, Countess of Caledon, Beauté Lyonnaise, Empress Alexandra of Russia, and Muriel Grahame.

The best white Rose in dozens was Marchioness of Londonderry, from Messrs. PAUL & SON; Mr. B. R. CANT's White Lady, being 2nd. Mr. PRINCE, of course, had the best yellow Rose in Comtesse de Nadailac; and Marie van Houtte, from Mr. R. CANT, was 2nd.

Mrs. John Laing was again declared to be the best light pink or rose-coloured variety, and was from Mr. B. R. CANT. Messrs. HARKNESS & SONS were 2nd with the same variety.

The best dark crimson Rose was Gustave Pignanneau.

Mr. B. R. CANT beat Messrs. FRANK CANT & CO. for a collection of Teas and Noisettes, twelve varieties, in trebles.

GARDEN OR DECORATIVE ROSES.

Messrs. FRANK CANT & CO. won a class for eighteen varieties, and they were well shown; they were W. A. Richardson, Reine de Wurtemberg, Rosa rubra, Crimson Rambler, Hebe's Lip, Barbon Job, Madame Pernet Ducher, Laurette Messimy, Madame Falcot, Marquis of Salisbury, The Garland, L'Idéal, Madame Chodane Guilloiseau, Camosine, Rainbow, Ma Capucine, Gustave Rogis, and Souvenir de Catherine Guillot. Messrs. PAUL & SON were 2nd.

Amateurs.—There was only one class in each section for the garden Roses, and Mr. O. G. ORPEN won the amateurs' class for twelve distinct varieties. The single whites, Hebe's Lip and Rosa Alba were very fine; and Noisette, The Garland, pure white semi-double, was beautiful; 2nd, Rev. J. H. PEMBERTON.

THE DINNER.

THE Festival Dinner, which terminated the proceedings of the Conference on Hybridisation, took place at the Whitehall Rooms, Hôtel Métropole, London, on Wednesday, under the presidency of Sir TREVOR LAWRENCE, Bart., the President of the Society, about 130 ladies and gentlemen being present. The usual loyal toasts, proposed by the President, having been fittingly disposed of, the Rev. Prof. HENSLOW, in the unavoidable absence of Sir MICHAEL FOSTER, K.C.B., proposed "Horticulture." He said that gardening as now understood was unknown to the ancients, which might partly be accounted for by the profusion of beautiful flowering plants in Greece, Italy, and the Levant; and even in the middle ages gardens were to be found in the monasteries, and nowhere else. He then briefly followed gardening through later ages up to the present time, and the institution of the Horticultural Society of London, now the Royal Horticultural Society, about 100 years ago, and the great results that have followed its establishment.

This toast was responded to by Mr. HERBERT J. WEBBER, special envoy from the United States Department of Agriculture. He brought, he said, the friendly greeting of American horticulturists. It seemed to him, from what had been brought out on this occasion, that we are merely on the threshold of the matter, and it was a great misfortune that no reward awaited the originator of a new plant or variety. He considered that more honour was due to him who brought out a new plant than to him who but reproduced it afterwards.

M. HUGO DE VRIES spoke also to this toast. There was, he said, formerly very little continuity in the hybridiser's efforts; now, however, in various research stations this kind of work is being systematically and continuously carried on, with much good result to the community at large. Having made up their minds what was wanted—say a late-flowering or hardy Orange—they worked till it was produced; and so with many other things. Hybridising was applied botany, and improvement of existing species and the creation of new forms was the aim of this Conference, and nothing would help on the good work like continuity.

M. H. DE VILMORIN also spoke to the toast, choosing as his chief point the anticipation of the results of hybridisation of plants for house and open-air culture, and thus we should be enabled to compete with, and eventually exclude foreign competition.

The toast, "Hybridists," was proposed by Mr. W. BATESON, F.R.S., who advocated the union of science with practice. The practicals, he said, thought the gain would be on their side, but he believed the scientists alone will gain. Science was something like a shirt which the Irishman brought to be attached to a button. In this connection Mr. BATESON alluded to the value attached in the United States of America to work done at the numerous research stations scattered over the land. Here we are "quite out of it," and we greatly need some permanent home for research and scientific investigation. The fruits of this Congress would hereafter be judged by "First-class Certificates."

Mr. WALTER T. SWINGLE responded. It was England which produced the first horticultural society, and it seemed to him impossible to over-estimate the importance of hybridisation on the future of horticulture.

The toast, "The Royal Horticultural Society," was proposed by the MASTER OF THE ROLLS, who in the course of a sympathetic speech alluded to the great Chiswick shows which he was old enough to remember, and which attracted the great world of London to the Society's gardens. Mention was made of the fine shows held in the Botanic Society's Gardens, Regent's Park, and of the work done by the Royal Horticultural Society in sending collectors to China, Japan, California, Mexico, and other countries, special allusion being made to R. Fortune's introductions.

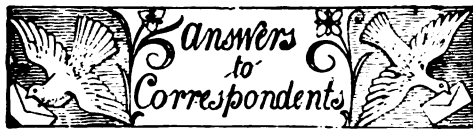
Those were halcyon days for the Society, but there came a change, and they were obliged to pursue a new course. He alluded to the institution of the Scientific Committee and its great importance as a factor in the advance of British gardening, and to the efforts of Sir TREVOR LAWRENCE, to resuscitate the Society and make it a success.

Sir TREVOR LAWRENCE, in responding to the toast, said that the question has arisen how best to celebrate the centenary of the Society. During the 100 years of its existence it has done inestimable service to this country, and he very much doubted if Sir JOSEPH BANKS foresaw the important results that would follow its inception when they met at 147, Piccadilly. FORTUNE's visit to China was one of these, the tea trade having shifted its centre from that empire to our Indian possessions. And again, the introduction of the Mexican and Californian Conifers had imparted great beauty to our parks and gardens. The success of the Royal Horticultural Society in recent years was not due to him, but rather to the determination of the Society to stick to horticulture, and as an instance of this he cited the great increase in the number of Fellows.

Mr. SHEA, in the absence of Sir J. T. D. LLEWELLYN, Bart., proposed the toast "The Visitors," coupling with it the name of the Belgian Minister, and making special allusion to the foreign visitors, as evidence of ties across the water. The Americans differ more in their methods from ours than do the Continental horticulturists, and he contrasted the friendly attitude of their Government departments of agriculture and horticulture with that adopted by similar authorities in this country.

The toast of the Chairman having been proposed by M. MARC MICHEL, of Geneva, and responded to by Sir TREVOR, the function came to an end.

THE HORTICULTURAL CLUB.—The informal Dinner of the Horticultural Club, when the foreign visitors to the Royal Horticultural Society Conference were entertained on Tuesday last, proved a great success, and the utmost good feeling was expressed by the guests, who greatly appreciated the entertainment. Mr. HARRY J. VEITCH presided, in the absence of Sir JOHN T. D. LLEWELLYN, Bart., M.P., whose Parliamentary duties obliged him to quit early. Messrs. VEITCH supplied fine Roses, flowers and plants for the tables, and Messrs. BUNYARD some fifteen kinds of Kent Strawberries, which astonished the visitors; Messrs. RIVERS orchard-house Cherries; and Mr. GEO. MONRO Cherries from the open.



* * We are compelled to hold over until next week, several reports of Horticultural Shows, including a very successful one held at Wolverhampton.

CARNATION SOUVENIR DE LA MALMAISON: W. Hurlston. Very fine, not over-large blooms. Kindly send photo, and remarks on the cultivation of the varieties as suggested.

CLOTHING A DRY SUNNY BANK: J. J. M. The best sort of plant for a dry bank, and one that looks like grass, is *Pyrethrum Tchihatchewi*. It flowers in early summer, but not for a long season. The seeds should be sown in pans, and the seedlings when large enough transplanted, and finally set out permanently.

CORRECTION.—Mr. L. H. Bailey, of Cornell University, in a communication received as we go to press, states that Bechtel's Crab, figured in *Gardeners' Chronicle*, p. 397, as *Pyrus coronaria*, is the Prairie States Crab, *Pyrus ioensis*, and refers us to his *Native Fruits*, p. 261.

LAURELS: Mr. E. C. The best season for pruning the young growth of the Common and Portugal

Laurels is the latter half of the present month and the first half of August. The knife or *secateur* only should be used. A small growth of leaves will soon take place, which will hide the scars of the operation, and but very little pruning will be needed for the rest of the year.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—W. H. D. 1, *Calla palustris*; 2, *Scilla peruviana*.—E. S. R. 1, *Sedum rupestre*; 2, *S. album*; 3, *S. sexangulare*; 4, *Sempervivum montanum*; 5, *S. Ewersii*, all finely grown; 6, *Campanula persicifolia*.—The *Bothy-men*. Always glad to be of service to you, especially when you help us so much by your own notes. 1, *Arum dracunculoides*; 2, *Scabiosa caucasica*; 3, *Tradescantia virginica*; 4, *Rubus odoratus*; 5, *Rhus Cotinus*; 6, *Spiraea aruncus*.—T. C. H., Yorks. Probably a very light form of *Stanhopea oculata*.—N. D. P. *Maxillaria nigrescens* and *Epidendrum pallidiflorum*.—M. McD. 1, *Syringa Josikaea*; 2, *Eranthemum aureo-reticulatum*; 3, *Polypodium glaucophyllum*; 4, *Davallia pentaphylla*.—F. C. Carefully packed, but the numbers on the labels obliterated. *Achillea*, *Hypericum perforatum*, *Spiraea Douglasii*, *Sedum spectabile*, *Limnathes Douglasii*, *Tropeolum polyphyllum*; 6, *Linaria vulgaris*.—W. J. K. *Rhodochiton volubile*.—Alpha. Dodder, *Cuscuta Europea*. Pull up every scrap and burn, also the affected plants.—B. D. 1, *Dendrobium thyrsiflorum*; 2, *Dendrobium clavatum*; 3, probably an *Ipomoea*, send flowers; 4, not recognised; 5, *Escallonia macrantha*; 6, *Adiantum macrophyllum*.—E. H. Thornton House. *Cianthus Dampieri*; five samples.—R. T. D. *Oncidium Batemanianum*; the number of flowers varies according to the strength of the plants. K. I. T. T. 1, *Adiantum capillus-veneris daphnites*; 2, *Nephrodium molle*; 3, *Nephrolepis tuberosa*; 4, *Phytolacca decandra*; 5, cannot name from leaf alone; 6, *Erigeron speciosus*; 7, *Hieracium aurantiacum*.

PEACHES DROPPING: W. F. This malady may be due to a variety of causes, a fertile one being dryness at the root, and less so an excessive crop; although dropping even then does not take place unless accompanied by dryness of the soil. We advise you to examine the state of the border to a depth of 2 or more feet. The applications of some artificial manure (perhaps of an improper kind), of fowl's dung, and of Thomson's Vine and Clay's fertiliser, seem to err on the side of excess, and may have something to do with the dropping. There is far too much of this sort of indiscriminate manuring of fruit-trees under glass going on in gardens.

PEAR LEAVES: W. B. Your assumption is right; the pest is known as the Pear-midge (*Diplosis pyrivora*). If these be very numerous, and you can cover the trees with a cloth, many of the flies might be killed by fumigation. But they have wings, and if your neighbours do not adopt vigorous measures also, you will find it difficult to keep the trees clear of them.

TOMATO: Tomato. The fruit is attacked by the black spot fungus (*Cladosporium lycopersici*). Burn all affected fruits, and syringe the plant with sulphide of potassium, $\frac{1}{2}$ oz. to 1 gallon of water. Wash all fruits before using them.

TOMATO-LEAVES: Hogg & Robertson. The Tomato-leaves were almost putrid on arrival, so were useless for getting a reliable result. We might try again with material better packed.

ZONAL PELARGONIUMS: F. Cozens. The varieties have considerable merit, but we cannot appraise their value from a flower sent through the post in hot weather. Obtain the opinion of one of the large traders in these plants, but first give him the opportunity to see your plants as they are growing.

COMMUNICATIONS RECEIVED.—W. D. & Sons.—A. O'N.—W. P.—W. D.—J. Wallis.—E. H. J.—D. T. F.—A. H.—R. D.—E. M.—S. A.—J. S.—C. T. D.—A. V. M.—E. C.—M. C. L.—W. S.—A. P.—Cromdale.—A. D.—Kent & Brydon.—J. L.—H. W. R.—J. J. W.—W. S.—J. C.—& Co.—A. & Co., Ltd.—H. G. S.—Anxious.—J. W.—P. Knowles.—J. H.

DIED.—At 60, South Audley Street, London, W., suddenly, JANET ELDER, wife of Walter Mackay, florist. All friends accept this, the only intimation.

(For Markets and Weather, see p. viii.)



THE Gardeners' Chronicle

No. 656.—SATURDAY, JULY 22, 1899.

THE DEODAR AND LARCH.

I HAVE referred to these two species in your pages before, and I am more than ever convinced that if a substitute for the Larch is wanted, the choice is between the Corsican Fir and the Deodar; and if I wanted to plant a mixture of Firs, I would plant Larch, Deodar, and Corsican Fir. I should then probably have the surest paying crop of timber that could be planted. Of the Larch's value there can be no doubt, because it can always be sold at a paying price. At least, I never knew of a crop of Larch that did not "go off" quickly when offered for sale, unless it was so far from the consumer that the carriage "killed" it. The great fear is the disease. A few weeks back, I saw, in Surrey, a plantation of Larch growing on the poor upper greensand, worth nearly £300 per acre—although not much above fifty years of age, the agent told me. I reckoned the average number of trees and feet to the acre myself. I never saw taller trees for their age, or cleaner, and there was no disease about them; yet on the same estate, and not far off, the young plantations of Larch were diseased. It is still worth while planting Larch in mixed woods, in which the disease is not so liable to spread, but nowhere should it be planted alone, or the loss may be complete. The Deodar (*Cedrus Deodara*) is sure to grow in suitable situations, and it is absolutely free from any destructive disease, unless it be the *Agaricus melleus*, which I have had more trouble with at Wortley than any other disease. It attacks most of the Firs, and kills them when it does; and the reason I think it may attack the Deodar also is, that amongst the great number of fine Deodars growing at Murthly Castle, Perth, that I saw last October, one fine tree had all the appearance of succumbing to this disease. Had the clever forester there, Mr. Murray, not left to take charge of Lord Powerscourt's woods in Ireland, I meant to have asked him to examine the trunk of the tree at the base, where, if the disease existed, the fungus would be found under the bark.

The only drawback to the Deodar, as a general substitute for the Larch is, that it does not always thrive where the Larch does. In the New Forest, where the Scots Fir becomes a fine timber-tree, and most of the Firs grow, the Deodar is a poor sickly specimen. Its home is on the mountain-side and dry uplands, up to at least a thousand feet, in the North of England, and it is not particular as to aspect; but the soil must be dry, very dry. Under these conditions it does not grow as fast as the Larch, but it is not far behind it, and its timber is of more value for all purposes that the Larch is used for, and others. The Deodars at Murthly, according to dimensions sent me by Mr. Murray last year, average about fifty cubic feet each, and as the tree was only distributed about sixty years ago, and might not have been planted at Murthly for sometime after, that number of

feet represents an annual increment in timber of one cubic foot. I could not learn the date of the planting. The above is not the average of a few trees, but of a large number, for there are many at Murthly. The above rate of growth is about the same as at Wortley, where the trees are about eight hundred feet above the sea. At both places the soil is poor and dry. In plantation-culture the trees would not be so bulky, but the number to the acre would be greater, and the feet also, for it is a fact that can be demonstrated, that within properly calculated limits you can get a greater quantity of timber to the acre from a crowded plantation than you could get from an acre of garden—specimens allowed sufficient room to retain all their branches to the ground. I guessed that the space allowed the Murthly trees would allow about fifty trees to the acre, or two thousand five hundred feet of timber in sixty years, worth £125 at the very least, standing, which is a good rent for good, let alone poor, land, and under plantation-culture the quantity of timber would be greater, and the value more.

The Deodar resembles the Larch more than the casual observer might think. Dr. Masters, in his *Notes on the Genera of Taxaceæ and Conifereæ*, says that the resemblance, botanically, of the Larch to the Deodar (*Cedars*) is striking, and from the forester's point of view, I have often thought the same thing. The one being deciduous and the other evergreen is, according to the same authority, a distinctive difference, and no doubt it is; but in this country, under some conditions, the Deodar is deciduous. Trees on eastern exposures I have known to shed their leaves annually for years in succession about the month of March, but otherwise continue quite healthy. The timber, which I have felled at a nearly mature age, is hard, heavy, close-grained, and of the highest commercial value. I doubt if there be any other Fir that equals it in that respect. How well the tree grows as an isolated specimen is well known, but what it might do under plantation culture has got to be proved. That the tree, under such conditions, would grow faster in height, and produce a clean trunk, I do know from examples I have watched for over thirty years, but a regular plantation I have never seen, and the nurserymen's price of eighteen shillings per dozen small plants, is prohibitive. The tree is absolutely safe to plant under the conditions named, and a tree which grows near the snow-line in its own country to a height of one hundred and fifty feet or more, and endures our severest winters with impunity, is a pretty safe subject. On the peaks to the northern side of the Booring Pass, it grows to a height of sixty or seventy feet before branching. *J. Simpson, Wortley.*

THE HYBRIDISATION CONFERENCE.

(Continued from p. 56.)

HYBRID DIOSCOREA.

THE Chinese Yam (*Dioscorea Batatas*) has an elongated tuber, penetrating with its bigger end the soil for 3 to 4 feet, and consequently not easily to be dug up. MONS. P. CHAPPELLIER, in trying to obtain a variety that should not present this disadvantage to the culturist, made a series of hybridising experiments, of which he furnished an account.

He took principally the species *D. Decaisneana*, with a spherical tuber as the seed parent, and crossed it with the pollen of the Chinese Yam, with-

out, however, getting very far towards gaining his end, though obtaining some thousands of seedlings. Most interesting, however, was one individual hybrid he obtained between the two species, for it bore both male and female flowers, these, of course, being restricted to different plants in the parent species; the seeds, however, did not ripen. Another experiment was made in sheer desperation. MONS. CHAPPELLIER tried to cross the pigmy *D. pyrenaica* with *D. Batatas*, but obtained no result whatever.

Monsieur Chappellier briefly alluded also to a hybrid he had obtained from *Mirabilis longiflora* ♀, and *M. jalapa* ♂. This pre-eminently displayed the common characteristics of hybrids to be more vigorous than either parent species, a single plant of the one in question bearing no fewer than four hundred flowers at one time. The plants are also fertile *inter se*, but such variations arise among the seedlings that it is necessary to propagate them vegetatively. Reprints also of his paper on "Recent Hybrids of *Crocus sativa* (*Bul. Soc. Bot. de France*, vol. xlv., Feb. 20, 1897), and others bearing upon the question, were sent to the Conference by M. Chappellier.

PROGRESS IN THE UNITED STATES.

PROFESSOR BAILEY, of Cornell University, in his paper on the progress of Hybridisation in the United States of America, gave a bold summary of results rather than an investigation into specific experiments in hybridisation. In judging the question it must be remembered that the standards are different on the two sides of the Atlantic, because the natural and economic conditions are not the same.

In relation to area, intensive gardening is rarer in America than in Europe; there are relatively fewer glass-houses, less interest in individual plants, and less of the amateur's instinct. On the other hand, larger tracts of land are devoted to horticulture. Fruit-growing is more developed than anywhere else in the world, and greater interest is taken in cosmopolitan varieties.

Again, there is much less interest in hybrids, simply as hybrids. Those hybrids most valued in America are those which fulfil some particular conditions of withstanding sun, or rain, or drought; and it must be remembered that there is as great a diversity of climate in the United States as in the whole of Europe. Hybrid ornamental plants, such as *Cannas*, *Lilies*, &c., are quite common over the water, but they are purchased from Europe; and Professor Bailey suggested that we probably should not care for this to be altered.

The hybridising of fruit trees, Vines, Apples, Plums, &c., with native species, was then gone into in some detail, all the work apparently having been undertaken from an economic standpoint, with a view to obtaining plants suitable to special cases. An Apple is wanted to stand the climate of the cold North—Russian races, and Siberian Crab are stocks that have been imported to aid in the pursuit, and so on.

An idea of the magnitude and scope of the work is, that Craig alone made 5000 crosses in Iowa in 1899, and a messenger went 500 miles into Arkansas to obtain pollen to be used at the Experimental Station in the former place.

The European Pear does not thrive in the Southern States, and the introduction of a new specially-raised variety has made profitable Pear-growing possible there.

Attention was also drawn to the Orange experiments brought before the Conference by Mr. Webber. The paper concluded with a list of the chief experimenters, the names of plants dealt with under the heading of particular States, and including Canada.

In his final sentences, Professor Bailey pointed out that by producing a single hybrid which could be named and sold, more immediate results, so far as glory and so on, might be obtained; but when species are blended so that the resulting plants cannot be distinguished from ordinary varieties, then a more useful end is attained.

HYBRIDS IN THE JARDIN DES PLANTES.

MONS. L. HENRY, Curator of the Open-air Department of the Paris Natural History Museum, contributed his notes upon the hybridising experiments, successful or the reverse, to the number of over a hundred, made by himself between the years 1887 and 1899. Perhaps the fullest account which he presented was upon *Lilacs*, and he sent for exhibition a water-colour drawing of a hybrid and its parents. This was obtained by crossing *Syringa Bretschneideri* ♀ and *S. Josikaea* ♂, and the object sought was accomplished, namely, to get darker flowers than those of the seed parent, while retaining its foliage.

In the converse experiment, *S. Bretschneideri* ♂ showed its prepotency again, so far as foliage went, the flowers, on the other hand, agreeing with the seed-parent, in colour, form, and size.

M. Henry also made experiments similar to those

of M. Lemoine, alluded to elsewhere, with a view to clearing up the origin of *S. dubia*, or Varin's Lilac. By crossing *S. vulgaris* and *S. persica* (? *S. p. laciniata*), he obtained plants identical with Varin's form, so far as foliage went, but unfortunately they died before flowering.

PROPOSED EXPERIMENTS.—Monsieur Henry, when alluding to the discovery of the parentage of the Varin's Lilac (*Syringa dubia*), through the crossing of various species of the genus, took the opportunity of suggesting that the Conference should institute a series of investigations with a view to clearing up the doubtful history of other plants. His first selection of species to be made the subject of hybridising experiments is given below:

Amygdalus persicoides, Duham.
 " = *persico-amygdalis*, Dalsch.
Eschulus rubicunda, D. C.
Berberis Neuberti, Hort.
 " = *ilicifolia*, Hort.
 " = *stenophylla*, Moore.
Cerasus fontanesiana, Spach.
 " = *Prunus greeca*, Desf.
Cistaceus oxyacantho-germanica, Gilot.
 " = *C. lobata*, Bosc. = *Mespilus Smithi*, D. C. ?
Cytisus Adami, Poit.
Dianthus semperflorens, Hort.
Juglans hybrida, Hort.
 " = *pyriformis*, Carr.
 " = *Vilmoriniana*, Carr.
Prunus cerasifolia, Hort.
Pyrus malifolia, Spach.
 " = *bollwylleriana*, D. C.
Ribes Gordonianum, Lem.
 " = *intermedium* (Billiard, 1867).
Robinia Decaisneana, Cam.
Rosa alba, L.
 " = *Fortuneana*, Lindl.
 " = *Hardyi*, Celis.
 " = *hybrida*, Schlecht.
 " = *Noisetiana*, Red.
Rubus nobilis, Rge.
Sorbus hybrida, L.

HYBRID FERNS.

Mr. CHARLES T. DRUERY, V.M.H., pointed out in his paper on "Fern-crossing and Hybridising," the difficulties arising from the microscopical size of the reproductive organs in Ferns, and their position on the underside of the prothallus. Scientific accuracy as to percentage is one of these, as stray Fern-spores cannot easily be kept out. Florists, he said, can practically make sure that a seed-pod contains A + B, but in Ferns the cross is mainly determined by the resulting combination of characters.

The ordinary process of reproduction in Ferns was entered into in order to emphasise the points alluded to, and then Mr. Druery went on to give details of several planned as well as unintentional crosses which cannot be doubted. Mr. E. J. Lowe's hybrid between *Scolopendrium vulgare* and *Ceterach officinarum* is one, and Mr. Druery exhibited fronds of the scaleless *Ceterach* form with confluent lips and sori infused pairs. P. Schneideri x was next described and brought forward as illustrating the possibilities of endowing exotics allied to our rare British Ferns, with the characteristics of the latter, increasing their beauty, and at the same time rendering them more hardy.

Hints were then given as to facilitating the transit of antherozoids from one prothallus to another in mixed sowings, or where prothalli from separate sowings are subsequently paired, and these were followed by suggestions as to the severance of the sexes by cutting up the prothalli. Crossing in Ferns, continued Mr. Druery, is not limited as in flowers by the necessity of the pollen-tube being of a length agreeing with that of the style, the prothalli being alike except in the case of filmy Ferns, and the size of the Fern proper being quite immaterial. On the other hand it was noticed, in conclusion, that habitual asporogamic reproduction proves an effectual bar to cross-fertilisation in many Ferns.

HYBRID CLEMATIS.

A paper was received from M. MOREL on "Hybrids and Mongrels of Clematis," and these may be considered under his various sub-headings.

Clematis coccinea-Pitcheri.—The first experiment in crossing *Clematis coccinea* ♂ and *C. Pitcheri* ♀, which belong to the same group, produced a large number of fertile seeds. The seedlings obtained

were chiefly interesting from their resemblance *inter se*, and constituted a form intermediate between the species they were derived from (see E. André, *Revue Horticole*, August, 1893, for a detailed description of the hybrid, as well as for figures of itself and its parents). From *C. coccinea* it gets its habit of early flowering and its colour, while from *C. Pitcheri* its vigour, its sepals reflected at their extremities, and its sweet vanilla-like scent. This hybrid seeds copiously and reproduces itself almost exactly, but if pollen from one of the parent species is used, a large number of forms is obtained, that more nearly resemble the pollen parent. Its fertility is adduced as evidence of the near relationship of *C. coccinea* and *C. Pitcheri*.

Hybrid No. 378.—This is between *C. coccinea* ♂ and a large-flowered *Clematis* as yet unnamed (No. 140) ♀, two species which belong to very different groups. The pollen parent contributes the consistency and a number of sepals. The flower is intermediate in form between the urceolate blossoms of *C. coccinea* and the spreading ones of No. 140, which latter gives the colour. The leaves are more like that of the former species, and the hybrid has proved sterile up to the present.

Hybrid No. 401.—This hybrid, though having the same pollen parent as the last, and produced also from the seeds of a large-flowered *Clematis* (*Oriflamme*), almost completely retains the characters and habits of *C. coccinea*. The number of its sepals is variable, being sometimes four as in the latter species, sometimes five or six as on the other parent. No. 401 has always proved sterile.

Clematis à Ville de Lyon.—This, which M. Morel considers the most beautiful form of the genus yet obtained, was described and figured in the *Revue Horticole* of April 16, 1899. The parents are *C. coccinea* ♂, and a large-flowered form called Viviani Morel, and the appearance of the progeny at first sight seems to belie its origin. The foliage of the hybrid is altogether that of a large-flowered form; the enlarged open flowers in no way recall the sepals of *C. coccinea*, to which its other hybrids retained some resemblance. The colour of the blossoms, as well as the number, dimensions, and arrangement of the stamens, agree with the pollen-parent, which it also resembles in its constitution, being immune against the attacks of the terrible disease that attacks the large-flowered species of *Clematis*. M. Morel quoted a parallel case of the hybrid *Paeonies* between *Paeonia officinalis* ♀, and *P. Rossi* ♂, which altogether resemble the seed-parent.

HYBRID LILACS.

Under the title of "Hybrids of the common and of the lacinated Persian Lilac," Monsieur EMILE LEMOINE pointed out that in approaching the subject of hybridisation, the technical processes must be studied by means of which the work is accomplished. His paper illustrates how the classificatory position and origin of certain plant forms may be cleared up by hybridising trials. Opinions differ as to what the Lilac of Varin really is; whether it be a pure species, a hybrid, or simply a form of *Syringa vulgaris*.

In endeavouring to obtain a double-flowered variety, M. Lemoine persistently tried to cross Varin's Lilac ♀, and the common double form ♂, and *vice versa*, but without success. A like attempt where the Varin's Lilac was replaced by the typical Persian Lilac, and the white form with similar leaves also failed, but all the flowers of the lacinated Persian Lilac, which has very different foliage from the other, yielded seed when supplied with pollen from the common double Lilac. Some sixty seedlings were obtained; some which have produced single, half double, and double flowers, and the last, have been named *Syringa varina duplex*. The conclusions are, that Varin's Lilac is a hybrid, and arose as a chance cross between *Syringa vulgaris* ♀, and *S. persica laciniata* ♂. M. Lemoine's cross, in which *S. vulgaris* was the pollen-parent, has usually leaves which are smaller than the original Varin form, and sometimes at the base of branches are slightly lobed. The

experiments point towards the typical Persian Lilacs also being hybrids.

HYBRID MIMULAS, VIOLA, &c.

Dr. STUART, of Cherside, sent in an account of his hybridising work as an amateur horticulturist. First of all he gave a description of his raising of *Mimulus tigrinoides* from the garden *Mimulus* (Scarborough Defiance) ♀, and *M. cupreus* ♂. The plants which proved the dwarfest of this particular section of *Mimulus* were sent out by Mr. Cannell, of Swanley, and were favourites in their day.

Next, the author alluded to his verification of the steps by which Mr. Grieve obtained his "coloured Pelargoniums." Very weak plants, with highly-coloured leaves were produced as a result of crosses either way between Golden Choice and Golden Pheasant. To give vigour of constitution a dwarf, horsehoe-leaved species was used as seed parent, and pollen taken from one of the highly coloured forms.

Among Dr. Stuart's seedlings, obtained from a horse-shoe leaved seed-parent crossed with one of Mr. Grieve's highly-coloured forms, those that had parti-coloured leaves showed most tendency to send out a branch with the characteristic tri-colour markings. When these appeared they were cut off and struck, and the plants so raised kept their character wonderfully. Some plants did not, however, show their true character for years.

Passing on to the question of Tufted Pansies, as he calls the plants commonly alluded to as Violas, Dr. Stuart went into the origin of his well-known hybrids on the genus. Following the idea, started by Mr. Wills, of crossing *Viola cornuta* from the Pyrenees and the garden Pansy, to increase the hardiness of the cultivated varieties, Dr. Stuart chose "Blue King" as the pollen parent, and was able to raise a dozen hybrid seedlings from *Viola cornuta*. Their flowers showed the long spur of the mother, but were markedly different from known varieties. The reciprocal cross resulted in straggling plants with Pansy-like flowers, that were of no interest horticulturally speaking. By again crossing the first hybrids with garden Pansies, a number of the large flowered kinds were obtained. Much interesting information was also given by Dr. Stuart with regard to hybrid Aquilegias, Trollies, and Primulas.

RASPBERRY GOLDEN QUEEN.

(SEE FIG. 28, P. 63.)

In our last issue, on p. 59, was given a description of a new yellow-fruited Raspberry, shown at Chiswick by Messrs. Jas. Veitch & Sons, Chelsea, and awarded a First-class Certificate by the Fruit Committee of the Royal Horticultural Society. Mr. Seden states that the variety is the result of a cross between Raspberry Superlative and *Rubus laciniatus*. The evidence of any influence of the *Rubus* is not marked, and many may regard the variety as a yellow-fruited Superlative. If this be so, this newest Raspberry will be certain of a cordial reception, as it will make a capital companion to the finest of all Raspberries.

ORCHID NOTES AND GLEANINGS.

THE INDIAN ORCHID SOCIETY, CALCUTTA.

THE object of this Society is to encourage the cultivation of this wonderful order of plants, by exploring different parts of India, Burma, and the Straits, and collecting Orchids, which will be distributed amongst the members at a moderate price.

Notes on the cultivation of Orchids will be published from time to time for the information of the members.

An annual exhibition of Orchids will be held, at which handsome prizes will be given to the growers of the best specimens, and thereby the public of India will be made familiar with and appreciative of the beauties of "The Flower of the Age."

Free distribution of Orchids to the value of Rs. 10 to local members, or 10s. to foreign members. On any additional purchases a discount of 25 per cent. will be allowed to the members of the Society only.

Free admission to the Society's annual exhibition.

All publications of the Society will be distributed free to all members.

It is intended to start a horticultural library in connection with this Society (as funds will permit), and members of the Society will be entitled to the use of the library, and take loan of books and papers according to the rules and byelaws to be framed hereafter.

An Orchid congress will be held with the annual Orchid show in March every year, where the interests of the Society will be discussed, due and

many readers of the *Gardeners' Chronicle*. I will begin with the intermediate-house, a large one, which is chiefly filled with large, fine Cattleyas and Lælias, an example of which was recently given in a supplementary illustration in the *Gardeners' Chronicle*. Two equally well-grown specimens of the same species, one a huge mass, 2 feet 6 inches across, bearing altogether fifty-four large blooms, and the other a fine healthy plant, having twenty-

thought by many orchidists to have ceased to exist, and, indeed, it was at that time in poor condition, but under the care of Mr. Chamberlain, the Duchess's gardener, the plant has nearly regained its former fine health and vigour. When Cattleyas or Lælias here deteriorate from any cause, they are turned out of their pots, the whole of the rooting materials picked out, rotting roots removed, and the healthy parts washed with warm water. The plants are then placed in small pots, filling in around the roots with clean crocks only, which are kept in a moderately moist state. In a very short period of time fresh roots push forth, and the plants are re-potted in the ordinary manner.

In the same house were noticed fine specimens of *C. Warscewiczii* (gigas) in fine health and vigour, almost every new growth sending up strong flower-spikes, which, by the time these lines are in print, will be making a gorgeous display. Mr. Chamberlain attributes his success to thorough maturing of the growths after flowering is over, and a long, dry, resting season. Large plants of *C. Bowringiana* and *C. Lawrenceana* were likewise noted in excellent condition; capital examples of *Odontoglossum citreum* were suspended from the roof. At one end of the house were placed strong plants in bloom of *Anguloa Clowesii* and *A. sanguinea*. These plants were already making promising growth. Among others which thrive well in the intermediate-house were *Lælia cinnabarina* (several in flower), and three vigorous specimens of *Epidendrum prismatocarpum*, Veitch's variety, with nine, seven, and six large spikes of bloom respectively; *Miltonia vexillaria*, with clean, healthy foliage; *Lælia anceps*, the different varieties of which were breaking freely. A large number of *Cypripedium insigne* are grown for cutting for house-decoration, these coming into bloom when other flowers are scarce.

In the warm-house were *Cypripediums*, as *C. selligerum majus*, *C. Roezlii*, *C. grande*, *C. Dominicanum*, *C. Lawrenceanum*, *C. Sedeni*, and its light-coloured variety, *candidulum*, fast growing into massive specimens. *C. Godefroya*, generally considered a difficult plant to manage, is well grown at the Deepdene. The plant is potted in well-drained pots, filled with fibrous loam, and the cultivation is that of an ordinary stove-plant. The rare *Vanda Roxburghi* was nicely in bloom at the time of my visit; its violet-purple lip is a very attractive feature. *Phalenopsis Schilleriana* and *P. amabilis* appear to thrive planted in baskets, hung up to the roof on the shady side. The sweet-scented *Angraecum Leonis* does well similarly treated. Here, too, were several pans filled with *Anacochilus*; the species *A. patula* increasing rapidly. So few gardeners succeed with these beautiful plants, that a few hints on the treatment found to answer, will be acceptable to many. When new shoots emerge from the old growths, they should be cut off as soon as they begin to make roots, and put singly into small pots, using peat, moss, with finely broken crocks, and sand, all mixed together; five or six of these small plants are then plunged together in sphagnum-moss in a large pot or pan, and over all a bell-glass is placed. During the day-time the bell-glass is tilted several inches, but at night it is closed.

The next house, a lean-to, facing south, is filled with *Dendrobiums* which were making their growth. From these a grand display of bloom is expected in due season. Several plants of the white-flowered *D. Dearei*, hung up near the roof, were growing most luxuriantly. In a low span-roofed house, were *Calanthes* in capital condition, many of them having immense growths. The *Odontoglossum* or cool-house contained numerous young plants fast growing into half specimens, and I noted several spikes of *O. crispum* which numbered thirteen and fourteen flowers; also plants of *O. Pescatorei*, *O. Coradinei*, and *O. Uro-Skinneri*; *Oncidium macranthum* making strong growth, and also in flower. Plants of *Masdevallia Harryana*, *M. Veitchiana*, the pretty *Leptotes bicolor*, *Epidendrum vitellinum*, and other species were growing

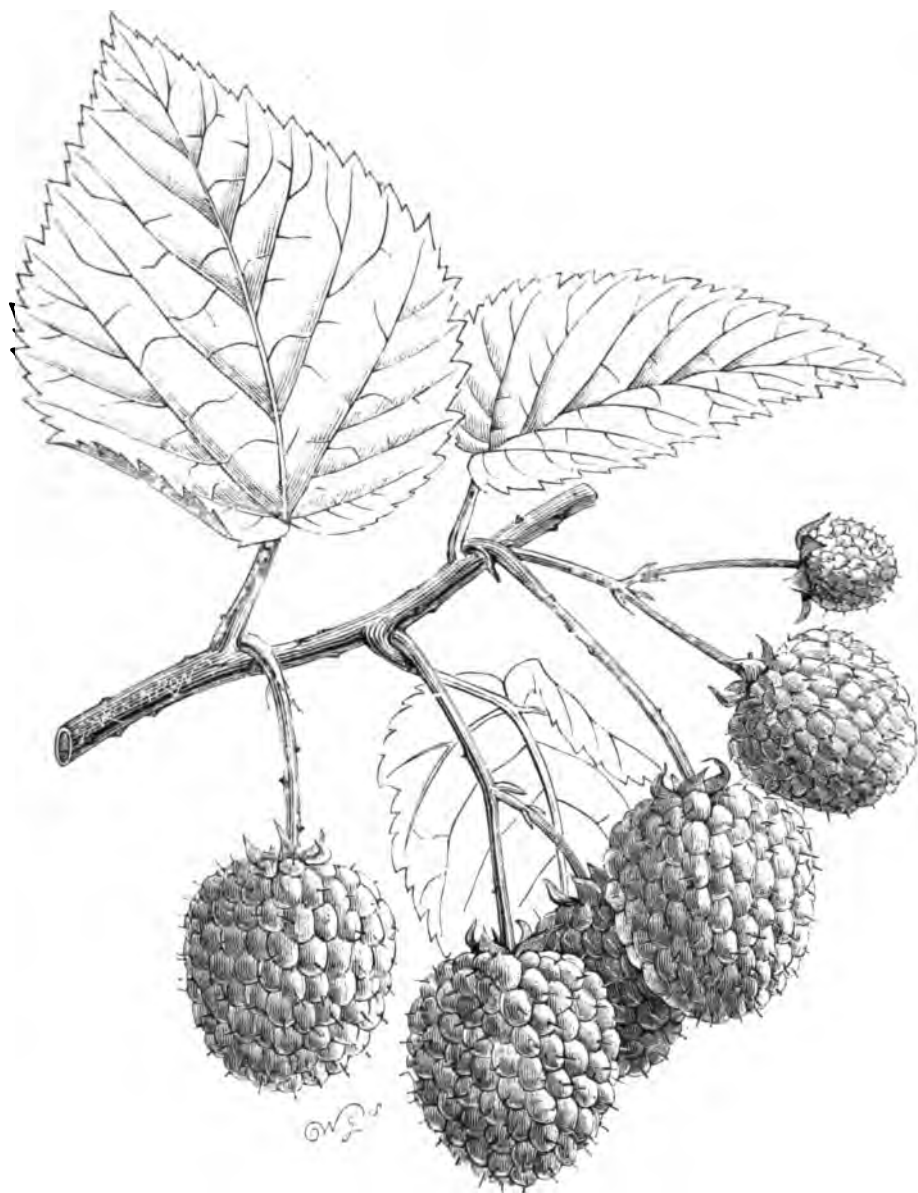


FIG. 28.—RASPBERRY GOLDEN QUEEN: COLOUR OF FRUITS GOLDEN-YELLOW.

(SEE P. 62.)

(Awarded a First class Certificate at the Chiswick Conference on July 11.)

proper regard being given to the propositions of individual members, and papers on the "Cultivation of Orchids" will be read.

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ORCHIDS AT DEEPDENE, DORKING.

Having lately had the pleasure of inspecting the fine and interesting collection of Orchids in the gardens of her Grace, Lily, Duchess of Marlborough, at her residence, Deepdene, near Dorking, a few remarks upon what I saw in flower may interest

six flowers, were remarked. On the central stage some splendidly-grown *C. Mendeli*, many of which were well advanced in bud, a few plants only being in bloom, were remarked, one of them a pretty variety having pure white sepals and petals, and a lip of a pale, rosy-mauve tint, each of the three spikes carrying nine large flowers. Unfortunately, I was too late to see the remarkable *C. Mendeli* Duke of Marlborough in bloom, of which there are now two fine healthy plants. This variety is regarded as one of the finest of the genus to which it belongs. It may be of interest to note, that some few years ago this particular plant was

in this most agreeable temperature, and under a well-shaded roof.

The Palm-house contained several large, healthy specimens of *Sobralia macrantha*. It may be mentioned, as showing what a *Sobralia* will endure without harm, that the temperature of this house often falls during winter to 50°. There are other glass-houses filled with miscellaneous decorative plants which are as well grown as the Orchids. W. H. W.

PLANT PORTRAITS.

APRICOT FERTILE DE CHATENAY, *Revue Horticole*, June 16. Excellent quality; ripens (in France) in middle of July. Raised and sent out by M. Croux of Chatenay (Seine).

ECHINOCACTUS SETISPINIS, *Mechan's Monthly*, June. Native of Texas.

ORIENTOLOSSUM CRISPUM VAR. MADAME METDEPENNINGEN X, *Revue de l'Horticulture Belge*.

POLYGALA DALMAISIANA X, *Revue de l'Horticulture Belge*, July. Raised in 1839 by M. Dalmais, out of *P. grandiflora*, by *P. cordifolia*.

POLYPODIUM AMMIFRONS, *Makino*, l. c., t. vii.

POLYPODIUM LINEARE, THUNB., AND VAR. UNOBI, *Makino*, *Phanerog.*, etc., *Japon Ic. Illustrat.*, t. ix, x.

POLYPODIUM SESQUIPEDALE, FORMA LEOPTERIS, *Makino*, *Phanerog.*, etc., *Japon Ic. Illustrat.*, t. viii.

RHODODENDRON PENTAPHYLLUM, *Makino*, l. c.

ALPINE GARDEN.

GENOTHERA OVATA.

THOSE who do not know this beautiful little day-blooming (*Euthera*, will do well to obtain it. My plant is growing on a dry rockery where the sun shines on it until the afternoon is advanced. It seems to be quite hardy, and although not increasing much in size, the plant is healthy. If one remembers aright, it was catalogued as resembling a Primrose in its habit. After making due allowance for this as a figure of speech, one cannot say that the reference was inapplicable. The ovate leaves are pretty, and the bright yellow flowers, about an inch across, are pleasing. They are produced on stalks about the length of those of a common Primrose. The plant is herbaceous, and as the crowns are small, care is necessary in working near it while at rest. It comes from California. Although suited by the condition of a dry position, it ought not to be allowed to suffer from drought.

AZALEA ROSÆFLORA.

As a rock-garden shrub in suitable districts, this dwarf plant is much to be coveted. I have purposely in speaking of it retained the garden name by which this *Azalea* or *Rhododendron* is generally known in nurseries. Unless I am mistaken in my reading of the *Kew Hand-List of Trees and Shrubs*, it is considered to be the same as *R. indicum* var. *balsamiflorum* = *Azalea balsamiflora*, Carr.; *A. Rollisoni*, Hort. On referring to the *Index Kewensis*, I have not found the name *A. rosæflora*. I think, however, that for garden purposes we shall find it quite enough to retain *A. rosæflora* as sufficient for the purpose of identification. I have only grown it in the open without protection for two winters, but its behaviour in the late frosts in March last, which were so disastrous to many other flowers, gives one some confidence in its hardiness. It was on the recommendation of an Irish nurseryman that I tried it on one of my rockeries, and I have been more than pleased with the result. Its pretty, double, rosy-salmon flowers are this year being produced very freely, and they last in bloom for a wonderfully long time, even in the hot weather we have had of late. The half-shaded position in which it is grown accounts largely for this. It is nearly three years since it came here, and it is as yet only a few inches high, and shows a valued tendency to increase more in diameter than in height. It is grown on the east-side of a rockery not far from the top, but partly shaded and surrounded by such plants as *Iberises*, *Alyssums*, and *Aquilegas*. The soil is sandy-peat, and in dry weather watering is regularly attended

to. As already mentioned, *A. rosæflora* is grown without protection, except what is afforded by the surrounding plants.

CYTISUS PURPUREUS.

Among the many members of a delightful class of rockwork shrubs one may well find room for *Cytisus purpureus* and its varieties. The type, with its pretty purple flowers, is a good rock-garden plant, but it is, one is of opinion, inferior in beauty to its two varieties—that known as *C. purpureus* var. *incarnatus* is considerably brighter. Those who were at the Temple Show would observe it in the collection from the Riversale Nursery; and there is, I think, a good plant in the rock-garden at Kew. It is a variety well worth securing, although at present considerably higher in price than the typical form. The variety with white flowers, known as *C. purpureus* albus, has, if one is not mistaken, been rather longer cultivated, but it is not, as yet, often seen in rock-gardens. It is very beautiful, and, like the others, has a pretty effect with its sprays of pea-shaped flowers. Some recommend that this *Cytisus* should be grafted on some other stem, such as that of the Laburnum, and grown as a standard. For the rock-garden, it is much more pleasing when growing in its natural way. S. Arnott.

(To be continued.)

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

THE month of July brings plenty to do among the Chrysanthemums, for there are many details to be attended to, the neglect of any of which may spoil the labours of the entire year. Plants being grown for producing large blooms for exhibition, or for home-decoration only, will require just the same kind of treatment. Every plant should now be in suitable summer quarters, as well as in its flowering-pot. Chrysanthemums are sun-loving plants, and when all the other details of cultivation receive proper attention, they do not suffer from the fullest exposure. The ground on which the plants are stood should be sheltered from south-west winds, so prevalent in September and later, and which do much damage to the plants in unsheltered places. By that time the flower-buds are mostly formed, with a stalk several inches in length, and these and the leaves suffer much from strong winds, which bruise them by whipping them against each other. Let sufficient space between the plants be afforded, that the leaves of one shoot do not overlap those in its vicinity. Bear in mind that the proper ripening of the growth is of the utmost importance. Plants whose shoots and stems are sappy, owing to a want of space during the summer, will afford satisfactory blooms.

Where the cultivation is of the best modern kind, that is, with three shoots to each plant, these may be trained to wires running horizontally. The pots should stand on a hard, worm-proof, and yet pervious bottom, cinders, gravel, spar, or what not, so long as it fulfils these conditions. See that the shoots are tied to the supports in good time, many branches being lost by lack of attention to this point, remembering that every shoot injured now means one bloom the fewer. Affording water to the plants is a most important detail; but do not keep the soil constantly wet, rather allow it to get moderately dry before affording any. During hot weather, examine them twice daily, rapping the pots with the knuckles to find if water be needed. When rain or river-water cannot be obtained, and cold well-water must be used, in order that no check to root-action be given, it should be exposed to the air for a day or two. If this cannot be done, mix a little common washing-soda or "anti-calcaire," commonly known as milk of lime; $\frac{1}{4}$ lb. of the former is sufficient for 40 gallons of water, and 1 lb. of the latter to 200 gallons. Dissolve the soda in hot-water, adding it then to the bulk; in twenty-four hours the lim

held in suspension in the water will be precipitated to the bottom of the vessel. Not only does the soda soften the water, but it acts as a stimulant to the plants. Syringe the plants daily—at least once in the evening, and also in the morning when the weather is exceptionally hot and dry.

CINERARIAS.

Let the plants be re-potted when the roots have reached the sides of the pots they are now growing in. A suitable compost consists of fibrous loam three parts, half-decayed stable-manure one part, and some leaf mould with peat if the loam is considered to be too retentive. As much coarse clean sand should be mixed with the whole as will give free passage to water. The plants at this season are the better for occupying a cold frame on the north side of a wall, then shading can be dispensed with. If the pots can be plunged to half their depth in a bed of coal ashes, less water will be required by them. It is still time to sow a small quantity of seed.

Offsets may be taken with a portion of the roots attached, potted and placed in a cold frame and kept close till growth has begun anew. Cinerarias require to be grown at this season almost in the open air, and if the lights are employed by day, they should be drawn off the frames at 7 p.m., and so left till the early morning, excepting in the event of rain or hailstorms being imminent. The leaf-miner, *Tephritis onopordinis* sometimes attacks the leaves, but being readily seen, there is no excuse for allowing it to do much harm to the leaves.

Calceolarias.—The seed which was sown last month having germinated, a little more may now be sown for affording late flowering plants. A serious mistake often made is to sow thickly, with the usual effect of having drawn and weakly plants to begin with, which never give satisfaction. As soon as the plants can be handled, prick them off in pans filled with a mixture of equal parts of loam and leaf-mould; and plenty of silver-sand. The plants should not stand closer together than 1 inch. Stand in a cold frame or cool-house, and shade well, sunshine at this stage being very injurious. Apply water often, but sparingly in quantity, the mere moistening the leaves being of more consequence than wetting the soil for a day or two. If the soil cakes, stir gently with a pointed stick. As the plants make progress afford more air, and when four to six leaves have been put forth, transfer each plant to a thumb-pot; and to the compost named, add one part finely sifted, half-decayed horse-dung. Transfer the plants with all the soil that will hang to the roots. The after-treatment is similar to that recommended for the Cineraria.

PARSNIP-FLY.

CYCLING trips to market-gardens in different parts of Surrey and Middlesex, for the purpose of studying plant-diseases in the field, have shown that during the last fortnight, or rather, just following the last spell of rain, the Parsnip-fly is very much in evidence, and may be considered as the cause of the most general epidemic just now prevalent.

The fly known as *Tephritis onopordinis*, Fab., is rather smaller than the common house-fly, having a brown head and body, deep bottle-green eyes, and two gauzy transparent wings, ornamented with several brown patches.

The eggs are deposited singly in the substance of the leaf, and the larvæ or maggots hatch within a few days, and feed on the substance of the leaf, enclosed between the upper and under-skin of the leaf. In this way large dead brown patches are formed, in which the maggot can be clearly seen when the leaf is held between the eyes and the light. If, as is usual, several such dead patches are present on a leaf, and nearly all the leaves are attacked, the Parsnip rots at the crown, or ceases to grow, owing to the destruction of the leaves. Several broods are hatched during the season. The

maggots of the autumn brood become transformed into pupæ, which remain in the soil until the following year, when they change to the imago or fly condition.

Preventive Measures.—Crushing the maggots present in the leaf, most effectually prevents the appearance of a second brood of flies. While this is being done, badly-blistered leaves should be removed, placed in a basket, and burned. If simply placed on the manure-heap, many of the maggots hatch out.

Sprinkling the leaves with a mixture of soot and slaked lime has in some instances proved of value; and when a small quantity of tobacco-dust is added to the mixture, it proves very effective. Soot alone, I am informed, does not prevent the deposition of eggs.

As already stated, the pupæ pass the winter in the soil. To destroy these, fresh gas-lime should be lightly harrowed in. The same insect does an equal amount of injury to the Celery crop, and is too well known to gardeners as the Celery-fly. *Geo. Massé.*

INDIA.

CEYLON BOTANIC GARDENS.

THE miscellaneous section of the Reports for 1898 of the Ceylon Botanic Gardens has lately been published by the Director, Mr. J. C. Willis, and as regards all districts, is, on the whole, satisfactory. Thus, we read that:—"The general condition of the Peradeniya Garden, both as regards its beauty and utility, has been much improved during the past year, and reflects much credit upon the Curator, Mr. Macmillan."

Again, of the Hakgala Garden:—"Mr. Nock has, as always, kept this garden in beautiful condition, in spite of the drawbacks of a very insufficient supply of water. During the drought in the latter part of the south-west monsoon, the garden had to be watered with water carried a long distance."

It is further mentioned that:—"The laboratory-room in the museum building has been very full during the year, and the want of space has been acutely felt. Mr. Parkin has occupied one bench from March 20 to the end of the year. Dr. Max Fleischer, now of Buitenzorg, worked here from February 2 to 24, and collected mosses in many parts of the island. Mr. J. B. Carruthers occupied a bench at intervals for the investigation of the Cacao fungus and other mycological studies. Mr. A. K. Coomardswamy, of University College, London, commenced work here on November 17, and other visitors have also made use of the laboratory for short periods. Besides the investigation of many points in economic botany, the Director has been occupied during the year in a thorough revision of the Ceylon and Indian Podostemaceæ, a little-studied order of plants of much botanical interest. Mr. Parkin has made a very extended study of the coagulation of latex, chiefly in rubber-yielding plants, and has also worked at some other problems in physiological botany. The completion of the late Dr. Trimen's *Flora of Ceylon* has been vigorously pushed on by Sir J. D. Hooker, and towards the end of the year the fourth volume, containing the remainder of the Dicotyledons and the Monocotyledons to the end of Eriocaulonæ, was published, as well as the last series of twenty-five plates. The final volume is well in hand, and will contain the Cyperaceæ and the Grasses."

From the notes on economic plants, we extract the following reports:—

Tea.—The total export is once again larger than in any preceding year, being 119,769,071 lb., against 116,054,567 lb. last year. Exchange has been very steady at about 1s. 4d., and prices have been low, but with a tendency to rise later in the year. The extension of this cultivation has now practically ceased, but large areas planted during

the last few years continue to come into bearing, so that for some time yet the total output will probably slowly increase. One of the most promising features of the past year has been the large increase in the export to countries other than the United Kingdom, America taking 2,180,188 lb., against 830,873 lb. in 1897, and Russia 2,714,003 lb., against 439,349 lb., whilst the export to other countries has also increased very much. Australia now takes the large amount of 15,126,891 lb. The net result of this has been an actual decrease of the export to the United Kingdom by 2,796,226 lb., which should help to improve the prices obtained.

Cacao.—The export has again risen from 34,503 cwt. to 36,982, in spite of the ravages of the Cacao-canker, which has been a troublesome pest during the year. The life-history of this fungus has been very thoroughly investigated during the year by Mr. J. B. Carruthers, the expert engaged by the Planters' Association. His observations and conclusions, with recommendations for treatment of the disease, have been published in pamphlet form by the Association. The treatment of the pest now rests with planters of Cacao themselves, and there seems no reason to apprehend very serious danger to this cultivation, if proper pains be taken to attack the disease promptly wherever it may appear. As was predicted, the planting of the hardier *Forastero* varieties is extending, and the older varieties are being steadily replaced by them.

India-rubber.—A great deal of attention has been given to this product during the year. Mr. J. Parkin has spent the bulk of his time since March 20 in the laboratory here, carrying out chemical and physiological investigations into the processes of tapping and coagulation, &c. A tour was made in March to the Ratnapura and Kalutara districts to see the plantations of Para Rubber made by the Forest Department, and on various estates. These trees are growing very well on the whole, and some have yielded very good Rubber in promising quantity. The trees in the gardens have done well, and yielded a large quantity of seed, much of which was sold by auction at an average price of about Rs. 27 per 1000. A large quantity of seed was also sold from private estates."

EXIT COAL.

THE President of the Institute of Mining Engineers recently made a statement which has a rather alarming look about it at first sight. He limits our supply of coal to fifty years; but, even supposing the limit to be strictly correct, we do not think gardeners or the rest of mankind need to give way to fear. We suppose the President had purposely ignored the fact that new fields have been discovered, especially in the South of England. But there is a possibility then in half a century we may be able to do without coal—at least in many departments of social life; and before the fifty years have elapsed, it is certain that the demand will have grown wonderfully small compared with that now existing. No one can, of course, for a moment overlook the great fact—that the power which turned decayed and decaying vegetable matter into that coal, now supposed to be nearing the extinction-point here and there, is still at work every moment of time making and transmitting force to the uttermost ends of the earth. The great gravid cloud-masses are ever being persuaded to clasp and embrace the hill and mountain-tops in all these islands—parting with their life-giving contents to rill and river, torrent and waterfall—ready at all points for the electric accumulator and distributor to be snatched from various centres to farm or garden for ploughing, reaping, harvesting, grinding, hauling to warehouse or market, ready for grass and hay-cutting, for use in the greenhouse or orchard-house, in expediting the ripening of all kinds of fruits, as demonstrated by Sir W. Siemens. This all-pervading force can be used in the driving of all kinds of machinery, in

sundry manufactures—none may tell where it ceases to be a great factor in the daily life of mankind.

As is well known, Niagara has been harnessed, and what the power thence derived has been made to do would form a curious chapter in American daily life, for the force of Niagara is felt for many leagues distance from that great New World wonder. Quietly as the sun prepared in far-back ages the fuel for our daily requirements, for hot-house and warm greenhouse use, for lighting conservatory and drawing-room, so to-day it continues quietly to raise moisture from river and sea into cloudland, thence to be distilled for ever, to fall, not only on to the earth to vivify all Nature, but to provide that power which will most assuredly be recognised as the world's friend when the decree has really been passed—exit coal!

TREES AND SHRUBS.

THE ELEAGNUS.

ALTHOUGH the genus *Elæagnus* is an extensive one, and consists of both deciduous and evergreen shrubs or small trees, it is, as a whole, but little known in English gardens. In the case of the evergreen species, their beauty is more apparent in the winter. Being of easy culture in ordinary garden-soil, and, moreover, vigorous in growth, some of them should be introduced into most gardens. Increase is by means of seed sown in the spring, by cuttings of ripe shoots inserted in the autumn, and by layering the shoots in the period of growth. The following species are the more ornamental.

Elæagnus reflexa (golden-leaved form).—This is a very ornamental object in the shrubbery, or as a solitary plant on the lawn, the golden variegated foliage being very fine. It is an evergreen, growing to a height of 8 feet, vigorous and free, and much branched. The leaves are ovate, oblong, acuminate, smooth, glabrous on the upper surface, white on the underside, slightly serrated on the margins. The deep green ground colour is attractively marked or shaded with yellow, and the variegation is constant. In some cases the green colour is almost absent, in which case the beauty of the plant is greatly enhanced.

E. reflexa (silver-leaved form) is distinct from the foregoing, the leaves being in colour deep green, with a distinct marked silvery edge; ovate-oblong, smooth, and very glabrous on the upper surface, toothed or serrated at the edges; the underside is furnished with a silvery tomentum. The plant grows with freedom, and reaches a height of 6 feet. Like the first named, it is of a compact and symmetrical form. The stems and branches are very smooth, and of a brown tint.

E. longipes.—I first saw a plant of this species about twelve years ago at Mr. Ware's nursery, Tottenham, as a large shrub, which probably still exists. It has conspicuous fruits, which are esteemed by some persons in a preserved state, like Cranberries. It is also an evergreen, of a distinct, spreading habit, its branches and stems of a reddish-bronze colour, and it reaches a height of 10 feet in good soil. The leaves are of a deep green tint, ovate-lanceolate, glabrous above, and silvery beneath. The flowers are of a creamy-yellow colour, small, and abundant; and the fruit long-stalked, oval, transparent, of an orange tint, and of the size of a Gean or wild Cherry. *E. longipes* forms a very pretty shrub, valuable alike for fruiting or as a decorative object. The species was introduced from Japan in 1873. (See *Gardeners' Chronicle*, 1873, p. 1014.)

E. macrophylla has the largest leaves of any of the species; in shape, roundish-ovate, smooth, and glabrous, and deep green in colour above, with a scaly white tomentum on the underside. The flowers, greenish-yellow, are borne in clusters, and appear in the autumn. It will grow to a height of

8 feet, and is an attractive evergreen, destitute of spines. A native of Japan, the year of its introduction is uncertain.

E. pungens.—A pleasing evergreen bush, of about 6 feet in height, its stems and branches furnished with numerous spines. The leaves are oblong, entire, and undulated; in colour, of a deep green tint above, and silvery-white beneath. The creamy-white flowers come singly, and in pairs, are of small size, and abundantly produced during the summer. A native of Japan. There are several garden forms, with silver and golden-coloured leaves, in cultivation.

E. hortensis is a handsome deciduous species, which reaches a height of 20 feet. A native of the East, it was introduced to this country from Southern Europe in 1633. The flowers are yellow in colour, scaly on the exterior, possess an agreeable fragrance, and appear in the months of May and June. The leaves are lanceolate, of a deep green tint, covered with minute hairs, and in length they measure 2 to 3 inches. The stems and branches are more or less spiny, and of a dark-brown tint. A form of this species, known as *E. h. angustifolia*, differs only in having long, narrower leaves.

E. argentea.—A North American species of decorative value; the leaves oblong, ovate, glabrous on both surfaces, and covered with silvery-white scales. The flowers of a yellow colour are borne in clusters in the axils of the leaves, and appear during the months of July and August. In growth the shrub forms a striking object, of from 9 to 12 feet in height, vigorous in growth, and useful for associating with other shrubs, &c. It was introduced in 1813. Of the lesser known forms, which are seldom seen outside Botanic Gardens are:—*E. canadensis*, with white flowers, and distinct evergreen leaves; *E. Simoni*, and its variety tricolor, pretty and effective species from China; and *E. triflora*, *E. umbellata*, and *E. conferta* from Nepal, may be recommended for garden-planting, being distinct and pretty, but requiring some slight protection in the winter in cold or much exposed situations. *E. S.*, *Woking*.

FORESTRY.

THE DECAY OF TREES.

DR. PLOWRIGHT'S notes on destructive fungi, on p. 392 of the *Gardeners' Chronicle*, vol. xxv., are very interesting to the practical forester, not merely because they give the life-history of the fungi referred to, but also to the fact that they open up the evergreen question as to whether true parasites and saprophytes are the cause or the effect of tree death and decay. And in using the term "death and decay" in reference to trees, we must remember that death is not the same thing as decay in the majority of cases. Death in a tree is a physiological event which accompanies the total loss of vitality, as in the case of animals; but decay of branch or heart-wood cannot always be accepted as evidence for or against the health or vitality of a tree. As a matter of fact, most trees begin to decay in some part or another while still saplings, the most familiar example of this being the death and decay of suppressed branches in a thick wood, or in the middle of a thick crown. In such cases, where the dead portion falls off before any length of time has elapsed, the general health of the tree is not affected in any way, and its value as timber is greatly increased. But when large limbs and branches die, or are broken off by storms, the danger of parasites attacking the dying portion, or of saprophytes gaining an entrance into the heartwood of the stem from the exposed surface of the stump of the broken branch, is often a serious menace to the health of the tree, or at any rate, to its longevity. The great age which many trees obtain when growing in suitable soil and climate is evidence that in the absence of the various destructive factors to which trees are exposed, growth is comparatively interminable.

We have Oaks and Yews reaching an age of over 1000 years, and still growing on in comparative vigour, although their trunks may be little more than hollow shells, and the actual annual increase in girth imperceptible. It is a noteworthy fact that almost all examples of very old trees are either pollards or resemble pollards in their stem and growth. We know of no instance of a long clean-barked tree reaching an age anything like that of these patriarchs of the tree kingdom, although, perhaps, the very fact of their high commercial value may reduce their chance of escaping the axe when economy or expediency are called upon to decide their fate. Other reasons may be found, however, which account for the comparatively short lives of tall timber-trees. In the first place, they are much more exposed to the full force of the wind than trees of short stature, and any weakening of the root system results in their overthrow after a few years. Another reason may be found in the tendency tall trees exhibit of becoming stag-headed as they advance in years. Tall Oaks are especially subject to this weakness, usually attributed to a deleterious subsoil, but more probably connected with a reduced supply of sap to the crowns as the heartwood of the tree approaches the bark. For the same reason, the root system gradually becomes weaker as the supply of elaborated sap from the crown becomes lower, for it is obvious that a tall, clean stem appropriates a much larger share of this material than a short or well-branched bole, with a smaller superficial area. Tall trees, again, have usually been grown in close order, or under conditions which are less favourable to the growth and development of the individual, than to the production of commercial timber, and trees, like animals, suffer in after life for the privations or misfortunes of their youth. Probably many other causes operate in this matter of longevity, but the above are, we think, the chief ones in accounting for the comparatively greater age of short stemmed trees compared with their taller brethren. *A. C. Forbes*.

(To be continued.)

ODONTOGLOSSUM × HARRYANO-CRISPUM.

THERE was shown at a meeting of the Royal Horticultural Society, held in the Drill Hall, on June 27, a hybrid *Odontoglossum*, from a cross between *O. Harryanum* × *O. crispum*. This hybrid, which came from the collection of Sir F. Wigan, Bart., Clare Lawn, East Sheen, S.W. (gr., Mr. W. H. Young), is distinctly intermediate between its parents. The flowers are French-white, prettily marked with purplish-rose-flush, and blotches, which are distinctly shown in our illustration on p. 67. A First-class Certificate was awarded the plant on the date above mentioned.

THE ROSARY.

AMONGST THE PLANTS.

WHILE thousands and tens of thousands have lately been enjoying a feast of Roses at the exhibitions now being held in various parts of the country, and while eager enthusiasts are discussing the merits of the various exhibits, and exhibitors are exulting over their triumphs, or mourning over their defeats, it must not be forgotten that the Rose season offers enjoyment of a more quiet and not less pleasurable kind to those who can look round in their own gardens, small or large, and view them either in their general effect, or in the character of their individual blooms. Such is my present position, and I think that I may safely say that I have never had a better or more favourable time for enjoying the varied Roses which I cultivate. I do not grow my Roses for exhibition, so that I am not influenced in the selection of varieties that I cultivate by this one factor alone; nor,

again, do I plant my Roses for any particular effect—that is, I do not group them in various colours, nor am I able to grow a quantity of the same variety, as my space is limited. Moreover, I am obliged to grow them more closely than strict rules would enjoin. I probably have three plants where an exhibitor would only have one, and yet with all that I have many a bloom which would not disgrace a prize stand. I have been growing my Roses here for thirty years, but I do not think that I ever had a more enjoyable time for them than in the first week of July, 1899. We had a splendid rain the week before, and I have not a trace of aphid amongst any of my Roses, except on a few plants on a south wall. What does determine the irruption of aphid? some people say that thundery weather brings them, others that an east wind and a bright sun are most favourable to their incursion; and I saw in a morning paper yesterday, that there has been a complete plague of them in Dover. But whatever may regulate their movement, certain it is that here we have not been troubled by them. Now, this in itself materially tends to enhance the good appearance of the Rose garden; when we have to use soft-soap, Gishurst compound, or any of the insecticides which are now so lavishly offered to us, they leave the foliage besmeared and disfigured. Nor have I as yet seen any signs of orange-fungus, although I daresay it will make its appearance by-and-by. We have had no great alternations of heat and cold, and consequently no appearance of mildew; moreover, there has been a quiet time as regards wind, so that our plants have not been blown about. Along a fence which separates my herbaceous border from the rest of the garden, there are plants of single and other Roses which have been, and some of which are now, in very great beauty. Paul's Carmine Pillar is unquestionably a beautiful Rose; it is, moreover, very early, being among the first of the single Roses to flower, profuse in blooming, while the flowers are a fair size. Then there are a couple of Lord Penzance's hybrid Sweet Briars, Lady Penzance (the best of them all), and Anne of Gierstein; then come those two grand single white Roses, Macrantha, with its golden stamens, and Paul's Single White; Bardon Job shines out very conspicuously, but it will be eclipsed, I think, by Paul's Royal Scarlet—this is the most brilliant flower we have yet had. In looking over the Roses that I have out in the beds, I come across some fine flowers, and when I gather one and put it, as one unconsciously does with a Rose, so that I could inhale its perfume, I find, alas! that it has none. This is the case with many of our newer Roses, and it is due, I believe, in great measure to the blood of Victor Verdier having entered into them; but I think it ought to be a rule that no new Rose should be decorated by the National if it lacks perfume. Here is a new Rose which I think will be valuable, viz., Ards Rover, a seedling of Messrs. Alex. Dickson & Sons, of Newtownards, said to be of scendant habit; it is a flower of good form, high colour, and very fragrant, and as we have no Rose as yet amongst our climbers at all like this in character, I think it is likely to prove a great acquisition to rosarians.

Then I see standing up some nice blooms of Gustave Regis, whether Tea or Hybrid Tea it does not matter—quite an ideal button-hole Rose, with its long, pointed, bright yellow bud. Of course, like all Roses of this character, it is of no use when expanded, as it is only semi-double, and consequently loose and shapeless. What a capital Rose for garden decoration, too, Gloire Lyonnaise has proved itself, although it did not fulfil the promise with which it was announced, a yellow hybrid perpetual, yet undoubtedly its vigorous constitution and fine glossy foliage must always secure it a favourable position in our gardens. There is indeed the faintest suspicion of light yellow at the base of its petals, which the imagination of Mons. Guillot has exalted into a yellow hybrid perpetual.

In looking over the portion of my garden

which is devoted to Teas, I find that the frosts which we had at the end of May, and which proved so injurious to many things, has made many a blank here, but there are very many beautiful flowers to delight one. Comtesse de Nadaillac I have always regarded as the very *crème-de-la-crème* of Tea Roses; my plants of it have given me flowers of a very brilliant colour, almost if not equal in this respect to those of Mr. Prince, at Oxford. Anna Ollivier and a beautiful and most popular Tea Rose, Catherine Mermet, and its fair daughter, The Bride, afford a great treat. How beautiful too is Maman Cochet, and the white sport from it! and I see there a strong plant of that beautiful Rose, Madame Hoste; while such old flowers as Innocente Pirola, Edith Gifford, Madame de Watteville, Madame Cusin, Francisca Krüger, and other well-known favourites are there to delight one's sense of beauty and refinement, for I think this latter to be the peculiar characteristic of the Tea Rose. It is never huge and coarse, as we often find some of the H.P.'s.

practised by one of the old school may be of interest to those who have not struck Roses before. It is always pleasant to have a few plants at hand to fill up any blanks in the borders, and if there are some to spare to give to the cottagers on the estate for their gardens—it helps to promote that kindly feeling which it is desirable to foster.

If the following directions are carried out, 95 per cent. of the cuttings will strike in from ten to twenty-five days, according to the variety. Bottom heat of from 75° to 80° degrees is necessary. This may be obtained from a bed of litter and leaves on which a frame can be placed; but a flue underneath a narrow frame is better, as with careful firing the heat is more under control. If a flue is employed, 1 foot of damp ashes should be placed over it. The depth of ashes will depend on the distance this part of the flue is from the furnace. The part of the particular flue I have in mind at the moment is 14 yards from the furnace, and when Roses are being struck a small fire is lit morning and evening. Over the ashes place 7 inches of soil, in a mode-

once or twice a day, according to the dryness of the weather, care being taken not to saturate the soil. If the frame is situated on the north side of a wall no shading will be required, but otherwise, careful shading from the sun at all times is necessary.

After roots form, the cuttings should be potted off into 3-inch pots. In very mild localities the young plants may be planted out-doors in the autumn; but in colder districts, if afforded a further shift into 5-inch pots they can be wintered in a cold frame, and planted out after the first heavy rain the following April. From three to a dozen blooms can be had the first season, if the ground is in good condition.

Roses can be struck with less trouble, and in any free soil, but to root 95 per cent. requires a little care.

The following extracts are from a note-book relative to Rose-striking in Scotland; the years are immaterial:—

August 25.—Put in cuttings of Baroness Rothschild, Alfred Colomb, &c., on the 16th inst., and some are rooted this day—in nine days.

October 8.—Put in cuttings of Alfred Colomb on the 1st inst., and some roots are an inch long—in eight days.

October 31.—Put in 157 Rose-cuttings, nine varieties, on September 18, and all rooted and potted-off bar two. *James Baxter, Boldre Grange Gardens, Lyngington.*

PLANT NOTES.

MASCARENHASIA CURNOWIANA.

THIS beautiful plant, a native of Madagascar, requires only to be more generally known, to ensure its popularity as a stove-climber. The scarlet flowers somewhat resemble those of the Jasmine, and are borne in great profusion at the end of the branches. They last a long time in perfection. It is figured in the *Botanical Magazine*, t. 6612, where the name *Mascarenhasia* is described as being commemorative of the Commander of the Portuguese Fleet, Don Mascarenhas, by whom the Island of Bourbon was discovered in 1545, and in honour of whom it was first named.

PLUMERIA ACUTIFOLIA.

Although a deciduous plant during the winter months, it is nevertheless a plant that should be cultivated by all lovers of stove-flowering plants on account of its white, deliciously-fragrant flowers, which are produced at the apex of the branches, where alone also the foliage is borne; while below are the leaf-scars of former years. The plant comes from the East Indies, and was introduced by Sir Joseph Banks in 1790. Both this and the first-named plant are in flower here. *J. G., Botanic Gardens, Liverpool.*

THE VINE IN AUSTRALIA.

IN the course of a paper read before the Australian Association for the Advancement of Science, Mr. F. B. Kyngdon stated that the first Grape-Vine in Australia was planted at Castle Hill, near Sydney, in 1791, by Colonel de la Campe, a French *émigré*. The first Grape-Vine near Paramatta, a few miles from Sydney, and famous for its oranges, was planted in 1801. After the fall of Napoleon in 1815, Mr. John Macarthur, a spirited colonist, obtained, while in Europe, a number of cuttings of the finer varieties of Vine, but the London nurseryman to whom they were entrusted for despatch to Sydney, substituted others of an inferior kind. The trick was not discovered until several years afterward, the soil and climate of the colony being in the meantime blamed for the failure of the experiment. In 1825, cuttings of the Muscat and Madeira varieties were sent to Sydney, and thrived splendidly. Other cuttings followed, but the British Government refused to grant passages



FIG. 29.—*ODONTOGLOSSUM* × *HARRYANO-CRISpum*: COLOUR OF FLOWERS FRENCH WHITE, MARKED WITH PURPLISH-ROSE. (SEE P. 66.)

But there is another sense which is gratified in walking through one's Roses at this time, namely, the delicious perfume which they shed around; to this the high-coloured hybrid perpetuals, such as Charles Lefebvre, Duke of Edinburgh, Duke of Connaught, Abel Carrière and others of the same kind chiefly contribute. I suppose we may conclude that this comes from their having the blood of the Damask Rose in them, and the more this is present, the sweeter the Rose is; and so I think that we who are non-exhibitors may take our fair share of enjoyment out of the Queen of Flowers. But it must ever be borne in mind that this cannot be had unless we attend to her wants; and, for instance, I take as much pains over planting, pruning, and feeding of my Roses, as if I were going to compete at every show. I also disbud carefully, so that I do my very best to secure good bloom. I am quite aware that plenty of bloom could be had without doing so; but I prefer one good flower to three or four indifferent ones, and a little extra care and attention are never thrown away. *Wild Rose.*

ROSE CUTTINGS.

As many people are naturally anxious to increase their stock of Roses, and as a suitable time is at hand to insert cuttings, perhaps a note on the plan

ately damp condition; on the surface one-eighth of an inch of silver-sand—this reflects the heat to the undersides of the leaves. Let the surface of the soil be about 1 foot from the glass. The best soil is turfy peat which has been one year in stack, one-quarter silver-sand, and about one-thirtieth powdered charcoal, the whole mixed and passed through a $\frac{1}{2}$ sieve. If in any doubt about the temperature, plunge an ordinary thermometer 6 inches in the soil.

Having all in readiness, choose a dull day or evening for taking the cuttings, these should be six or seven joints long, and neither too old nor too young. When the shoot has just shed its bloom, the cutting is about right. They should have healthy foliage, and be taken as close to the old stem as possible. Trim about three of the leaves off the bottom, and I always cut the base with a slight slope, as I find slow-growing varieties root quicker than when cut transversely. Take a handful of the cuttings and dip gently into soapy water three or four times, and before laying them down repeat the same operation in clear water. This frees them of green-fly, and keeps them clean for a time. They may now be dibbled in the frame about four inches apart, but do not crowd the foliage. No air will be required until roots form, but the foliage should be moistened

to Continental Vine-dressers, and it was not until 1844 that such men found their way into the colony. Thenceforward the progress of Vine-cultivation was rapid, and with its increasing spread the production of wine became a recognised industry. It 1861 there were in New South Wales, Queensland, South Australia, Victoria, and Western Australia, 7,009 acres under Vine-cultivation; in 1896 the area had become increased to 58,642 acres, the product being 5,606,035 gallons of wine, 7,901 gallons of brandy, 63,665,280 lb. of table Grapes, and 2,145,360 lb. of raisins. The Grapes grown in New South Wales are equal in size and flavour to the finest grown in Continental Europe, but both their cultivation and the production of wine from them remain imperfectly developed as a whole. In 1897 the area under wine cultivation in the colony was 8,061 acres, producing 794,256 gallons of wine, 7,134 gallons of brandy, and 6,462,400 lb. of table Grapes. The raisin manufacture is still one of the industries of the future in New South Wales. In 1893, with 462 acres less under cultivation than in 1897, the quantity of wine produced was 931,542 gallons. Most of the vineyards are of limited extent, but several are of large size. They are scattered over the whole of the colony, save on the more elevated table-lands and in the sub-tropical regions. There are over 2,000 vigneron in the colony, the most successful being Italians, Germans, and Frenchmen, or individuals having some practical knowledge of Vine cultivation as practised in Europe. The colony offers an unlimited field for enterprise in this direction, there being many thousands of acres eminently adapted for Vine cultivation remaining unutilised. It has been stated by a leading authority that New South Wales is more favourably situated for raisin production than is any of the other colonies, and that when the industry has become introduced and firmly established, a large intercolonial and export trade may reasonably be anticipated. Of the 16,695,560 gallons of wine imported into Great Britain in 1896, only 6,394 gallons were from New South Wales, most of that produced in the colony being locally consumed. Such is the abundance of Grapes, mostly the black varieties, in the colony, that during the season they are retailed at 1d. per lb. in Sydney, the finest Muscatels bringing from 3d. to 6d. per lb. In the vicinity of the vineyards they are cheaper still. *J. Plummer, Sydney, N.S.W.*

MARKET GARDENING.

MARKET FERNS.

LOMARIA CILIATA MAJOR.—This may be recommended as one of the best of the genus; spores germinate freely, and with good treatment useful plants may be established in a few months. Its great advantage over *L. gibba* is that the fronds stand more erect; the fronds are also longer—few Ferns make more symmetrical table-plants. To establish good plants, they must have careful attention from the start. The seedlings should be divided singly as soon as large enough to handle, and potted in a light compost. When large enough for potting into 48-sized pots, a good rough compost may be used, fibrous-loam, leaf-mould, and peat, with plenty of sand added, and good drainage; or if leaf-mould is not to be had, some well-rotted stable-manure may be used. They may be grown on in a stove temperature, and like a moist atmosphere, but over-watering at the roots should be avoided. After the plants have attained to a useful size, they may be gradually hardened-off and well exposed to the light, when the fronds will harden and will stand well when used for house decoration.

The *Lomarias* are not the most popular of Ferns, but I have found that the above variety finds a ready sale, and should rank among our most useful market Ferns.

ADIANTUM SCUTUM.

Of the larger-fronded Maidenhair Ferns, this is the most useful; it makes a well-furnished plant in a 48-sized pot, or as a larger specimen it is very useful. The plant should be potted in good rough loam, and plenty of manure, and a good sprinkling of sharp sand; unless the loam is very heavy, no peat should be used. Grown in good loam, the fronds are of better substance than when a light, peaty compost is used. Young plants may be raised freely from spores; it is, however, necessary to be careful to collect new spores, and they should be taken just as the first spore-cases begin to burst open. I may add that in potting off the young plants, clumps of three or four seedlings may be potted together, and will make well-furnished stuff much quicker than when grown singly. In the earlier stages they may be grown in plenty of heat; but after they are well advanced, an intermediate temperature, with plenty of light and air, will ensure firm fronds, which last well either when cut, or used as pot plants. I believe if a regular succession of this useful Fern were sent to market, it would soon become as popular as *Pteris cretica* major is at the present time. In referring to this variety, it occurs to me how changes come about from time to time, even in the demand for Ferns. A few years ago the crested varieties of serrulata and cretica were more in demand. Now the plain-fronded varieties find more favour, especially cretica major or Ouvrardi, as the best variety is often called. Perhaps I should have said "what was the best variety," for the variety raised by Messrs. Stroud Brothers, and named Drinkwateri, seems likely to supersede it, being of more vigorous growth. This may certainly be recommended to all who grow for market, and especially to those who grow on larger-sized plants than the ordinary 48-size. I find it comes true from spores, and when grown in clumps, it soon makes well-furnished, market-sized stuff; but for larger plants, grown singly, they make tall and symmetrical specimens. *A. Hemsley.*

BOOK NOTICE.

THE TENTH ANNUAL REPORT OF THE MISSOURI BOTANICAL GARDEN, founded by Mr. Shaw, an English settler in St. Louis, has just been published.

The garden is instituted for "the prosecution of research in botany in the broadest sense, including vegetable physiology, the diseases and injuries of plants, and horticulture, and other branches of science closely connected with these, and the instruction and training of gardeners." Ten years have elapsed since the foundation, and each year ample reports have testified to the progress that has been made, and to the scrupulous care taken to carry out the wishes of the testator both as regards the pleasure of the general public, and the advancement of the science and art of horticulture. The herbarium is based upon the collections of Dr. Engelmann, which are invaluable to the student. The library, also, is very rich, especially in books relating to the literature of field, garden, and orchard plants, presented by the late Dr. Sturtevant, and in the pre-Linnean books collected by that botanist. Each year a "flower-sermon" has been preached in accordance with the will of the founder, and two banquets, one to the trustees and their invited guests, and another to the staff of gardeners and invited florists, nurserymen, and market gardeners. It will be seen that the Institution, which is under the direction of Professor Trelease, is calculated to advance horticulture and botany in all their aspects, and to bring together in one common bond all, or as many as circumstances will allow, of those who are interested in them.

The volume before us gives a condensed history of the garden, and various scientific papers, including notes on the grasses of Bernhardt's Herbarium, now in possession of the gardens, by Mr.

Lamson Scribner. A peculiar disease of Beech-roots, due to the presence of sclerotia, is treated on by Hermann von Schrenk. Mr. C. S. Plumb contributes a valuable biographical notice of the late Dr. Sturtevant, who, after serving in the army, collected a herd of Ayrshire cows, and in 1875 published a monograph concerning them. The improvement of Indian Corn was another subject in which Dr. Sturtevant achieved a desirable reputation, and which doubtless led to his position as Director of the splendid Agricultural Station at Geneva, N.Y., the development of which is mainly due to his sagacity and energy. A list of serial publications received by the garden, and an index to the ten preceding volumes, complete a work of much interest to those concerned in the progress of botany and horticulture.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Tripoli Onions.—The beds should now be made ready for the first sowing of Tripoli and other winter Onions, by heavily dressing with decayed manure and deeply digging it. Before proceeding to draw the seed-drills, roughly level the surface, and tread it evenly all over. The end of the present month, and again fourteen days later, will be soon enough to sow the seeds. It is prudent to dress it with fresh soot before sowing, and to rake it to a fine tilth. Giant Rocca is a hardy variety that may be sown at this season, also Dutch Blood-red, Globe Tripoli, and Flat Tripoli.

Celery must be attended to daily, affording water so as to keep the plants growing without receiving a check, applying liquid-manure, and dusting the leaves well with soot two or three times weekly, and keeping the soil amongst the plants loose. No time should be lost in planting out the latest succession plants in shallow trenches in single lines. It is of no advantage to plant in deep trenches, but plenty of decayed manure should be placed in the trenches, and water liberally afforded before and after planting. The nursery beds should likewise be thoroughly soaked with water previous to lifting the plants, and but a few plants should be lifted at one time.

French Beans.—The last sowing for the season may be made on a south border, choosing early varieties only. Let the seeds be soaked in water for a few hours before sowing them, and apply water to the drills. All seeds may in dry weather be sown a little deeper than in wet weather.

Vegetable Marrows.—Let the bine where crowded be thinned once a week, and the roots well supplied with water and liquid-manure, removing all fruits as fast as they become fit for use.

Peas.—The rows of Peas must be afforded plenty of water at the roots, mulching heavily if this has not been done. Syringings of an evening are beneficial after hot days.

Endive.—A large sowing of Endive may now be made in drills on land where it may stand till fit for use, which is better than sowing in beds and transplanting. Thin out the seedlings to 10 inches apart, afterwards applying water with a rose-can. Make other good sowings of Endive and Lettuce at fortnightly intervals.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Dahlias.—These plants are now making rapid growth, and as the main stems are easily broken by rain and wind, it will be necessary to keep them tied up. To produce fine blooms, a liberal amount of liquid-manure must be afforded after the first few flower-buds have appeared where planted in light soils, and a mulch of manure placed over the roots, but kept clear of the stems. Earwigs and thrips are troublesome insects to Dahlias, and the former may be trapped by placing the stems of Broad Beans or reeds amongst the leaves, or small flower-pots stuffed with moss or hay may be put upon the tops of the stakes, the pots being examined every morning and emptied of insects. Thrips may be kept in check by

syringing with a weak decoction of tobacco-juice and water— $\frac{1}{4}$ of a pint of the former to 4 gallons of the latter.

Chrysanthemums.—The early-flowering Pompon varieties now showing flower-buds should be well supplied with liquid-manure, and the varieties flowering in September and October should have the leading shoots pinched back, so as to throw strength into the lateral shoots, and thus form fine bushes. Put stakes and ties to each stem sufficiently far apart to allow the sun to ripen the wood; and in cases where the side shoots are much crowded, thin them out according to the size and sort of blooms required. It is best to afford liquid-manure to these plants later in the season, as so much depends upon the proper maturing of the shoots and grass; unripened growth never producing good blooms.

Violas and Pansies.—These plants suffer much during this month from heat and drought if neglected. Water should be applied after sunset twice a week, and liquid-manure from the cow-stalls with some soot put in it, and much diluted with water, is beneficial to them. All faded flowers and seed-vessels should be removed, and when growth becomes crowded, the older shoots should be pinched back to the base, when fresh suckers will grow up, and thus keep up a succession of bloom. Should the plants be attacked with mildew, pinch off the shoots, and dust the plants with black sulphur (*S. vivum*) in dry weather, keeping the beds dry for three days, and then lightly fork in some leaf-mould, and damp lightly overhead till fresh growth commences, when a more liberal treatment may be afforded. The plants in the reserve garden should now be cut over, so that they may produce shoots for dividing and growing on for another season.

Herbaceous Plants.—Much water will now be required by these plants, especially in the case of Phlox, Helianthus, perennial Asters, Rudbeckias, Potentillas, and gross-feeding plants generally; and in poor soils manure-water is of great benefit in keeping the foliage healthy, and producing fine blossoms. Let the border be kept in a tidy state, but do not cut-back the stems of the plants till they have become dry, as till then they are of use to the plants. Annuals as they pass out of flower should be pulled up, and if gaps are left, fill them by plunging Fuchsias, Pelargoniums, and any plant that will stand exposure, and not look out of character with the surroundings.

FRUITS UNDER GLASS.

By W. STUBBELL, Gardener to the Right Hon. W. H. Lowe, Wood Ashton, Trowbridge.

Strawberries.—Layering should be pushed on with despatch, especially the runners intended to make plants for early forcing. It is optional whether layering is done on the fruiting-pots, or on others of small size; in any case, the pots must be quite clean, be afforded a moderate amount of drainage, and the soil pressed firmly into them, in order that the plants may be dwarf. In layering, choose the first runner nearest the parent plant as being the one most likely to produce the best plant, cutting back the runner to this point. Arrange the pots in rows, and in a way that admits of water being readily afforded once, twice, or thrice a day, as may be necessary. Be careful to take no layers from infertile plants. These usually make an abundant growth, and their runners are of a very tempting size. Pieces of brick or stone are good for keeping layers in position on large pots, and wooden hooks for small pots. Small pots should be plunged to half their height in the soil, in order to lessen the labour of supplying water. The soil used should be turfy loam, one year in stack, or the same with garden-soil mixed with it, and but little, if any, animal manure. Some $\frac{1}{2}$ -inch bones spread over the drainage, affords a good aid to growth when the soil has become filled with roots. Two quarts of bone-meal mixed with each wheel-barrow-load of soil, will be sufficient to impart due vigour. The layers which will be forced the earliest should be fully exposed to sunshine on a coal-ash floor, afforded plenty of space, and generally brought along with a due regard to early maturity, the potting off being carried out without delay. Until the roots push freely into the new soil, water must be administered cautiously, a sodden soil always bringing unhealthiness in its train. Clear water suits the Strawberry best until forcing begins, manure afforded sooner than this producing an undesirable luxuriance of foliage. If the loam made use of be very adhesive, fine ballast or sand should be mixed

with it, or the plants may suffer from the retention of moisture and consequent lack of air in the soil. The plants, whether they are potted in their fruiting-pots or not, should be sprinkled overhead about 6 p.m. if the day has been warm and bright.

Tomatoes.—In order to have plants for affording an early winter supply of fruit, seeds may now be sown thinly in a shallow wooden box, and when the plants are strong enough transplant them direct into 4-inch pots. An ordinary cold frame will suit the young plants during the early stages, as well as for the germination of the seeds. I would recommend as suitable varieties for present sowing Frogmore Prolific, Ham Green, Favourite, Conference, and The Cropper. Seeds may also be sown in 60's, the strongest plants only being retained, but the growth of the plant is more rapid when the seeds are sown in shallow wooden boxes and no transplantation is done. The seed, however, must be sown, or rather dabbed down, at $1\frac{1}{2}$ to 2 inches apart; the plants must be kept near the glass, and plenty of air afforded them.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Chrysanthemums.—Where large blooms are looked for, not more than three shoots should be retained on a plant; but those plants which are grown for the production of flowers for cutting may be allowed to develop from six to twelve shoots each, according to the size of the pots in which they are growing. All flower-buds appearing during the present month should be pinched out, and from the resulting break one shoot only should be retained on each branch. Roughly speaking, buds which are produced after the first week in August may be "taken," or, in other words, may be allowed to develop by pinching off the shoots which subsequently appear around and below the bud. Early plants which are beginning to fill their pots with roots, may now be assisted with an occasional application of weak liquid-manure—and when procurable that obtained from the farm-yard tank is probably the best; but, failing this, a bushel of horse or sheep's manure may be put into a sack, and steeped in a hogshead of water, and the manure-water thus produced may, after being diluted to a safe point, be applied to almost any kind of plants. At this early stage, however, care must be exercised not to afford manure too often, otherwise an unduly gross and sappy growth will be induced. It will be necessary to go over the plants frequently, and tie-in the shoots, in order to prevent injury by the wind, and by birds settling upon them. Water should be carefully afforded, examining each plant several times a day in hot weather; and in the evening the plants benefit greatly by being syringed.

Miscellaneous.—Seeds of *Cyclamen latifolia* may now be sown, using for the purpose shallow pans, well drained, and filled with sifted sandy loam. Having made the surface level, firm, and smooth, place the seeds half-an-inch apart, and cover them to the depth of a quarter-of-an-inch with fine soil. Place the seed-pans near the glass in a cold-frame, keeping the same moist and close, and shaded from bright sunshine. The seed will soon germinate. Further sowings of *Cinerarias*, *Primulas*, and herbaceous *Calceolarias* may be made, following the directions given in a previous calendar. The earliest-sown *Calceolarias* will now be large enough to be pricked-out into pans or pots. Let the same conditions with regard to shade and moisture be maintained as before.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. Forster, Esq., Droghda, Maldenhead.

Cleaning Strawberry Quarters.—The earliest and mid-season varieties having ceased to bear fruit, should have all the dead and useless foliage removed, together with the runners, where these are not required for propagation—and these are not usually in good condition after fruit-gathering is finished. Together with these goes all of the littery mulching material. Let the beds be then slightly hoed over, and if the soil is found to be dry, apply water heavily, having first afforded the beds a light top-dressing of Mushroom-bed or similar short manure. No bed should be allowed to fruit for more than three years, and if the plants that were forced are used to form the plantations, two years is long enough. Where the beds are to be destroyed, let the plants be cleared off forthwith, and plant with

winter Broccoli in drills made 4 inches deep, a stout dibber being employed to make the holes. The plants for new Strawberry quarters should be forthwith layered in 3-inch pots, if this has not been previously done. These runners should be ready to plant out early next month if a good crop of fruit is looked for next year.

The Morello Cherry.—The training-in of the young shoots and the removal of surplus ones should be carried out as far as practicable before the necessity arises for putting netting over the ripening fruits. If black aphid infests the shoots, afford the trees a heavy syringing with diluted Quassia-extract as before recommended, but if it is the points of the shoots only that are infested, dip these into the solution instead of using the syringe on them. The next day well syringe the trees with clean water. The nets should be suspended from the top of the wall, and be kept far enough away from it by means of forked twigs or light poles to allow of a person walking underneath.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen, S.W.

Natural Hybrids.—So far as is known to me, no plants answering to this description exist in large number, for even where two good species grow together, inter-crossing does not take place to such an extent as might be supposed. The largest recognised group is that of *Lælio-Cattleya elegans*, and the form called *Schilleriana*, both the result of intercrossing of *Lælia purpurata*, *Cattleya guttata* Leopoldi, and *C. intermedia*. From the cultivator's point of view, it is usual to treat *L.-C. elegans* as a distinct species, its requirements differing greatly from those of its supposed parents, and contrary to what was said concerning home-raised hybrids, it is not so amenable to the ordinary methods of treatment as are the latter. Of the two, *L.-C. Schilleriana* is the easier managed, the influence of *C. intermedia* predominating. Both forms should be cultivated in well-drained and well-ventilated pots, deep pans, or baskets, the latter being, perhaps, the better for temporary use, whilst perforated pans should be chosen for permanence. The best kind of Orchid-peat, with a small quantity of sphagnum-moss inserted here and there to improve appearances, and afford the grower an indication of the condition of the materials as regards moisture. Let the temperature of the house in which the plants are placed range from about 58° as the lowest in winter, to 68° in the summer, and conditions such as these are usually to be found at the warmer end of the *Cattleya*-house; place them more in the shade than in the sun. Numerous species and varieties of Orchids have made considerable growth at the top, as well as new roots, and this makes it a suitable season for renewing a portion of the surface material. Until the present time water has been afforded in limited quantity, but it may now be considerably increased, the rooting material being kept in a well moistened state. A disease peculiar to *Cattleyas* is induced by sodden materials in the dull season, when evaporation is arrested, and the plants, once attacked by the disease, seldom recover. The most that a cultivator can do is to cut back the diseased parts down to healthy tissue. When he detects its presence in a very early stage, a cure is perhaps possible if powdered-charcoal and sulphur be rubbed in, and the plant kept in a dry state for a short period of time.

Lælio-Cattleya Gotoiana is a natural hybrid between *Cattleya Warneri* and *Lælia tenebrosa*. It possesses a good constitution, and thrives when treated similarly to *C. labiata*. A plant here is now throwing up its flower-sheaths, and will in consequence need water oftener.

Hybrid Odontoglossums of natural origin provide us with many fine forms, *O. Wilckeanum*, *O. excellens*, *O. elegans*, *O. Andersonianum*, *O. Ruckerianum*, *O. Humeum*, and *O. asperum* being the better known ones. All but the two last named should be afforded treatment similar to that found to answer with *O. crispum*; the last named being treated like *O. Rossii*, which plant is at the present time in a state of comparative rest.

Cymbidium Tracyanum.—Plants of this fine natural hybrid are in active growth in an intermediate-house, where sunlight is moderated by thin shading, and the air is maintained in a fairly moist state. Some much-diluted farmyard manure-water may be afforded occasionally.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	JULY 22	Royal Botanic Society, Meeting. Rose and Horticultural Show at Newton Meads.
TUESDAY,	JULY 25	Royal Horticultural Society's Committee. National Dahlia Society's Committee Meeting at Hotel Windsor, 5.30 P.M. Horticultural Show at Tibshelf.
WEDNESDAY,	JULY 26	Beckenham Horticultural Society's Show.
FRIDAY,	JULY 28	Imported and Established Orchids, Maori Skulls, and Cacti, at Frotheroe & Morris' Rooms.

SALE.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period July 9 to July 15, 1899. Height above sea-level 24 feet.

1899.	JULY 9 TO JULY 15.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			AT 9 A.M.		DAY.		AT 1-foot deep.		AT 2-foot deep.	
			Dry Bulb.	Wet Bulb.	Highest.	Lowest.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	LOWEST TEMPERATURE ON GRADE.
SUN. 9	N.N.W.	deg. 68.8	deg. 62.0	deg. 77.9	deg. 50.4	...	deg. 67.7	deg. 63.2	deg. 58.1	deg. 48.1
MON. 10	S.S.W.	deg. 65.7	deg. 61.1	deg. 72.9	deg. 57.9	0.11	deg. 67.8	deg. 63.6	deg. 58.5	deg. 51.5
TUES. 11	S.S.E.	deg. 71.8	deg. 64.6	deg. 82.6	deg. 59.9	...	deg. 67.2	deg. 63.7	deg. 58.8	deg. 56.5
WED. 12	S.S.E.	deg. 74.9	deg. 65.8	deg. 76.9	deg. 64.9	...	deg. 69.4	deg. 64.2	deg. 58.9	deg. 57.5
THU. 13	W.N.W.	deg. 62.8	deg. 57.5	deg. 73.1	deg. 57.7	...	deg. 67.4	deg. 64.5	deg. 59.2	deg. 54.8
FRI. 14	S.S.W.	deg. 66.9	deg. 58.2	deg. 70.5	deg. 48.3	...	deg. 65.8	deg. 64.1	deg. 59.5	deg. 59.1
SAT. 15	W.S.W.	deg. 66.7	deg. 56.6	deg. 71.7	deg. 57.5	...	deg. 66.2	deg. 63.7	deg. 59.7	deg. 51.1
MEANS...	...	deg. 68.2	deg. 60.8	deg. 75.1	deg. 57.5	0.11	deg. 67.4	deg. 63.9	deg. 59.0	deg. 51.2

Remarks.—The weather during the week has been very hot, Tuesday, July 11, being one of the hottest days experienced this summer, as only on one occasion has the glass registered a higher temperature, which was on June 5, when it read 82.7° in the shade. A little rain fell on July 10.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—63.4°.

ACTUAL TEMPERATURES:—

LONDON.—July 19 (6 P.M.): Max. 87°; Min. 68°.

PROVINCE.—July 19 (6 P.M.): Max. 82°, Eastern Counties; Min. 64°, N.E. Scotland. Excessive heat.

The new Charter of the Royal Horticultural Society. WE are unable to furnish any official information concerning the new charter of the Royal Horticultural Society. As a rule, we never hear of the charter till there is something the matter, and when that happens, there is usually a difficulty in routing up a copy. It might fairly be assumed from the sudden way

in which the announcement has been made, that something is the matter with the Society. Yet it is so very prosperous at present, that we do not believe there is aught amiss.

We prefer to believe that the Council are wisely providing for possible future emergencies, but why they should have selected the week of the Hybridisation Conference, and the busiest season of the year to make the announcement, passes comprehension. As the meeting is to be held on Friday, our readers can learn nothing of the proceedings till next week.

Recalling by an effort of memory the troublous times which are happily past and gone, we remember there was such a thing as a charter granted in 1809, and another (the new charter) in 1861. When the time of trouble came, so far from being a help, the charter proved a nuisance and an encumbrance. People found themselves doing illegal things, and prevented by the provisions of these precious documents from doing other things which seemed right. It is, therefore, not wonderful that now, when the Society is once more prosperous and in good repute, the Council should move for a new charter. We presume certain obsolete provisions will now be cancelled, certain difficulties and inconsistencies removed, and that the whole thing will be simplified. The power of governing the Society by bye-laws, rather than by charter, will also be more fully secured. The bye-laws can be modified at any meeting called for the purpose, and so the government and administration can be at any time brought into harmony with the exigencies of the times. Such, we suppose, will be the general outcome, and if our surmise be true, there will, of course, be nothing to object to, but much to be thankful for. The only thing, as we said before, that raises a doubt, are the suddenness and reticence with which the proposal has been sprung upon us at the most unsuitable period of the year.

Paraguay Tea, or Yuba Maté.

NOTES on the enterprise of our German friends are frequently cropping up in unexpected quarters, as the following paragraph will show.

Reporting on the trade of Paraguay for 1898, the Ortung British Consul thus speaks of the Yuba Maté, or Paraguay tea (*Ilex paraguensis*):—"The trade has been depressed owing to keen competition with Brazilian in the Argentine Republic, which is the principal market, otherwise the production has been good, and at the end of the year there were large stocks on hand. This Yuba Maté is one of the most important productions of the country. It is the leaf of a tree which grows in the forests in certain parts of the country only, without any cultivation. The owners of these trees have the young branches cut and prepared, and after four years they return and repeat the operation. A "Yerbal" might be compared to a Tea or Coffee-plantation, with the exception that it requires no planting, no cultivation, only care being taken not to cut the young branches before four years have elapsed. The infusion made from this tea is very agreeable, refreshing, and invigorating, and is naturally the national beverage of the country. It is used all over the Argentine and Uruguayan Republics, and to a certain extent in Chili. It has superior qualities to coffee, and is much more economical, as 1 kilo. of this tea will give 100 litres of infusion. It has a small sale in Europe, and endeavours are now being made to increase its acceptance by preparing it in a

different manner to suit European tastes. It has just been very favourably reported on from Germany, and it is considered that, for armies and navies, it would be invaluable."

Paraguay tea has been from time to time introduced, and even "pushed," in this country, but it has never seemed to "take on" with the English palate. The fact of its being "more economical" than either tea or coffee, will no doubt be a strong recommendation for use in Germany.

From Bavaria we learn that, according to the report of the Chamber of Commerce, published last August, indigo prices were very low, and the consumption of indigo small in consequence of the use of the cheaper Alizarine for blue dyes. It was anticipated that a complete change would shortly take place in the indigo market, as the large dye-works at Ludwigshafen, which employ 5000 men, had succeeded in establishing artificial indigo on the market, which was about to be largely used for dyeing uniforms in Germany, instead of natural indigo.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, July 25, in the Drill Hall, James Street, Westminster, 1 to 5 P.M. A lecture on "Seed Dispersal" will be given by Prof. G. S. BOULGER, at 3 o'clock.

JUBILEE OF THE GHENT SCHOOL OF HORTICULTURE.—The *Semaine Horticole* publishes an account of the proceedings on this interesting occasion. They comprised an exhibition, a Congress, and the foundation of a Guild, comprising the old pupils of the school. Numerous representatives of foreign governments were present, but we regret not to see any British subject among them. This may partly be accounted for by the occurrence of the Hybridisation Conference nearly at the same time. The Director, M. RODIGAS, was honoured by the presentation of a floral trophy, and memorial wreaths were laid at the foot of the statue of VAN HOUTTE, the founder of the school; and on the tomb of Professor KICKX, the second Director of the school. Banquets, *raouts*, and *fêtes*, of various descriptions, contributed to render the Jubilee a very memorable event.

FRUIT, ETC., BY RAIL.—The Superintendent of the Great Eastern Railway has informed us that the statement of the number of fruit and farm-produce boxes conveyed on that line during the six months ended on June 30 has been got out; and from this it appears that the number was 79,000, as compared with 71,000 for 1898. This is a favourable return, and must be very encouraging to those engaged in the transit.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual outing of the Members took place on the 17th, about 170 persons proceeding to Cheddington by rail, from whence they were conveyed to Mentmore. Dinner was served in a spacious marquee on the village green, Mr. P. WATERER, the Chairman of the Committee, presiding. The health of Lord ROSEBURY was drank with great enthusiasm, and Mr. J. SMITH responded on behalf of his employer. The afternoon was devoted to an inspection of the gardens and grounds, which are just now to be seen at their best. After partaking of refreshments, the party was conveyed to Cheddington, and reached Euston at 9.30 p.m., all delighted with the day's holiday.

WARGRAVE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.—An ordinary meeting of the above association was held on July 12, Mr. W. POPE in the chair. The subject for the evening was Carnations, and two useful papers were read by Mr. W. H. SCOTT, on border varieties, and Mr. T. HASKETT, on Souvenir de la Malmaison.

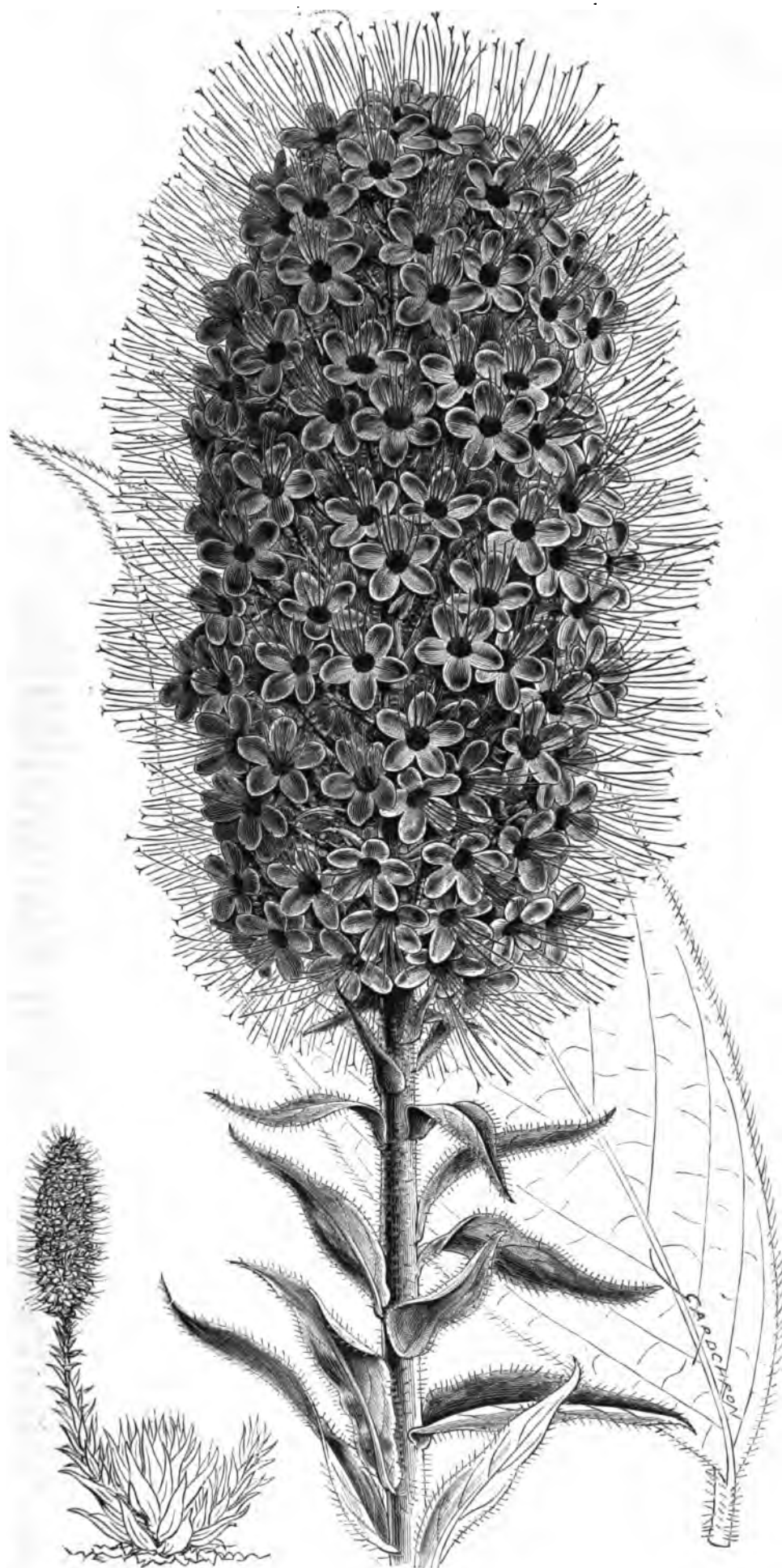


FIG. 30.—ECHIUM CANDICANS: FLOWERS DEEP BLUE. (SEE P. 74.)

THE CAPABILITIES OF TONGA.—Tonga, in the Western Pacific, would seem to be a happy land wherein to invest capital, judging from the British Vice-Consul's opinion, as expressed in a recent report. After drawing particular attention to the whale fisheries, he says, another opening for capital is the institution of a factory and farm for the cultivation and extraction of fibres and the distillation of oils from flowers. "The Ramie, Pine-apple, and Aloe are said to grow to perfection without the slightest difficulty," to say nothing of the hundreds of thousands of Cocoa-nut husks which lie rotting on the ground. Many flowers, notably a species of Gardenia, are in abundance, and their increase is only a matter of will. Labour at about 30s. to 40s. per month can be had in large quantities from Savage Island; land can be obtained, and there can be but little doubt that such an undertaking economically, intelligently, and systematically carried out by experienced men, would be a success. The reason of so many failures in South Sea operations in the past, of so much money having been lost, has been, not from any fault in either soil or climate, but from ignorance, inexperience, and extravagance on the part of those conducting them.

A GOOD GARDENER.—"Let me begin by saying that a good gardener loves his plants. Now, a good gardener is one who grows good plants, and good plants are very unlike poor plants. They are unlike because the gardener's love for them has made them so. The plants were all alike in November. In January, the good gardener's plants are strong and clean, with large, dense leaves, a thick stem, and an abundance of perfect flowers; the poor gardener's plants are small and mean, with curled leaves, a thin, hard stem, and a few imperfect flowers. You will not believe now that the two lots were all from the same seed-pod three months ago. The good gardener likes to save his own seeds or make his own cuttings, and next year his plants will be still more unlike his neighbour's. The neighbour tries this seed and that, reads this bulletin and that, but all avails nothing, simply because he does not grow good plants. He does not care for them tenderly, as a fond mother cares for a child. The good gardener knows that the temperature of the water and the air, the currents in the atmosphere, the texture of the soil, and all the little amenities and comforts which plants so much enjoy, are just the factors which make his plants successful; and a good crop of anything, whether Wheat or Beans or Apples, is simply a variation." *L. H. Bailey, "Factors of Organic Evolution."*

SELECTION.—"This simple process of thinning out vegetables has had a most powerful effect upon the evolution of our domestic flora. It is a process of undesigned selection. This selection proceeds upon the differences in the seedlings. The weak individuals are disposed of, and those which are strongest and most unlike the general run are preserved. It is a clear case of the survival of the unlike. The labourer who weeds and thins your Lettuce-bed unconsciously blocks out his ideas in the plants which he leaves. But all this is a struggle of Jew against Jew, not of Jew against Philistine. It is a conflict within the species, not of species against species. It therefore tends to destroy the solidarity of the specific type, and helps to introduce much of that promiscuous unlikeness which is the distinguishing characteristic of domestic plants." *L. H. Bailey, "Factors of Organic Evolution."*

COLUMBINE AND CLEMATIS.—Some of our correspondents are making merry over this supposed cross, mentioned at the end of the discussion at the Hybridisation Conference. We think the agnostic, rather than the sceptical, attitude should be assumed; for, superficially unlike as are the two plants, they are, as every botanist knows, so nearly related, as to be placed in the same order. Let us wait, and see.

PRODUCTION OF FASCIATED STEMS AND INFLORESCENCES.—In a paper contributed to the *Comptes Rendus de l'Académie des Sciences*, for June 26, M. L. GÉNEAU DE LAMARLIÈRE details the results of experiments made with the object of producing fasciation in the stems and inflorescences of plants. *Barkhausia taraxacifolia* was the species chosen for the trials, and the following paragraph explains the manner in which the desired malformations were effected. "Mutilations, practised upon the principal stems and branches of *Barkhausia taraxacifolia* favoured the formation and development of dormant abnormal buds, and thus gave rise to branches and inflorescences more or less fasciated. Mutilation of the principal axes is then a cause of teratological growths; an indirect cause, certainly, but not the less effectual."

ANEMONE ALBANA.—Dr. DUTHIE writes: I found this species in flower in July 1892, growing on loose stony debris near the Marpu Pass in Baltistan, at elevations between 12,000 and 13,000 feet. The flowers were mostly of a dull yellowish colour, more or less tinged with brownish-purple; but, owing to the bell-shaped perianth being so thickly clothed outside with grey silky hairs, these colours were not perceptible at a distance. Whilst on the subject of *Anemones*, I may mention the recent discovery of *A. rupicola*, Camb., on the precipitous limestone cliffs near the summit of a mountain called Deoban, in Jaunsar, at an elevation of about 9,200 feet. This is a very isolated locality for this species, which had previously been known only as confined to the dry inner ranges of the Himalaya, whereas Deoban is exposed to the full force of the monsoon. *J. T. Duthie, Mussoorie, India.*

DUBLIN BOTANICAL GARDENS.—These form the subject of an article in the *Pharmaceutical Journal*, written by someone conversant with his subject, and in sympathy with it. The same number contains some very judicious remarks on botanical nomenclature, by Mr. E. M. HOLMES.

A NEW COATING, which is said to successfully protect posts and other timber surrounded by earth from rotting, is prepared, according to the *Baugewerkzeitung*, from resin, 50 parts; finely-crushed chalk, 40 parts; fine white sharp sand, 500 parts; linseed-oil, 4 parts; native red cupric oxide, 1 part; and sulphuric acid, 1 part. First heat the resin, the chalk, the sand, and the linseed-oil in an iron kettle, then add the oxide and the sulphuric acid with caution, mix everything carefully, and paint the wood with the hot mass, using a strong brush. If the mixture is not liquid enough, it is diluted with a little linseed-oil. When the coating is dry, it forms an extremely hard varnish, which allows no moisture to enter. *Scient. Amer.*, 86, 135 (*ex Pharmaceutical Journal*).

ROTTEN FRUIT.—Many cartloads (14 tons one report says) of decaying Strawberries and Raspberries have been destroyed by order of the magistrates. They were seized on the premises of a great jam-factory in Bermondsey. With a never-satisfied demand for Strawberries, there must have been sad blundering somewhere to have brought about such terrible waste. Jam-eaters may take comfort from the fact that, in all probability, all poisonous germs would be destroyed by the boiling to which they would be subjected, but the fermentation of the fruit would sadly interfere with the flavour. We shall probably hear more of the matter.

VANILLA CULTURE IN TAHITI.—The increase of Vanilla culture in Tahiti is said to be spreading rapidly; the natives, with few exceptions, are giving their whole attention to the growth of the plant, and curing of the pods. Its export, which in 1893 was 29,858 lb., valued at £3938, reached during 1898 to 92,137 lb., but owing to a serious decline in its market value, that quantity realized only £20,468, as against £35,682 for 75,740 lb. in 1897.

HYBRID BETWEEN THE SWEET PEA AND THE FIELD PEA.—Mr. ECKFORD brought up to the Conference some accidentally-produced seedlings, apparently intermediate in floral characters between the two plants mentioned, and which attracted much attention.

STOCK-TAKING: JUNE.—The trade and navigation returns for June continued to bear an encouraging aspect; true, there was a falling-off in the value of imports, but as in the case of Wheat, whilst there is a large increase in the quantity imported, there is a great fall in the value, the comparison being with Chicago "corner" prices of last year. But here it is needful to give our usual excerpt from the summary table, as follows:—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	39,032,305	38,348,943	-683,362
(A.) Articles of food and drink—duty free ...	15,106,692	14,243,992	-952,700
(B.) Articles of food & drink—dutiable ...	1,725,622	1,673,858	-51,764
Raw materials for textile manufactures ...	4,880,463	3,757,018	-1,123,445
Raw materials for sundry industries and manufactures ...	4,467,625	5,106,174	+638,549
(A.) Miscellaneous articles ...	976,990	1,083,896	+106,906
(B.) Parcel Post ...	127,484	78,647	-48,837

There are other "decreases" to be noted in addition to those given above, but these are made up for by increments on other accounts. The figures relating to fruits, roots, and vegetables possess all their old interest, as will be seen by the following table:—

IMPORTS.	1898.	1899.	Difference.
Fruits, raw:—			
Apples ... bush.	17,241	62,424	+45,183
Cherries... ..	166,012	129,655	-36,357
Grapes	5,018	5,325	+307
Lemons	134,217	155,716	+21,499
Oranges	79,134	340,495	+261,361
Pears	4	56	+52
Plums	9,548	7,401	-2,147
Unenumerated... ..	220,526	216,744	-3,782
Onions	388,746	325,508	-63,238
Potatoes ... cwt.	1,581,874	1,629,050	+47,176
Vegetables, raw, unenumerated ... value	£233,972	£237,427	+£3,455

To conclude the import section, we note that the figures representing the trade of the six months are £236,736,876, against £235,995,751 for the same period last year—an increase of £741,125. Coming now to—

EXPORTS.

we find these foot up at some £21,980,067 for the past month, compared with £19,413,696 for June, 1898—an increase of £2,566,371. In conclusion, the value of exports for the past half year are valued at £126,521,894, against £112,508,179 for the corresponding period in 1898, or an increase of £14,013,715.

"REPORT ON FIELD EXPERIMENTS."—We have before us the fifth annual *Report on Field Experiments*, conducted in Berkshire, Dorset, Hampshire, and Oxfordshire, in co-operation with Reading College, Agricultural Department, during 1898. This pamphlet also details the results of experiments on Potatoes in Messrs. STURTONS' trial-grounds in 1895—1898. In the first of these years drought seriously interfered with the trials; but the general conclusions to be drawn from the experiments of the past four years are:—"That small results were obtained by direct application of manures to the Potato crop in a district with a dry soil and limited rainfall. Potatoes are most successfully grown on land in high con-

dition, and results tabulated indicate that on such high-conditioned land the direct application of many artificial manures for Potatoes will do harm rather than good. It has been very striking all through the experiments that nitrate of soda has had far more effect in increasing the luxuriance of the haulm than the weight of the tubers. Another result of the experiments is, that potash manures have not had the effect of increasing the crop to the extent anticipated when the investigations were commenced. It is also noticeable that farmyard manure has, with few exceptions, failed to give satisfactory results; this is in all likelihood due to the manure keeping the soil dryer, and thus intensifying the effect of dry seasons, and partly also to the land having been heavily dressed with farmyard manure in previous years." It is stated that in two important points the Reading results agree with those obtained during the past twenty-three years at Rothamsted: (1) The addition of a potash manure to superphosphate has not materially increased the crop; (2) Farmyard manure has not given as good results as a judicious application of artificial manures. Nitrate of soda has given a better result than ammonia salts (including sulphate of ammonia), containing the same amount of nitrogen. Further, nitrogenous manures, while producing the most luxuriant growth, give the greatest proportion of diseased tubers when disease is present.

AN IMPETUS TO THE MANUFACTURE OF ATTAR OF ROSES IN TURKEY.—It is stated in a recent issue of the *Bulgarian Commercial Gazette*, the official organ of the Government, that orders have been given by the Turkish Government to remit the tithe on all land under Roses for commercial purposes, and all Rose nurseries and plantations for a period of fifteen years, in order to extend and aid the cultivation of Roses in the empire. The majority of these Rose nurseries and schools for teaching the art of Rose cultivation and process of manufacture of attar, are found at the present time in Broussa (Asia Minor) and Salonica (Macedonia), and a few are found in other parts of the empire. In Broussa the results have been very satisfactory, both in the quantity produced and in the condition of the plantations. At this place the best machines and implements have been procured for the manufacture of attar, and the pupils at the nurseries are being instructed in their use. This news is creating no little searching of hearts among the southern Bulgarians, who, hitherto, have been the chief producers; and among the Germans, who contemplate the wholesale cultivation of Roses, the soil and climate of Asia Minor being without doubt very favourable for Rose cultivation, and what is still more important, labour is very cheap there as compared with the rates prevailing in Germany.

BLADDER-RUST OF PINUS STROBUS.—Specimens of the so-called Bladder-rust of the Weymouth Pine were sent to the Imperial Sanitary Office, Berlin, in the beginning and middle of May last, in full development. The Imperial authorities, having examined the specimens sent, have published the following particulars concerning the fungus:—"The yellow spore-cases of the parasite covered the surface of the bark of the diseased branches and stems, yielding enormous quantities of yellow powder. Attention was repeatedly called to this important disease, and to measures for its cure, two years ago; but the present information will not be in vain if it again brings attention to the subject. The spores of the fungus falling on the leaves of the Gooseberry and Currant, afford a second generation, which, going through the usual cycle of development, return again to the Weymouth Pine, attacking the shoots and twigs. The shoots, branches, &c., that become infested, gradually die and should be removed in good time. Old trees can be preserved for a long time if the affected parts are cut out, and the wounds bound over with something that prevents contact with the air. As the malady is readily spread by the transport of

ang trees from nurseries, buyers should be careful ascertain the condition of the nurserymen's stocks of Weymouth Pine." We have received information regarding its appearance in these lands.

"CACTUS CULTURE FOR AMATEURS."—Mr. W. ATSON has published through L. USCOTT GILL, 10, Strand, a second edition of his useful work on the Cacti cultivated in European and specially in British gardens. The appendix is the important addition to those who have the original work. In it are contained additional cultural notes and descriptions of some species introduced since the publication of the last edition. Cactuses have special attractions for the few, though even the most indifferent are roused into admiration at the gorgeous beauty of many of the species when in flower. Messrs. VETICH's exhibits of varieties of *Eyllocactus* are so startlingly beautiful that their popularity is ensured, and once this is obtained, growers will find that there are other sources of pleasure beyond the flowers to be obtained from these most interesting plants.

WHEAT AND OTHER CROPS IN THE UNITED STATES.—From the official report for June we learn respecting spring Wheat that the extent of the decrease in acreage is 470,000 acres, or 2.5 per cent., as compared with last year, and that the condition of the crop is represented by 91.4, as compared with 100.9 on June 1 last year. The condition of winter Wheat would appear to be very backward; the present average (67.3) is below that of the preceding fifteen years. Of Oats, the average extent is about 169,000 acres—a trifle under last year's acreage; the condition is represented by 87.4, as compared with 98 on June 1 of last year. Barley: the average has increased by 3.1 per cent. in last year, and the condition is reported at 84.4, as compared with 78.8 at the same period last year.

NEW PUBLIC GARDEN FOR DALSTON.—The Earl of MEATH, who opened the Albion-square Public Gardens at Dalston, Wednesday, 12th inst., said it was a very important day in the history of the Metropolitan Public Gardens Association, for the Albion Gardens made the hundredth open space which the association had been instrumental in securing for the public enjoyment.

HINTS FOR FLORAL DECORATIONS.—As success in decorating is largely the result of observation and experience, it is worth while noting what flowers are most effective this season, with a view to employing similar mixtures of colours and design next year. London window-balconies often furnish many a useful hint; while at gatherings held in the country, floral decorations naturally appear to even greater advantage. At Henley, for instance, the house-boats, fewer in number than usual, looked pleasing in proportion to the simplicity with which they were adorned. Yellow *Calceolarias* amid green foliage, the ever-popular pink ivy-leaf *Pelargoniums* and white *Marguerites* were far more satisfactory than mixtures of many tints. One of the prettiest of the boat-houses showed, outside, rich scarlet *Pelargoniums* and white *Marguerites*. The interior decorations were naturally more varied. Wreaths of pink *Roses* surrounded the pyramids of ice, that looked refreshingly cool that week; large bouquets of Sweet Peas, with abundance of delicate foliage, stood on many of the tables, while fire-place, chimney-piece, and over-mantel were abundantly yet lightly stored with trails and masses of Crimson Rambler *Rose*. In fact, nearly all the flowers used were red (from pink to deep crimson) and white, with an abundance of feathery foliage. There is seldom room for much floral display on the smaller boats, but a gondola attracted considerable attention. It was, of course, black, the wood either carved or moulded, and in the place of honour stood a vase of scarlet *Anthuriums* and white *Campanulas*. These looked strikingly uncommon, and stood out in relief against their dark background.

PUBLICATIONS RECEIVED.—*Orchid Review*, June. This includes short papers on *Acineta Hrubiana* (colossa), Change of Colour after Fertilisation. *Cypripedium* x *Salicaria*, *Dendrobium Wardianum* as a Seed parent, Feeding Orchids, Hybrid *Odontoglossums*, Hybridisation, *Laila Jongheana*, *Odontoglossum crispum heliotropium* (with illustration), *Odontoglossum* x *Denisoniae*, &c.—*Tabulated List of Orchard "Insect Pests" affected by Spraying*, by F. V. Theobald (Headley Brothers, London and Ashford). A useful publication, detailing the "date of appearance of egg, larva, &c., and the advisable washes, and time for application."—*Pharmaceutical Journal*.—*Agricultural Gazette of New South Wales*, May. Among the contents are the following articles:—*Dessert and Raisin Grapes* (illustrated), by F. V. Allen; *Vine Culture in N.S.W.*, by F. B. Kyngdon; *Phylloxera of the Grape-vine* (with coloured plate), Messrs. Blunno and Froggatt; *Botanical Notes*, J. H. Maiden; and *Notes on Wheat in N.S.W.*, by W. Farrer.—*Bulletin of Miscellaneous Information, Trinidad*, April. This includes a paper on *Cacao Pod Disease*; an analysis of *Sun-dried Balata latex* and (appendix) *West India and Guiana Ferns*. We note that the Potato has this year yielded excellent crops (for the tropics) in Trinidad, but it is only considered worth growing as a curiosity for those fond of Potatoes, and to whom the expense is no object.—*Florists' Exchange* (New York), June 10.—*Mechanics' Monthly*, June (Philadelphia). This contains a description and coloured plate of *Echinocactus setispinus*, as well as many shorter papers and notes.—*Contributions to the Life-History of Plants* (No. XIII.), by Thomas Meehan. This pamphlet is divided into the following sections:—1, Sex in Flowers; 2, *Clethra alnifolia* in relation to Morphology; 3, *Sanicula*—a biological study; 4, *Rosa rugosa* in connection with Evolution; 5, *Viola* in relation to Pollination and Fecundation; 6, *Isanidia palustris*—additional note on its Stipular Glands; 7, *Pathenogenesis*; 8, *Lactuca scariola* in relation to Variation and the vertical position of its Leaves; 9, the Stigma of *Asclepias*; 10, *Phyllotaxis* in connection with *Chenopodiaceae* and *Polygonaceae*; 11, Influence of Fungi on the characters of Plants; 12, Movements of Plants; 13, Eccentricity in the Wood-circles of *Rhus* and *Hedera*; 14, Morphology of the Grape.—From the New York Agricultural Experiment Station come the following *Bulletins*:—*Bulletin No. 121*, Appendix, March, *Spray Pumps and Spraying*, Wendell Paddock; *No. 155*, December, 1898, *Sugar-Beet Investigations in 1898*, L. N. Van Slyke; *No. 156*, December, 1898, *Spraying Cucumbers in 1898*, F. A. Sirrine and F. O. Stewart; *No. 157*, December, 1898, *Self-fertility of the Grape*, S. A. Beach; *No. 158*, May, 1899, *Combating the Striped Beetle on Cucumbers*, by F. A. Sirrine.—*Revue Horticole*, June 16, a coloured plate of *Abricot fertile de Chateaux*.—*Le Moniteur d'Horticulture*, June 10.—*La Semaine Horticole*, June 17.—*Journal de la Société Nationale d'Horticulture de France*, May.—*Journal Horticole and Viticole*, June 1.—*Tijdschrift voor Tuinbouw*, twaalfde aflevering.—*Bulletino della R. Società Toscana di Orticultura*, Maggio.—*Gartenflora*, June 15.—*Botanisches Centralblatt*, Band 78, No. 13.—*Illustrirte Flora*, June 1.—*Die Natürlichen Pflanzenfamilien*.—*The Country Gentlemen's Catalogue for 1899*, published by the Country Gentlemen's Association, Bedford Street, Strand. This, the seventh annual issue of the publication, includes an illustrated article on Tring Park, Hertford, the seat of Lord Rothschild. The remaining pages deal with such subjects as the Management of a Farm, its fields, root-crops, and stock; Gardens and Orchards, Mushroom Culture, Poultry-keeping, Bee-keeping, Sport, Horses, and Dogs. There are also some racing calendars, and the usual meteorological tables and post-office information. Laws for motor-cars are given—in fact, a great many notes on miscellaneous subjects, such as are generally to be found in an annual of this sort. They are likely to be found especially adapted to, and therefore to be particularly appreciated by the class of readers to whom they are here addressed.—*Diseases of the Black Currant*, by Dr. John H. Wilson, D.Sc., F.R.S.E., issued by the County Council of Fife. Life-history of the mite, and methods of combating its ravages.—*Journal of the Board of Agriculture*, June. This contains articles on Spraying Fruit-trees, Eradication of Charlock, Seeding of Sainfoin and Lucerne, Growing Sugar-Beet, and various other subjects connected with crops and stock.—*British Mycological Society's Transactions for the Season 1897-98*. This includes the reports of Forsay, an address on the Agaricini of Great Britain, by the President, Dr. Plowright; Notes on a Potato Disease, and on *Penicillium* as a Wood-destroying Fungus, by H. Marshall Ward, D.Sc.; New and Rare British Fungi, Dr. Plowright; Some curious Moulds, Greenwood Pim; Sclerotia Diseases of Potatoes, Professor E. J. McWeeney, M.D.; British Mycology, Miss Annie Smith; and Recent Observations by Professor Eriksson on the Rusts of our Cereals. Four plates are included in this issue.—*Bulletin of the Botanical Department, Jamaica*, May; with papers on Jamaica Dogwood (*Piscidia erythrina*), by Herman Berberich; Peppers or Chillies (from the *Kew Bulletin*); Vegetable Soap (*Agave Morrisii*), by Dr. Anthony Robinson, from the *Columbian Magazine*, Jamaica, January, 1898; *Mimusops Elengi*, and Developments in Rubber Culture.—*Queensland Agricultural Journal*, May; with papers on Buckwheat, by H. A. Tardent; History of the Potato, W. Soutter; Market Gardening (No. 4), H. W. Gorrie; Arrow-root, A. J. Boyd; and Value of Manure, S. C. Voller; as well as the usual contributions on the subject of Bush-work, Dairying, Poultry, the Orchard, Forestry, &c.—*Agricultural Journal of the Cape of Good Hope*, May 25, contains reports from the various districts, notes on Prolific Mealies, on the Fruit-growers' Congress (held at Worcester), and on the Value of *Eucalyptus* Leaves used as a Winter Mulch for Fruit-trees as a preventive of Blight, Scale, or Fungus of any sort.—*Canadian Horticulturist*, June. This has articles on

Co-operative Transportation of Fruits, How Ringing affects Grapes, Potatoes for Profit, &c.—*Primitive Flora Contaricensis*, edit. par H. Pittier, tome II., fasc. 2; Gamopetalae, J. Donnell Smith, San José de Costa Rica.—*Annales Agronomiques*, June 25, includes *Recherches sur l'emploi des betteraves dans l'alimentation du bétail*, M. M. L. Brégnière et Dupont; *Causes qui président à la transformation de l'aubier en bois parfait*, M. E. Mer; and *Dissémination des ferments dans le sol*, M. P. P. Dehérain.—*Le Moniteur d'Horticulture*, June 25.—*Gartenbau-Bibliothek* (Karl Siegmund, Berlin). Band 2, Foliage Plants for Rooms, by Dr. Udo Dammer; 4, Balcony Plants, by Dr. Udo Dammer; 6, Annals and Biennials, Franz Goeckhe; 7, Gardening Tools, Alexander Bode; 9, Dwarf Fruit-trees, Karl Koopman.—ROYAL BOTANICAL SOCIETY OF BELGIUM: We have received two *Bulletins* from the Société Royale de Botanique de Belgique: vol. xxxvii., part 2 (1898); and vol. xxxviii., part 1 (1899), respectively. The former issue includes papers on "The Dissemination of Alpines, by Jean Massart;" "Ideas of an Anatomist on Species of the Genus *Rosa*," by François Crépin; and "Botanical Excursion to the Sahara," by Jean Massart. Reports of the various meetings are also given, and of the papers read on those occasions. The latter *Bulletin* contains—"The Flora of the Congo," by Th. Durand and Em. De Wilde (cont.); and Reports of Meetings of the Society. Both issues are illustrated with plates.—*SOME USEFUL FRENCH HANDBOOKS: Bibliothèque des Connaissances Utiles* (Paris, J. B. Baillière & Fils), includes a valuable series of handbooks, the most recently published amongst them being a second edition of *Le Petit Jardin, Manuel Pratique d'Horticulture*, by M. D. Bois. It begins with the making and laying-out of a garden, mentions the tools needed, and the foods suitable on various soils; deals with the propagation of plants, and the management of flower, fruit, and vegetable plots. A chapter on plant diseases and injurious insects is appended, and the whole work, illustrated with about 200 pictures, is both reliable and attractive.—*FLOWERS AND FRUIT-FARMING IN ENGLAND*: An important series of articles under the above title has been contributed to the *Journal of the Royal Agricultural Society of England*, by Mr. W. E. Bear, who, in vol. x., part 2 (June 30), brings his work to a conclusion by a paper on "Fruit-growing under Glass." This industry, as the writer remarks, has made greater advance than any other during the last thirty years. "Thirty years ago," he says, "only one nurseryman in Chesham, Herts, had a hothouse, and now there are at least 125 acres covered with glass in that parish. . . . From the evidence collected it seems safe to assert that there were not 100 acres in all England covered with commercial hothouses thirty years ago; whereas now I estimate the total at fully 1100 acres. . . . There are no data for an estimate of the proportions of hothouse space devoted to fruit, flowers, and vegetables, respectively; but, as an immense space is mainly used for Grapes, and vegetables are not at all largely grown under glass in this country, if Cucumbers as well as Tomatoes be classed as fruit, as both are botanically, there is no doubt that a great preponderating proportion is devoted to fruit as its chief object, though flowers are forced in a large number of fruit-houses during the winter and early spring, as well as in many devoted entirely to them." Mr. Bear next considers the increase and value of the forced-fruit industry in certain English districts treated of separately; and though, naturally, the reports vary according to circumstances, there is no doubt but that any beginner in the trade has many difficulties to contend with. Fruit-growers have not so much foreign and colonial competition to fear as the ordinary farmer, as their crops are less perishable. On the other hand, the expenses of planting, cultivating, manuring, gathering, packing, transmitting, and marketing, are heavy; and nowadays these operations must, to be successful, be undertaken, not merely carefully, but scientifically, by men specially trained and educated for the work. Small growers, again, have little chance now that they are brought into competition with large and long-established firms who produce such quantities (especially of Grapes and Tomatoes) as to considerably lower market prices. "The best openings for new nurseries appear to be, not where they are now to be found in great groups, and especially not in the neighbourhood of London, but in suitable spots near the great centres of population in the midlands and the north, or large towns elsewhere not already well supplied with nurseries. By such a selection of a locality, the beginner may build up a retail trade in hot-house fruit, or at least a trade with local fruiterers and grocers, thus avoiding railway charges and salesmen's commissions to a great extent, though it may often be advantageous to send certain kinds of produce to a distant market." On the other hand, "with respect to open-air fruit-growing, the opening for new ventures appears to me to be much brighter, because the level of efficiency from the selection of varieties to the packing and marketing of the produce is very much lower. In other words, whereas the practice of the majority of hot-house nurserymen is so skilful, so well up-to-date, and so thoroughly a high-pressure system, that a new competitor, however well trained, will find it difficult to rise above mediocrity, the converse is true of open-air fruit-growers. . . . The bad condition of the great majority of farm-orchards is notorious, and many landowners, farmers, and amateur-gardeners who have planted fruit on a more or less extensive scale, have mismanaged their undertakings from first to last. . . . The general conclusions arrived at are that supplies of flowers and fruit, as a whole, are increasing at least as rapidly as the demand, while the production of bulbous flowers and hot-house fruit appears to be expanding excessively with the system of distribution as it exists at present. But it is to be observed that there is a very wide margin between the prices paid by consumers of

flowers and fruit, and those received by producers, partly owing to a cumbrous and extravagant system of distribution, and that it is probable that a very great increase in the consumption of these products might be developed by more economical methods of supply." Such is, briefly, the summary of Mr. Bear's report on enquiries made by him into English fruit and flower-growing. For fuller details, readers are referred to the numbers of the journal in which his paper was published. It is to be hoped that Mr. Bear's papers may be published as a separate volume.

ECHIU CANDICANS.

THE handsome plant shown in the illustration (fig. 30, p. 71) was exhibited at one of the May meetings of the Royal Horticultural Society, under the name of *Echium formosum*. The latter, however, is quite a distinct plant from the Cape, with long, tubular flowers, and has been referred to another genus under the name of *Lobostemon formosus*. *E. candicans* is a cool greenhouse plant of easy culture, attaining in time a shrubby character, and growing to a height of from 2 to 4 feet, or even higher. The blue flowers are borne in dense panicles, and have long, red, exserted filaments. The plant when in flower forms a striking object, with its silvery-grey leaves clothing the base of the stout stem. It is a native of Madeira. J.

HOME CORRESPONDENCE.

HYBRIDISATION AND RETROGRESSION.—I am of the opinion, and there are numerous instances to support it, that men, and all fruits, flowers and vegetables, were more perfect, larger, and finer when first created than they are at present; but during the centuries when they have had to be reproduced in the wild state from the strongest, a survival of the fittest was only left for us, according to Nature's laws. Naturally, they degenerated to what we found them, while many species have been probably totally lost. As men became more numerous and enlightened, they commenced cultivating, and those plants that showed the best properties were preserved, encouraged, and developed by cultivation. We see evidence of this in the Strawberry, Potato, Pelargonium, and numerous other plants. But why should they occasionally show improved forms or vary from their parent? This is, I think, satisfactorily explained as follows: because there is blood of the original still in the plant showing itself when man or insect applies the pollen, and gives the effect of impregnation from one that showed distinctness from the parents, and exhibited a tendency to revert to the excellence of those first created for us; so we thus, now and then, by degrees obtain more and more the desired form, flavour or prolificness. This is plainly shown during our own time in the Strawberry, Pea, Potato, Dahlia, Chrysanthemum, Fuchsia, and Gloxinia. It is absurd to suppose that we can make a new constitution of any fruit, flower, or vegetable; we can unquestionably by selection obtain far better and more suitable varieties, and perhaps in time equal to those first created. To my mind, we have only to go on with our present cross-fertilising with the best and finest we possess, and select those most likely to meet with our requirements and approval, we shall in the course of time by perseverance obtain something like what, in my opinion, was first created. In fruits we are familiar with the sweetness and pleasant flavour of British Queen Strawberry, and Cox's Orange Pippin Apple. These important and agreeable acids must have existed strongly in the original varieties; if otherwise, it could not have shown itself now. It is absurd in my opinion to say we put sweetness into any plant; it must have existed in the imperfect ones we possess, and it manifests itself whenever opportunity offers. The Pea is an example, and probably 300 years ago only the grey variety existed, so long had it been left to reproduce itself. Fuchsia Phenomenal, a variety with a very large-sized rich purple-blue-coloured corolla, produced three separate branches, and on these came, the one just mentioned, a rose coloured corolla, and a pure white corolla, the sepals in all being similar. This occurred on a plant in a cottage window, and from these three different and distinct colours, grown and flowered, wood was propagated, and is now sold as three popular and lovely kinds. It must be understood these three colours came, grew, and

flowered from one stem. I mention this fact to show that the colouring sap hidden in plants is capable of retaining and transmitting distinct features, in my opinion, from those of the earliest existence. *Henry Cannell.*

CROSS-BREEDING OR INTER-BREEDING.—It is hoped that what has recently been written and said in relation to what is really hybridisation, will have cleared the air of the kind of cant that has been too plentiful in relation to it. It seems even needful to define what is really cross-breeding, because almost everyone who is engaged in fertilising flowers with pollen taken from other flowers that are precisely alike, perhaps, in every respect [No.] but colour, refers to such acts as cross-breeding or fertilisation [Why not? Ed.]. Because so much fertilisation is done by hand, it by no means follows that cross-breeding is performed. The proper term for work of that description seems to be more fitly described as "interbreeding," which simply means intercrossing allied flowers one with another that differ only in colour. True hybridisation, I take it, cannot possibly be performed between two genera or species that are absolutely dissimilar botanically. What is recognised as hybridisation presumably consists of combinations of members of the same genera that, all the same, materially differ in appearance. A notable example is found in Harrison's Musk, the product of crossing the common Musk with *Mimulus luteus*. The old Clove Pink is another such family hybrid, and probably the now well-known *Marguerite-Carnation* is another. I once obtained such a hybrid by crossing *Digitalis lutea* with pollen of *Digitalis purpurea*, or the garden form of it. Mr. Smythe has the same sort of hybrid in his product of crossing Dwarf Kidney and Scarlet Runner Beans. But then, some of such products, as Harrison's Musk, for instance, are seedless, whilst some others, because the connection is of a less violent order, are free seeders. Crossing Sweet Peas with *Lathyrus grandiflorus*, Potatoes with Tomatoes, Melons with Cucumbers, would be real hybridisation; but Sweet Peas or edible Peas, or Potatoes or Tomatoes, one with another, is only interbreeding, yet has probably been productive of more valuable results to gardening than has true hybridisation. A. D.

THE CHINESE RUNNER BEAN.—A plant of the above is growing in one of the tropical-houses in the gardens of Alton Towers; it was raised from seed received from China some five or six years ago. It is remarkable for the length of the fruit it produces, and the rapidity of its growth; one pod which has just arrived at maturity on the plant measures nearly 30 inches in length. The Bean, as its name indicates, is a native of the warmer parts of China, where its produce is used for culinary purposes by the natives. The plant has a twining habit, trifoliate leaves, and bright blue flowers (which only open for two or three hours), borne singly in the axils of the leaves. Fertilisation takes place very quickly, and the pod at once begins to lengthen rapidly, careful measurement showing a daily increase in length of 2½ in., its greatest growth taking place between 6 p.m. and 6 a.m. (1½ in.). At the end of seven days from the flowering period, the Bean had attained a length of 16 in., and at the end of twelve days, 26 in., showing a regular and constant growth until the ripening process commences, when increase in length slows down, and finally stops. When mature, the pod is yellowish in colour, cylindrical in shape, containing about seventeen seeds. *R. Charles Gaut, Alton Towers Gardens, Staffordshire.* [Can you please send us a specimen for identification? Ed.]

MILDEW ON VINES.—On p. 48 of your last issue, Mr. G. Littlewood writes, "It would be interesting to know why I object to using hot water on Vines for mildew." First, I think most growers of Grapes aim at a good bloom and finish on their bunches, and I feel sure that after using hot water, applied with the desired force to penetrate the centre of a bunch, it must disfigure it in some way, and no practical man to my way of thinking would ever attempt it. There is a wide difference between using it on plants and Vines, as I should not think of using it on very tender foliage or plants in a young state of growth. Secondly, there is the risk of their scalding, and where the loss of a crop of Grapes means serious consequences to most gardeners, I should think the remedy I advocate is the best and safest, as there is no need to

touch the Vines or berries, and it is certainly an effective cure. I think Mr. Littlewood will find that I have never said "it was a cure for mildew." I object to it simply because there is a safer remedy; and as to the time destroying it, I have found one application quite sufficient in my case. Of course, I thoroughly dress the pipes, and give the house a good steam by sprinkling them with water occasionally, and thereby inducing the fumes or vapour to spread all over the house. After twenty-four years' experience with six vineries here, I have had mildew appear only twice, and my remedy was successful in destroying the parasite on each occasion without injury in any way being caused to the Grapes or foliage. I have not the pleasure of knowing Mr. Littlewood, but if he will favour me with a call, I shall be pleased to show him the result. *Wm. Smythe, Basing Park Gardens.*

PINE-APPLE CULTURE.—I have reason to thank Mr. Mayne for his remarks upon my note, if for nothing more than drawing my attention to an error which I committed in writing it, attributable to a slip of the pen; I should have recommended for suckers, 6 and 7-inch pots, which we invariably use instead of 8-inch ones, and which are none too large for strong sturdy suckers, which it is also needless to say we select. I find that well-drained 12-inch pots are the most suitable size for fruiting plants, when the compost I recommended employed, particularly for Cayenne and Charlotte Rothschild; and as we never disturb the plants from the plunging material except at the time of potting them, the question of their being a little more heavy than in 10-inch ones, is to us of trifling importance. *Thos. Coomber.*

SECOND FRUITING STRAWBERRIES.—I saw on July 13, at Ashted Park, Surrey, a large quantity of winter-forced plants of Royal Sovereign Strawberry, that had been planted out to form a permanent plantation in May, now fruiting freely. The plants had been forced and had carried a fine crop so recently as March and April. Now there were ripe fruits of good size, green ones, and bloom, quite considerable plenty, and there was every prospect that the plants would give succession fruit for two or three weeks. At that time all the ordinary crop had been gathered, although the outdoors as well as inside had been a good one. It would be interesting to learn whether any other gardener, who may have so treated this now most popular of Strawberries, has had similar results. In any case it seems worth testing, as there is no reason to assume that Mr. Hunt's experience at Ashted Park is singular to the place, if it be the variety. A. D.

FLAVOUR IN MELONS.—Probably not a few great growers may agree with "A.D.'s" concluding sentence, page 48. We must seek further for the secret of securing flavour in these fruits than is furnished by greater root area, and also in his statement that some of the delicious Melons taste in recent years have been grown in troughs, neither distinguished by their width nor depth. Neither has size, colour of flesh, nor skin, nor the most elaborate finish or profuse netting any such close relation to flavour as has often been too hastily assumed. Many growers have grown first-rate Melons in foot borders, 12-inch pots, 9-inch troughs, and others, equally good, can hardly do better in mass of loam from 30 inches to 3 feet deep. Culture has far more to do with flavour than any mere mass or shallowness of soil, though all these points, as well as the texture of the loam, whether heavy or light may prove more or less vital to the development of the highest quality in Melons. But these are other points raised by the letter of your clerk and generally practical correspondent may be discussed, if needful, on future occasions. The following sentences are so revolutionary and totally opposed to the experience of growers, that I hasten to protest. "A. D." says (p. 48):—"There is this fact about the best of Melons that, no matter how grown, the getting of high flavour, even in the finest varieties, is quite a lottery. One fruit may be delicious, three may be very common, and all from the same plant." Now I boldly declare such a supposed fact mere fancies, and, with your leave, will abundantly prove facts of an opposite sort in a few sentences. Instead of calling up a host of good Melon-growers, with records of half a century's experience to back their testimony as to the constancy and uniform high quality of the Melon

grow, it will be better and easier to cite the words into the witness-box of the *Gardeners' Chronicle*. My first witness shall be good on the flesh Melon, Beechwood, never yet beaten for flavour, and with us to-day, as true to type, character, colour, size, quality, finish, and flavour, as it was fifty or a hundred years ago, or it came fresh to us—a boon and a blessing to melon-growers. In the whole of its long and popular history, I have never seen or heard of a flural cross or sport, and so constant and steady self-contained has the Beechwood Melon seemed, its own rich and luscious quality, that it has been shown to enter into alliance with other melons, however skilfully conceived or accomplished. Here we have a single variety of Melon mingling true from seed, for many years exposed to innumerable disturbing influences of insects, mate, and culture. Yet "A. D." has only to look for it of any of our reputable seedmen to-day, and it, grow it, eat, see, and taste for himself the finest flavour of them all, and marvel at his dacity in dubbing its constancy in advance a lottery—a whirling thing of volatile changes, that

less valuable as to the continuity, constancy, solidarity to Melons, whether new or old. Neither the fruit nor the plants of well-established varieties of Melons are lotteries or weather-cocks in quality, but rather staples, as Grapes, Peaches, and Potatoes. In all my long experience, I have never known a well-established Melon produce another and a different Melon on the same plant. The law in this, as in most families that are pre-potent, is, like shall produce like; occasionally there is a cross, a mixture of two parents, still more rarely a reversion to some inferior or an advance to some superior type or variety. I hasten to quote and comment on another sentence or two: "Even fruits may have a delicious perfume and yet be quite commonplace in flavour—aroma is no safe guide in this matter. I do not think the Melon-grower exists (or that the variety exists) that can guarantee high flavour from one fruit or from many." Surely it cannot be possible that these sentences represent Melon-growing experience in this year 1899. Aroma no safe guide to quality or flavour! Then in the name of the prophet what is? Perhaps also "A. D." will tell us what

fittest," and others of a like nature, are not easily understood by those who take a casual glance at the book of Nature.

As examples of plants growing under adverse climatic conditions, certain moorland types were described. Moorland is so plentiful in this country that it has been said that it is possible to walk from Ilkley in Yorkshire to Glasgow without stepping off the heather. In such bleak situations, devoid of shelter and of trees, only those plants grow that can withstand extremes of cold and heat, of dryness and damp. The water is so pure, so free from mineral salts, that the nutrition of plants suffers accordingly.

The Ling is particularly successful in coping with these difficulties by developing a marked individuality. It puts forth low, wiry, straggling stems, and possesses deep-seated roots. The special character about its leaves is that they are dry, hard, and evergreen, last for two or three years, and then crumble, but do not fall. Large intercellular spaces are formed; the stomata are deep-seated, and protected by hairs. By these means the Ling secures many advantages: the deep roots cover a lot of ground, while the hard, tough leaves serve to guard the plant from drought, being helped by the protected stomata, which prevent excessive transpiration. Furthermore, the leaves being evergreen, the power of feeding is held in reserve, so that the plant can take advantage of the



FIG. 31.—MESSRS. WEBB AND SONS GLOXINIAS.
(See report of Wolverhampton Show, on p. 73.)

could not be warranted to give you two Melons alike of the same plant. Believe this, and how can "A. D." account for the existence of the Beechwood, or any other of our older varieties, of which we have still a goodly number, notwithstanding the hosts of novelties? The theory of the survival of the fittest will not help your correspondent to answer. Fitness in Melons is not only the best quality, but each fruit good, and all good alike. Destroy our faith in the stability of varieties in Melons, and we might as well relinquish all hope of growing Melons for either pleasure or profit. Not only must we be fairly sure of sowing as we sow, but what we have sown. We have the Old Rock, Scarlet, or Cantaloupe Melons, the Windsor scarlet-flaked, or such semi-permanent varieties of green flesh as the Bromham Melon, the Egyptian Green Flesh, Trentham Hybrid, and we may be sure of cutting the same varieties; and the same holds good of the more popular melons that have done so much to sustain the character of British Melons through the closing half of a century, so near its close, such as Eastnor Castle, Story of Bath, Golden Perfection, Cox's Golden Gem, Green Gem, Hero of Lockinge, William Perry, Blenheim Orange, Scarlet Gem, Meredith's Hybrid Cashmere, Monro's Little Heath, almost hardy and quite as constant as a Marrow, and many others. Modern Melons, if called to give evidence, could yield similar testimony, though, of necessity,

the aroma or delicious perfume of fruit really is. The quality is there already as a finished product, or we could never smell nor taste. Besides, if such odour is no test of quality, what of the judgment of jurors at our great shows, who have, with few exceptions, accepted it as a sufficient test of quality? Neither are these so far astray as many suppose; for the nose and the palate are very closely correlated. Tasting might almost be defined as internal smelling, and when a house or room is full of aroma of luscious Melons, they are tasted through the olfactory nerves before they reach the mouth or touch the palate. One more point is equally certain: aroma, luscious perfume in Melons, Peaches and other fruits, not only indicate, but is quality etherealised in the way I have already said, and unless we allow it to be wasted between the fruit and the lip, mouth, or palate, it must not only be enjoyed, but accepted as a sure and safe measure of quality in many fruits, and almost an exact, sure, and absolute test of the quality of Melons. D. T. F.

ADVERSITIES IN THE LIFE OF PLANTS.

IN the course of a lecture before the Pharmaceutical Society, Professor Green stated that the phrases "struggle for existence," "survival of the

short snatches of fine weather that occur even in the winter months. Moreover, the chlorophyll-containing cells being arranged all round the central respiratory cavity, or air-space, the plant is provided with every conceivable adaptation for availing itself even of transient gleams of sunshine all the year round. Erica, another moorland plant, possesses rolled leaves, thus exposing a small leaf-surface, with hairs on the under surface and protected stomata. Plants so exposed to biting winds economise shelter and reduce leaf-surface and the above-ground part to a minimum.

Another kind of difficulty with which plants have to contend is the

CROWDING OF LEAVES,

which makes it hard to obtain an equal illumination. Since a considerable amount of energy and much food material are used up in producing leaves the plant requires to limit their number; whilst, on the other hand, it is advantageous for the plant to receive a maximum of illumination, which entails a corresponding multiplication of leaf-surface. To avoid overlapping a modification takes place in the length of the leaf-stalks. For example, *Geranium pyrenaicum*, a plant growing on waysides and in meadows, has a small axis, and lies almost flat on the ground. The enormous number of its leaves renders the problem of packing no easy task, but it is performed by a co-ordination of the leaf-stalks, the oldest being the longest, forming loose rosettes. Thus no shading results, while all the leaves are well-illuminated, and in one plane. *Campanula pusilla*, growing on the steep slopes of sub-alpine regions, has a similar mechanism. The flower-stalk, rising vertically, bears small narrow leaves, which point upwards at a sharp angle, and so do not shade the rosettes below, while they obtain an equal illumination for themselves. By a co-ordination of leaf-stalk and blade, the stalk alone is in

shadow, and that does not matter. This co-ordination of the length of the stalks, the lower being six or eight times the length of the higher, is well seen in *Amarantus*, *Datura*, and *Impatiens*. The stems of these plants are elongated, and when viewed from above the whole plant looks like a rosette. In *Datura* the small leaves are developed between the larger ones, thereby effecting an economy of space.

Passing to trees, it was shown how a similar mode of behaviour obtains. The terminal erect branch of *Acer platanoides*, the Norway Maple, shows decussating leaves, i.e., pairs of leaves successively placed at right angles, that do not shade each other. The lower stalks having the advantage in length, form a sort of pyramid, while the stalks of each pair are equal in length. On the lateral (horizontal) branch it is seen that the stalks of each pair are unequal in length, one being sometimes three times as long as the other; thus the branch exhibits an almost perfect adaptation to a vertical source of light. Other mechanisms than co-ordination may give a similar result, e.g., by a twisting of the internodes, as may be noticed in *Helianthemum*, *Diervilla*, the Hazels and Beeches, and other plants. In *Helianthemum*, the Rock-Rose, the stem being low and flat, some of the leaves twist through ninety degrees, so that two rows are produced instead of four. In certain cases the petiole twists, in order to bring about a similar result. A further method of gaining a maximum amount of illumination is found, e.g., in *Bryonia* and *Ficus*, mosaics being formed by the economical arrangement of unsymmetrical leaves, which appear to be packed into each other. An economy of space is thus effected by utilization of the irregular shapes of leaves. *Atropa Belladonna* furnishes a good example of plants whose adjoining leaves are unequal in size. The larger leaves are in two rows, and the gaps left between them are filled by small leaves, which twist themselves until they come to lie in the gaps, forming a mosaic pattern. *Ulmus* is an example of trees that show the same behaviour, in taking advantage of the unsymmetrical form of the leaves.

Besides difficulties arising from adverse climatic conditions, and those connected with the attainment of a maximum degree of illumination with a minimum expenditure of leaf-surface,

PLANTS OFTEN HAVE TROUBLE IN OBTAINING WATER.

The absorption of water is a serious problem in the case of epiphytes, e.g., certain Orchids. The flattened, strap-shaped roots which anchor the plant to the surface of a tree, do not derive enough water from the crannies in the bark to supply the needs of the plant. The air in tropical forests—the home of epiphytes—being humid, long roots hang down to absorb moisture by means of a glistening, spongy coating of cells known as a velamen. These plants in this way may obtain from 8 to 13 per cent. of their weight of water, and once obtained it is not readily parted with.

Terrestrial plants sometimes have peculiar ways of dealing with the problem of water supply. The normal course is for the root-hairs to come into intimate contact with the soil, and absorb from it a film of water. When this source is inadequate, abnormal means are adopted. Thus *Stellaria media*, the common Chickweed, has a ridge of fine, delicate hairs running from node to node. These hairs catch and absorb water when a shower falls by means of an appropriate mechanism. The common Ash has a grooved rachis, strengthened at the sides, the groove being curved at the edges, forming a channel which gaps open when the leaves are exposed on the rachis. Absorbing hairs and glands are found along the groove, and these act as a subservient mechanism for utilising showers, by the collection and retention of rain. The leaves of the Aspen (*Populus tremula*) possess cups with an absorbing surface; the fibro-vascular bundles almost reach the absorbing surface, and so in a shower the plant is well supplied with water. A kind of varnish is then secreted, which swells, and so retains the water.

One of the most ingenious mechanisms for procuring water is possessed by certain species of *Saxifraga*. A depression in the thick and succulent leaf absorbs and holds water; there are protuberances (plugs), and water glands in the hollow, besides openings (water-stomata). Water charged with lime is poured out, and forms a calcareous cake over the depression. In this way water is absorbed, and passed to the gland beneath; this method is common in plants growing in deserts. The Teasel has leaves with sheathing bases, which act as funnels; delicate protoplasmic filaments are said to absorb water from these cups into the plant-body; but this is open to doubt. Insects are sometimes accidentally caught in these cups, and their capture serves as an additional advantage to the plant. Professor J. Reynolds Green, Sc.D., F.R.S., at a Meeting of the Pharmaceutical Society, Tuesday, March 14, 1899.

NURSERY NOTES.

MR. BENJAMIN R. CANT'S ROSES.

A CIRCUMSTANCE of very frequent remark at the recent show of the National Rose Society at Colchester, was the winning by Mr. Benjamin Cant of most of the large open classes in the nurserymen's section. His collection of thirty-six blooms, distinct, that won the Jubilee Trophy was a splendid exhibit, and contained two Medal Roses, one of which, Prince Arthur, was the best bloom of

a dark-coloured Rose that we have seen exhibited this year; and the bloom of Mrs. W. J. Grant was a magnificent one, while the general quality of the collection was also very high.

It was this conspicuous success that induced some of us to re-visit Mr. Cant's nursery, and see the plants from which such excellent flowers were obtained. We never had a greater treat than this inspection afforded. The whole of the 60 acres or so which are planted with Roses were not only scrupulously and almost painfully clean from weeds, but they were covered with such magnificent plants that amateurs and trade-growers alike were astonished. Passing from one field to another (for the acres are divided into seven rather small fields with hedges between them that may help, in some measure, to break the prevailing winds), from outbacks to maidens, from dwarfs to standards, in every part were the plants of unusual vigour, and most of them bore abundant flowers. We examined certain varieties that are so apt to become attacked by mildew, but they were very clean, nor could greenfly even be detected until we had looked for it for some time. There was such health, and strength, and growth in the plants that had so far saved them from injury from these pests.

A glorious effect was made by the two newer varieties, *Marquise de Litta* and *Mrs. W. J. Grant*. Both of them were growing and flowering abundantly, and the colour of each of them is a very grateful addition to the Rose-garden. The climbing variety of *Kaiserin Augusta Victoria* had already made growths more than 5 feet high, and there seems little doubt that it has really climbing propensities. Messrs. W. Paul & Son's Enchantress we have not previously seen growing in the open, but it is quite a success there. The new rose-coloured Robert Duncan was growing with extraordinary vigour, and had great thick leaves. It would appear to possess a capital constitution. Countess of Caledon, *La France*, *Margaret Dickson*, *Lady Mary Fitzwilliam*, *Gustave Piganneau*, *Madame Hoste*, *Madame de Watteville*, *Maman Cochet*, *Marchioness of Londonderry*, and *Madame Cusin* were all remarked as unusually interesting.

Then there were the standard trees. What magnificent specimens they are, and what a pretty effect they made when in full bloom! Most of them are grouped together in a field with a considerable slope to the S.W., and are protected from N. and E. winds. All of the popular varieties were represented, and all were vigorous. We particularly noticed the pretty *Tea Medea*, and the showy *Caroline Testout*. Countess of Caledon will evidently be of great service as a standard Rose if its success under Mr. Cant's cultivation may be taken as evidence of its general behaviour.

We were interested in a number of plants of *La France*, presumably on the *Manetti* stock. They had been planted fourteen years, and are still growing and blooming splendidly, even affording exhibition flowers.

Everyone was sorry that Mr. Cant was too unwell to visit the show, or to receive the numerous visitors to the nursery. But he has sons who now relieve him of most of the cares of the nursery, and who, with a regular staff of thirty-two men, maintain the establishment in such fine condition as we have attempted to describe in a necessarily short note.

IRELAND.

THE STUDY OF BOTANY.

OF the many scientific subjects that have become popular, botany has for a long time been practically ignored in our schools, but a steady and growing interest has been noticed within recent years; the great difficulty that had to be overcome was getting the country students. Under the tutorship of Professor Johnson, assisted by his able co-adjutor, Henry Hanna, B.Sc., there is quite a large attendance of national school teachers

at the summer course of lectures, which means that their labours will touch a larger number of students than heretofore, as well as to encourage a willing but hampered pupil, whilst the practical benefits that will necessarily flow, cannot be underestimated.

ROYAL HORTICULTURAL SOCIETY.

On Tuesday, the 11th inst., the monthly meeting of the Council-members of the above Society was held in their offices, 61, Dawson Street, Dublin. The attendance was small, the reason a decidedly unpleasant afternoon. Hamilton Drummond, Esq., J.P., occupied the chair. The incurred expenses of the recent Rose Show, which amounted to £125, including prizes, were up for settlement, and payment was ordered. A notice re altering date of forthcoming show was briefly discussed, the date being eventually altered from Friday, the 25th, to the Tuesday previous, August 22; and general arrangements were made in reference to the autumn show.

THE FLAVOUR OF MELONS.

WE note that which our correspondent writes regarding some remarks upon this subject which appeared in this journal on July 8, and that he finds more fault with the Melons than with the gardeners' methods of cultivation. Now this, we take to be a libel on a very delicious fruit, and direct encouragement to the cultivator to persist in his mistaken practices.

We will not go so far as to say that every variety when brought into commerce is of the best quality, but the most of them may be so described under suitable methods of cultivation. The inherent and permanent deterioration in flavour in a variety when this is due to other causes than cultivation may go on slowly or rapidly, as the case may be—slowly or scarcely at all if self-fertilisation is carefully attended to, and vagrant pollen excluded by closely netting the air inlets to frames and Melon-houses, so as to exclude the hive and other bees, and by not cultivating other varieties, or at the least, not having them in the flowering-stage contemporaneously; and rapidly if no precautions are taken, or the gardener not caring to save seed of his Melons, but buying all that he wants from his nurseryman.

The accidental mixing of varieties does not always result in deterioration of flavour, or in undesirable shapes or flesh tints, when crossing takes place indiscriminately between good varieties growing adjacent to each other, or whose pollen is made use of to pollinate the flowers of the bearing plant. The probability would be rather the other way, and although several types of Melons might be obtained from the seeds of any given variety, still the product might be excellent, and, indeed, in some cases superlative as regards flavour. And why not? On the other hand, the intentional cross-breeder of Melons, with and in spite of all his foresight, and the precautions with which the process is hedged round, often gets rubbishy varieties. He has, moreover, to contend with the nature of the Melon to revert to some earlier, or maybe some worthless form, and repeated trials have to be made, and close selection carried out over a series of years, before he obtains a variety better or as good as the fruits of the parent plants. The result of this care and this selection is usually the attainment of a well-flavoured and, perhaps, handsome fruit. We, therefore, incline to the belief that it is our incorrect methods of culture that are mostly to blame for that lack of fine flavour in Melons which is nowadays so common.

We think that some persons of leisure, with a definite idea of what is wanted in a Melon, should work to that end, and should work continuously. We want Melons having greater bearing capabilities, varieties that fruit early, and others that are good for fruiting late; and in the case of the latter that will keep a month or longer after being cut from the plant. We want Melons with thin rind for home consumption, and with thick rind for the

market and for sending long distances by rail, &c.; and, more than all, we would like a comparatively hardy race that may be grown without bottom heat.

TRADE NOTICE.

WE understand that a man is going about furnished with bogus references and testimonials, and has been successful in obtaining money and goods from various persons in and about London. He represents himself as having been appointed gardener at a large place at Wimbledon. In one case he visited a horticultural sundriesman, saying that his employer had empowered him to make purchases. He then inspected the tradesman's stock, and three days later he returned and selected articles to the amount of £35, which were to be sent to the

£6 10s. per 1000, being the lot forming the basis of the present action. At about the time when these should have been delivered, Messrs. Thyne wrote to Mr. May, informing him they had only some 2000 bulbs of the size he required according to his order, and suggested sending bulbs of *Lilium Kratzeri* partly in lieu thereof. Replying to this, Mr. May asked that the 2000 stated to be in stock, should be sent on at once—declining, however, to accept the other kind named, which at the time would be useless. Thereupon Messrs. Thyne wrote intimating that their offer of the two kinds was intended as full and complete settlement of the original order, and must be accepted as such by Mr. May. Subsequently, as the season was advancing, Mr. May wrote to Messrs. Thyne, asking that his order be completed forthwith, otherwise he would be compelled to purchase against them, which indeed in part was done. In defence the Messrs. Thyne pleaded that

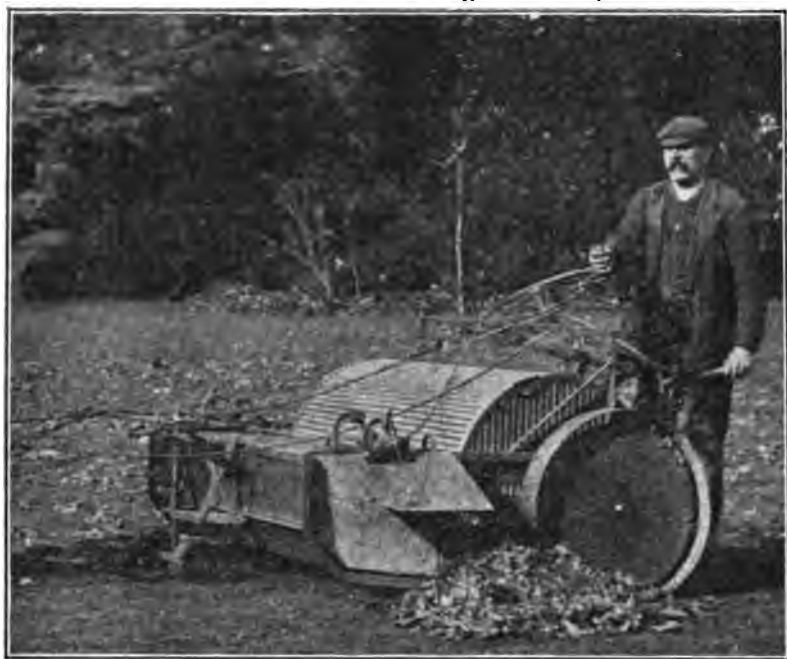


FIG. 32.—A LAWN-SWEEPING MACHINE.

address given, taking away with him goods to the value of about £6. The goods were taken in a van to the address given, where, of course, the swindler was not known. The man is about fifty years of age, short, with fair beard, and says that he was with Messrs. Cannell & Sons, Swanley, some years ago.

LAW NOTES.

MAY v. THYNE.

THIS case was taken in the Sheriff's Court, Glasgow, before the Registrar, W. Guthrie, on June 19 last, but owing to its importance, judgment was then reserved. The chief points of the case are as follows:—

Early in 1898, Mr. George May, market-grower, Upper Toddington, gave a verbal personal order to Mr. Thyne McCullum, representing Messrs. J. & R. Thyne, bulb importers, Glasgow, for 10,000 bulbs of *Lilium longiflorum* in two sizes, 5000 of each. In due course, the first portion of the order was supplied, and promptly paid for; the remaining 5000 bulbs, which were 7 to 9 inches, and booked at

the bulbs of the size quoted were not purchasable in the country; but it was shown by a large buyer of this particular Lily, that a heavy consignment was really sold by auction in London at the time, and though at greatly increased prices, Mr. May's order could have been completed many times over.

The following is the judgment in the case:—

"Glasgow, June 27, 1899. Declares the proof closed, and having heard parties' procurators, finds that the defenders in spring, 1898, sold to pursuer 5000 bulbs *Lilium longiflorum* (7 to 9 in.), at £6 10s. per thousand. Finds that in November they found that they were unable to supply the said bulbs, and intimated this to the pursuer, and that they did not deliver the same. Finds that it is not proved that there was any condition or custom releasing the defenders from their contract in the event of a failure of the foreign crop, or that there was such a crop. Finds that the pursuer has suffered loss by the defender's breach of contract to the amount sued for.

"Therefore decerns against the defenders as craved. Finds them liable to the pursuer in expenses, allows an account thereof to be lodged, and remits the same to the auditor of Court to tax and report. (Signed) W. GUTHRIE."

LAWN-SWEEPING AND COLLECTING MACHINE.

THE illustration (fig. 32) represents a lawn-sweeping and collecting machine invented and patented by Messrs. Sutton & Pull, of Petworth Park, Sussex, to which has been affixed "an improved rubbish receptacle, and a side-delivery apparatus," the invention and patent of Mr. J. Challis, gardener to the Earl of Pembroke, Wilton House, near Salisbury. Those persons who have seen the original machine at work can testify to its merits as a cheap, simple, and effective machine; but with this, as with other machines intended for sweeping and collecting grass, tree-leaves, &c., heretofore constructed, it has been necessary, in order to remove leaves, &c., from the receptacle into which they have been swept, to stop the machine and detach the rubbish-receptacle therefrom, thus causing loss of time. Now this side-delivery apparatus enables the person tending the machine to readily clear the receptacle at either end, whether the machine be at rest or in motion, thus effecting a great saving in time and labour. The receptacle is provided with a door at each end, and a slide and pusher. To each end of the movable slide is attached a rope, wire, or chain, that extends around the grooved periphery of a hand-wheel, bolted to the framework of the machine, the wheel being arranged in such a position that the operator can conveniently turn the wheel without changing his position relatively to the machine.

Eight acres of ground can be swept per day by a 4-foot machine drawn by a pony, and from twelve to fifteen acres per day by a 5-foot machine drawn by a light carriage-horse. The machines, made in all sizes, varying from 18 inches to 5-feet wide, are light, strong, and durable, being made of the best materials, and moderate in price. They are almost noiseless when at work.

To any person wishing to see the machine, Mr. J. Challis, gardener, Wilton House, near Salisbury, will be pleased to show it in operation, if notice be given by post beforehand; also to answer any inquiries with reference to it. The machines are manufactured by Mr. P. Buchan, engineer, Caledonian ironworks, Chichester.

NEW INVENTIONS.

CHAMPION LAWN-WEEDER.

THIS useful implement (fig. 33, p. 78) enables weeds to be extracted from turf expeditiously, and without the back-aching accompanying the use of the trowel or the short-handled spud. It works cleanly, and leaves no holes, excepting the small one occupied by the root-stock of the Dock, Thistle, Plantain, &c., as the case may be. The tool is most effective when used on moist land. The makers are Messrs. Vaughan Brothers, of Birmingham, and the article was patented last year. We have tried it with success.

SOCIETIES.

ROYAL HORTICULTURAL.

At the meeting of the Committees at Chiswick, on the same day as the Hybridisation Conference on July 11, the following awards were made to plants upon trial in the gardens:—

Pelargonium Cassiope.—A distinctly zonal variety, with large salmon-coloured, single flowers, shaded with pink, free-flowering and vigorous in habit (Award of Merit).

Pelargonium Countess of Derby.—A zonal variety, with salmon-coloured, single flowers, a little flesh-coloured towards the margins of petals (Award of Merit).

Viola Archibald Grant.—A variety of compact growth, and free-flowering. Flowers large and handsome, colour deep blue (Award of Merit).

Viola Jacksonae.—A very free, but small-flowering variety. Flowers golden-yellow, upper petals brownish-crimson, with dark rays. Recommended $\times \times \times$ in 1898 (Award of Merit).

Viola J. B. Riding.—This is a sport from the variety W. Neil. It has a spreading habit, is free-flowering, and the

blooms are purplish-rose with pale mauve centre, and deep-coloured rays. Recommended $\times \times \times$ in 1898 (Award of Merit).

Viola Lord Salisbury.—A very large, yellow-flowered variety, distinct (Award of Merit).

Viola Penzance.—A bushy habited and free-flowering variety that continues to bloom in dry weather. The flowers are cream-white, of excellent shape and substance. Recommended $\times \times \times$ in 1895 (Award of Merit).

The whole of the following varieties of culinary Peas were shown on March 29:—

Pea Duke of Cornwall.—Fit for gathering on June 29. From Messrs. TOOGOOD & SONS (Award of Merit).

P. Dalby's Prolific.—A variety with rather small pods, very full. Ready for use on July 10. From Messrs. JAS. VITCH & SONS (Award of Merit).

P. Alderman.—From Mr. DEAL. Ready for use on June 29 (Award of Merit).

P. The Bruce.—From Mr. H. ECKFORD, Wem, Salop. Ready for use on July 4 (Award of Merit).

P. Winifred.—From Mr. DEAL. Ready for use on July 4 (Award of Merit).

P. Nobleman.—Also from Mr. DEAL, and ready for use on July 4 (Award of Merit).

SCOTTISH HORTICULTURAL ASSOCIATION.

JULY 4.—At the meeting held on the above date, the Society awarded a First-class Certificate to a seedling of *Oplismenus Burmanni variegatus* var. *Munro*, exhibited by its raiser, Mr. ROBERTSON MUNRO, Langside House, Glasgow. The leaves are nearly white, considerably wider, and the plant dwarfer, and very much more showy than the type. Assuming that the new variety has sufficient chlorophyll to ensure its enduring, it should prove a good decorative plant.

Mr. MUNRO showed a hybrid *Passion-flower*, said to be a cross between *P. cerulea* and *P. quadrangularis*, called *P. Munro*, which, though not new, was highly commended.

The new early *Pea*, *Ameer*, shown by Mr. SCARLET, Invercreek, Musselburgh, was awarded a First-class Certificate. This was sown in the open on January 10, and picked on June 20, grown without stakes; the height was from 30 in. to 3 feet. Though not a wrinkled *Pea*, it was remarkably sweet, while few varieties equal it in fertility.

Mr. JONATHAN, gr., Hay Lodge, showed a nice bloom of *Brugmansia Houghtii*, that used to be planted to afford fragrance and distinction in herbaceous borders; *Fuchsia corymbiflora*, red and white, in alternate plants, formed a striking second row to this double white trumpet-flower.

In the absence of Mr. Angus, Norwood Hall, Aberdeen, Mr. J. H. MURRAY, the Assistant-Secretary, read his brief paper, entitled "The Pleasures and Profits of Herbaceous Plant Growing." At the close of the paper a discussion took place, in which many gardeners present took part.

The Strawberry meeting of this Society will be held within the next fortnight, members being advised of the date by card. D. T. F.

LAND STEWARDS' AND GARDENERS' BENEFIT ASSOCIATION.

JULY 7.—The second Annual Meeting of "The Drummond Benefit Association for Land Stewards and Gardeners," resident in Ireland, was held in the Central Lecture Hall, 12, Westmoreland Street, Dublin, on the above date.

This Association was formed in 1897 with the object of affording assistance to members while out of situation, when incapacitated from work by old age, or when out of situation through sickness; and also the granting of aid to widows, orphans, or others who were dependent upon deceased members. The Chair having been taken by Mr. William H. Drummond, the Report and statement of accounts were thereafter presented. The Chairman, in moving their adoption, commented on the highly satisfactory condition of the Association. Messrs. Drummond had offered to subscribe a sum equal to the members' subscriptions up to one hundred guineas a year. This year their subscription was eighty guineas. Mr. Hamilton Drummond urged upon the members to put their shoulders to the wheel, and thus largely increase the membership. The Association had made rapid progress, but there was a large constituency of land stewards and gardeners throughout Ireland they could work upon. The Association was not a charity, nor, with a balance at its credit of £472 16s. 2d. after satisfying all claims, was it one of which they need be ashamed.

WOLVERHAMPTON FLORAL FÊTE.

JULY 11.—The eleventh annual show was held in the West Park, in most favourable weather. The entries were more numerous than ever, and competition was keen in most of the classes. The receipts at the gates alone amounted to £1953 1s. 6d.; about £100 more than last year, and £600 more than in 1897.

In the open class for groups of plants arranged for effect, Mr. CYPHER, of Obeltenham, was well 1st. It was composed of fine Palms, Bamboos, *Humea elegans*, *Cattleyas*, *Odontoglossums*, *Thunias*, *Crotons*, *Ixoras*, *Lilies*, and species of ornamental plants, and there was perfect finish in the arrange-

ment. Mr. VAUSE, florist, Leamington, was 2nd; and Mr. Macdonald, gr. to J. H. KENRICK, 3rd.

STOVE AND GREENHOUSE.

For sixteen specimens Mr. CYPHER was a long way ahead, with fine Palms, splendid *Crotons*, *Ericas*, *Ixoras*, *Bougainvillea Cypheri* and *B. Sanderi*, *Staticea profusa* and *intermedia*, &c. Mr. VAUSE was 2nd with smaller, but well-grown plants; and Mr. FINCH, Coventry, was 3rd. Mr. CYPHER was also 1st for six fine foliage plants.

For eight exotic Orchids, Mr. CYPHER was 1st with *Cattleya Sanderiana* and *Gaskelliana*, and *C. G. alba*, *Epidendrum vitellinum majus*, *Odontoglossum Pescatorei*, *Oncidium macranthum*, *Dendrochilum filiforme*, and *Epidendrum prismatocarpum*. Mr. Macdonald, gr. to J. H. KENRICK, Esq., was 2nd.

For decorative plants and cut flowers combined, Messrs. DICKSONS, Ltd., Chester, were 1st with a splendid collection of cut flowers, chiefly of herbaceous species, arranged with *Crotons*, *Caladiums*, *Palms*, *Alocasias*, *Dracenas*, and a good number of *Roses*. The Hawley Silver Challenge Vase was awarded to this collection, and as, we believe, Messrs. DICKSONS won the Vase for the third time last year, when it became their property, this is the first win towards another one. Mr. WHITE, florist, Worcester, won 2nd prize and a Gold Medal with a good arrangement of cut flowers, but lacked in plants.

Roses.

Roses were very fine indeed. For seventy-two *Roses*, distinct varieties, Mr. B. R. CANT was 1st, with a splendid lot. Messrs. PRIOR & SON, 2nd; and Messrs. HARKNESS & SONS, 3rd.



FIG. 33.—LAWN-WEEDER.

(For description, see p. 77.)

Mr. B. R. CANT was again 1st for forty-eight *Roses*; and Messrs. J. TOWNSEND & SONS, 2nd; and the same exhibitors were 1st and 2nd respectively for twenty-four *Roses*, distinct.

The best collection of twelve new *Roses*, distinct, was also shown by Mr. B. R. CANT, as was the leading class for Tea *Roses*.

The most decorative arrangement of *Roses* in a space of 12 feet by 5 feet was shown by Mr. J. MATTOCK, Oxford. The Rev. J. H. PEMBERTON won the leading classes for *Roses* in the amateur section.

DINNER-TABLE DECORATIONS, BOUQUETS, CUT FLOWERS, &c.

Messrs. JENKINSON & SON, Newcastle-under-Lyme, were 1st for a decorated dinner-table, with an exhibit of much merit. The leading prizes for the bouquets were also won by Messrs. JENKINSON & SON.

Mr. Blair, gr. to the Duke of SUTHERLAND, beat Mr. CYPHER for twelve bunches of greenhouse flowers, distinct.

The best arrangement of hardy border flowers was from Mr. W. F. GUNN, Olton; and Messrs. R. WALLACE & CO., Colchester, were 2nd, beating Messrs. HARKNESS & SONS.

Sweet Peas were very fine indeed, and were shown largely. The 1st prize and Gold Medal, for an arrangement of Sweet Peas for effect, was won by Mr. W. F. GUNN; Messrs. JONES & SONS, Shrewsbury, beating Mr. Goodacre, gr. to the Earl of HARRINGTON, for 2nd place.

Messrs. JONES & SONS had the best collection of eighteen varieties; Mr. BLAIR being 2nd.

FRUIT.

The best collection of nine dishes of fruit came from Mr. GOODACRE, Elvaeton Gardens, Derby, with fine Canon Hall

Muscat, and Black Hamburg Grapes, Queen Pine and Royal George Peaches, Elruge Nectarines, Countess Melon, Brown Turkey Fig, fine Strawberries, and Beauty of Bath Apple; 2nd, Mr. Bannerman, gr. to Lord BAGOT.

Mr. GOODACRE had the best collection of six dishes, with Muscat and Black Hamburg Grapes, Royal George Peaches, Elruge Nectarines, Countess Melon, and Royal Sovereign Strawberries; 2nd, Mr. READ, gr. to the Earl of CARNARVON; 3rd, Mr. BARNES, gr. to the Duke of WESTMINSTER, Eaton Hall, Chester.

Grapes, four bunches, distinct vars., were best from Mr. GRINDROD, gr. to G. T. BATES, Esq., who had Black Hamburg, Gros Maroc, Buckland Sweetwater, and Foster's Seedling; 2nd, Mr. ASHWOOD, gr. to A. NEWELL, Esq. Muscats were best from Mr. BREMMEL, gr. to H. H. FRANCE HAYHURST, Esq. Mr. GRINDROD had the best Black Grapes. Mr. BANNEMAN had the best Peaches with fine Royal George, and Mr. READ the best Nectarines. Mr. BARNES, of Eaton, won 1st prizes for Melons and Strawberries.

VEGETABLES.

The 1st prize for Messrs. SUTTON & SONS' competition for vegetables was won by Mr. WILKINS, gr. to Lady T. GUMST, who also won 1st for Messrs. Webb & SONS' prizes.

MISCELLANEOUS EXHIBITS.

Mr. W. HALIDAY, gr. to the Earl of DARTMOUTH, Patchull House, put up a very fine group of Malmalson Carnations, very well grown, and carrying large blooms. Messrs. BIRKENHEAD & SONS, Sale, had a fine exhibit of Ferns; Messrs. WEBB & SON, Wordsley, Stourbridge, had a fine lot of Gloxinias, some of which are illustrated on p. 75. Messrs. HINTON BROS., Warwick, a collection of eighty-four distinct varieties of Sweet Pea. Mr. MURRELL, Shrewsbury, had an excellent display of *Roses*. Messrs. JARMAN & CO., Chard, Somerset, had also a good show of *Roses*; and many other firms were represented by excellent exhibits.

BRENTWOOD HORTICULTURAL.

JULY 13.—The exhibition of this Society took place in the grounds of Middleton Hall, Brentwood, on the above date, in brilliant weather. Several tents were required to take the exhibits, and garden produce of all kinds was represented, but the leading feature was the *Roses*; the principal Essex growers and others competing, and exhibiting splendid blooms.

The best twenty-four varieties came from Mr. B. R. CANT, Colchester, who had grand examples of *Horace Vernet*, which has been generally shown in fine form this season. In the class for twelve trebles, Messrs. HARKNESS & SONS, and Mr. B. R. CANT were adjudged equal 1st, the best of the grand blooms shown by the former were *Horace Vernet*, A. K. Williams, and *Maman Cochet*. Mr. B. R. CANT had two superb blooms in *Gustave Pignanneu* and *Her Majesty*.

With twelve Tea-scented, Mr. B. R. CANT was again 1st, with very fine blooms. All the blooms being exceedingly good.

In the amateurs' division with twenty-four blooms, the Rev. J. H. PEMBERTON, Havering, was 1st, the leading flowers being A. K. Williams and *Horace Vernet*. Mr. LANDON, Shenfield, won the Challenge Cup for twelve blooms, his premier flower was *Maman Cochet*, which was selected as the medal Tea-Rose in the amateurs' division; Ulrich Brunner and Mrs. J. Laing were also very fine. G. BAXTER, Esq., was 2nd; he had very fine *Comtesse de Nadailac*, A. K. Williams, and *Her Majesty*. 3rd, W. KINGSTON, Esq., Bedford. The Rev. J. H. PEMBERTON was 1st with six trebles, and Mr. LANDON 2nd. The best twelve blooms of one variety also came from the Rev. J. H. PEMBERTON, who had *Her Majesty* in excellent condition.

With twelve Tea-scented varieties, the Rev. J. H. PEMBERTON was 1st, and Mr. LANDON 2nd.

There were several plant classes, which included stove and greenhouse subjects in sixes, which consisted of *Allamandas*, *Bougainvilleas*, &c., while plants for the beauty of their foliage consisted of *Palms*, *Crotons*, &c. Some good Gloxinias were staged, and there were collections of exotic and hardy Ferns, &c.

In the way of cut flowers, hardy perennials and annuals made a good display, and bunches of Sweet Peas were charming, the most attractive were those which were relieved by their own foliage; other cut flowers were also shown.

VEGETABLES were a leading feature; the special prizes offered by Messrs. SUTTON & SONS, brought several good collections.

WEYBRIDGE GARDENERS' MUTUAL IMPROVEMENT.

JULY 18.—Weybridge, which contains as strong a community of gardeners as any district in England, and also a very liberal support on the part of its inhabitants, has inaugurated its first summer show in connection with the Weybridge Gardeners' Mutual Improvement Society, in the charming grounds of "Oatlands Mere," the residence of its President, A. SHANNON STEVENSON, Esq. It proved a great success, both with regard to the quality and the number of exhibits.

The most noteworthy exhibit, which was the leading feature of the show, was a group arranged for effect by Mr. J. LOCK, gr. to G. SWINER EADY, Esq., Q.C. The same exhibitor showed also very strong in several of the other classes.

Stove and greenhouse plants were well shown, as were also four Ferns, by Mr. J. LOCK, including a *Gymnogramma*,

Microlepis hirta cristata, *Davallia filifera*, and *Marattia Cooperi*. A very fine collection of Orchids were staged by Mr. C. Whitlock, gr. to W. A. BILNEY, Esq., Firrango Weybridge, not for competition.

In the class for Sweet Peas, there was a strong competition, the 1st prize falling to the last-named competitor. *Begonias*, *Streptocarpus*, and *Gloxinias* were well shown, the last-named being exceptionally good from Mr. W. Steadman, gr. to G. BAKER, Esq., Weybridge, one plant carrying as many as eighty flowers.

In the fruit class some very fine Muscat Grapes were shown by Mr. J. LOCK; and also well-finished bunches of *Madresfield Court*, by Mr. H. Buckmaster gr. to F. W. SMITH, Esq., Dunedin, Weybridge.

The 1st prize collection of vegetables was a very fine one in every point, as shown by Mr. A. BASILE, gr., Woburne College, Addlestone.

Amongst the nurserymen, Messrs. CUTBUSH & SONS of Highgate showed a fine group of their Gold Medal Carnations; Messrs. PEAR & SONS, Norwood, a group of *Begonias* and *Gloxinias*; Mr. CHARLTON of Tunbridge Wells a fine bank of flowers of herbaceous perennials and bulbs, in all over eighty varieties; Messrs. JACKMAN & SONS of Woking showed similar, also *Roses* and *Border Carnations*; and Messrs. FLETCHER & SONS, Ottershaw, herbaceous perennials and *Roses*.

ROYAL GARDENERS' ORPHAN FUND.

ANNUAL DINNER.

The annual dinner of the supporters of this Fund was held on Tuesday evening last in the Whitehall Rooms, Hôtel Métropole. The chair was taken by Alderman Sir REGINALD HANSON, Bart., M.P. for the City of London, and there was a company present of considerably more than one hundred guests.

The chairman was supported on his right by Sheriff Probyn, and on his left by N. N. Sherwood, Esq., Treasurer to the Fund. We also noticed amongst those present Mr. Harry J. Veitch, Mr. Baker (Thames Bank Iron Company), W. Marshall, A. W. G. Weeks, F. W. Moore (Glasnevin), G. R. Richards, J. Smith (Mentmore), Jas. H. Veitch, Arnold Moss, Rev. S. B. Mayall, J. F. McLeod, J. Jennings, W. Howe, Gen. Gordon, A. F. Barron, Leonard Barron, A. Outram, and most of the members of the committee.

The health of Her Majesty the Queen having been drunk with musical honours, and the Chairman had also proposed the toast of "The Prince and Princess of Wales, patrons of the Fund, and the rest of the Royal Family," Alderman Sir Reginald Hanson proceeded to propose the toast of "The Royal Gardeners' Orphan Fund." In the course of his speech, and whilst referring to the work that had been done since, in 1887, the Fund was originated, the Chairman said that he felt sure that the need for such a Society as this was existent long before, for in every profession some were weak or unfortunate, and for these reasons, if called away in the prime of life, were unable to make provision for their children. Then was brought out a point upon which the Chairman insisted with considerable force. He was pleased to see that the Fund had so far kept itself free from bricks and mortar. His experience during the past forty years, had been unusually great in respect to similar Societies, and he knew both sides of the question. Consequently, like Punch, he said "don't" build an orphanage. His experience as treasurer of another society made him delighted to find an institution that does not have a constantly recurring account for "repairs." "Do not," said the Chairman, "be induced to believe that a fine building will have value as an advertisement, or that it will attract more subscriptions; it won't." Having expressed himself most clearly upon this point, Alderman Hanson then referred with approbation to the action of the Technical Committee of the London County Council, who were offering scholarships for gardening or botany. He was not always able to speak flatteringly of the London County Council, especially in the company of his friend at his right hand. The Chairman concluded with an earnest appeal to those present to increase the income of the Fund by all means in their power. He was afraid that though certain candidates were admitted to the benefit of the Fund, each year there were many others whose claims if not equal to those elected were very nearly so.

In replying to this toast, Mr. W. Marshall, President of the Committee, feared he had little new to urge on behalf of the Fund; but there were no cross words, and no complaints of the manner in which the business had been carried on; which was satisfactory. Then came a mild warning. Some of the children (said Mr. Marshall) who were elected to the Fund in 1887, are attaining the age at which they cease to be eligible for continued assistance. But there was a clause (and a very excellent one) that permitted the committee to give them a help to make a start in life, and many applications had been readily entertained. The Institution had purchased a set of tools, or had provided the money necessary to procure an apprenticeship. The Committee desired to do as much in this direction as possible, but Mr. Marshall foresaw that in course of time expenditure in this way might prevent them from placing so many children on the Fund as now, and even become a greater burden on the Institution than the younger children are at present.

Before resuming his seat, Mr. Marshall presented to Mr. A. F. Barron an illuminated Testimonial, in accordance with a motion moved at the last annual meeting by Mr. Harry J. Veitch, and seconded by Dr. Masters. Very few words were used by Mr. Marshall, but they were brim full of feeling and of appreciation of the work done by Mr. Barron in his capacity of Secretary to the Fund since its inception.

In response, Mr. Barron merely returned thanks for the honour thus conferred upon him.

The toast of "Gardeners and Gardening" was proposed by Mr. Arnold Moss, who said that there are gardeners, and gardeners; and was not at all tender in his description of the jobbing gardener, who is apparently a being to be held in the greatest fear. The Rev. S. B. Mayall made an appreciative speech in response to this toast, and spoke of the sentiment of gardening.

The toast of the Chairman was proposed by N. N. Sherwood, Esq., who said that Alderman Hanson was a personal friend of his own. He was Lord Mayor of London at the time of the jubilee of the greatest Queen, and was head of one of the City's largest mercantile establishments. But he found time amid his civic and Parliamentary duties to do an immense amount of work for the furtherance of charity. Then Mr. Sherwood made an exceedingly apt remark in relation to the Institution. He hoped, he said, that a time will come when it will not depend mainly for its finances upon the holding of an annual dinner, but upon its yearly subscribers. Our friends the Press, Mr. Sherwood added, "must advertise us more," and astonished the representatives of the Press present by saying that he had lately discovered a district in which the inhabitants had never heard of the Institution.

The Chairman, in reply, said that in gardening he believed that too much top-dressing might have the result of injuring what it was intended to benefit. Mr. Sherwood had used too much top-dressing. He thoroughly believed in the advantage of subscriptions over donations, and would have pleasure in becoming an annual subscriber of two guineas. The remaining toasts were those of "The Press," replied to by Mr. Gordon; "The Secretary," moved by Mr. Sherwood, who spoke of the great energy that Mr. Wynne had shown, and "The Treasurer" (Mr. Sherwood).

The Secretary announced that the following donations and collections had been received. The Chairman, 20 guineas; Sheriff Probyn, 10 guineas; Mr. N. N. Sherwood and family, £58; Mr. H. J. Veitch, £10 10s.; Mr. R. Dean, £10 10s.; Mr. G. R. Richards, £10 10s.; and others from Messrs. Rothschild, Baron Schroder, Thames Bank Iron Co., &c. From the Stewards' list the "Market-table," presided over by Mr. Asabe, was credited with providing the largest amount, namely, £100. Mr. Geo. Reynolds furnished £28 3s. 6d.; Mr. Jno. A. Leing, £17 1s.; Mr. Sanders, £10; Mr. Richards (nursery-foreman at Hassocks), £13 10s. Other substantial sums were from Mr. J. F. McLeod, Mr. Tom Morris, &c.

The total amount raised in connection with the dinner, was £590 3s. 6d.

Obituary.

MAJOR MASON.—We regret to have to announce the death, on July 14, of Major Mason, The Firs, Warwick, in his seventy-ninth year. At one time the Major served on the Council of the Royal Horticultural Society, and was well known among Orchid growers. In his early life he was in the service of the East India Company.

THE TROPICAL WEATHER.—Just as we go to press, a telegram from Mr. Miller, Ruxley Lodge Gardens, Claygate, Surrey, informs us that the thermometer has registered there 96° in the shade.

MARKETS.

COVENT GARDEN, JULY 20.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms	3 0-4 0	Mignonette, dozen bunches	4 0-6 0
Asparagus "Fern," bunch	2 0-2 6	Orchids, per dozen blooms	2 0-15 0
Carnations, per doz. blooms	1 6-3 0	Pelargoniums, doz. bunches	4 0-6 0
Eucharis, per dozen	4 0-8 0	Roses indoor, per dozen	2 0-3 0
Gardenias, per doz.	1 6-2 6	Red, per doz.	2 0-4 0
Iris, p. doz. bunches	6 0-12 0	Tea, white, per dozen	2 0-3 0
Lilium Harrisii, per dozen blooms	3 0-4 0	Yellow, Perles, per doz.	2 0-3 0
Lilium longiflorum, per dozen	4 0-6 0	Saffron, per dozen	2 0-2 6
Lily of the Valley, per doz. sprays	0 6-1 3	Smilax, per bunch	3 0-4 0
Marguerites, p. doz. bunches	3 0-4 0	Sweet Peas, dozen bunches	3 0-4 0
Maidenhair Fern, per doz. bunches	4 0-6 0	Tuberose, 12 blms.	0 8-1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Ficus elastica, each	1 6-7 6
Arborvitæ, var., doz.	6 0-36 0	Foliage plants, var., each	1 0-5 0
Aspidistra, p. doz.	18 0-36 0	Fuchsias, per dozen	4 0-6 0
— specimen, each	5 0-10 6	Heliotropes, p. doz.	6 0-8 0
Boronia, ...	12 0-18 0	Hydrangeas, p. doz.	6 0-10 0
Crotons, per doz.	18 0-30 0	Lilium Harrisii, per dozen	12 0-18 0
Dracenas, var., doz.	12 0-30 0	Lycopodium, doz.	3 0-4 0
— viridis, per doz.	9 0-18 0	Marguerite Daisy, per dozen	6 0-9 0
Erica, var., per doz.	9 0-24 0	Myrtles, per dozen	6 0-9 0
Euonymus, various, per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var., per dozen	4 0-18 0	— specimen, each	21 0-63 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, scruplet, per dozen	4 0-6 0
— small, per 100.	4 0-6 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian and Victorian, French Crab, Pearmain, Sturmer, &c., per case	6 0-12 0	Grapes, Channel Is., Hamburgh, pr. lb.	0 10 —
— English, Suffolk, bushel	6 0 —	Grapes, Muscata, lb.	1 0-1 3
Apricots, box of 12 or 15	1 6 —	Lemons, Naples, per case of 300.	10 0-12 0
— basket, about 10 lb.	3 6-8 6	— Murcia, case of 200	8 0 —
Bananas, per bunch	7 0-10 0	Lyches, Chinese, packet, 1 lb.	1 3 —
Cherries, Bigarreau, sieve	5 0-8 0	Melons, each	1 0-1 6
— Blacks, sieve	4 0-5 0	— Foreign Rock...	2 0-3 0
— Eng. Blacks, sieve	4 0-5 0	Nectarines, A., per dozen	8 0 —
— white, sieve	4 0-5 0	Oranges, Murcia, various numbers, from 96 to 200	7 0-10 0
— May Duke, per sieve	5 0-6 0	Peaches, per doz.	3 0-8 0
— Foreign, sieve	4 0-5 0	— Belgian, p. doz.	3 0-5 0
Figs, per dozen	1 0 —	— Foreign, box, 12	1 6 —
Currants, blk., sieve	5 0-6 0	Pines, St. Michaels, each	4 0-6 0
— Red, sieve	5 0-6 0	Plums, Red, sieve	4 0-5 6
— White, gallon	2 6 —	— Blue	4 0 —
Gooseberries, sieve	2 0-4 0	— Gages	3 0-4 6
Grapes, English, Hamburgh, pr. lb.	1 3-1 9	— cases	2 6-3 0
— Alicante, per lb.	1 3-1 9	Raspberries, per cwt.	35 0 —
— Gros Colmar	1 3-2 0	— punnets	4 0-6 0
— Muscata, A., per lb.	2 6-3 0	Strawberries, in punnets, dozen	2 0-5 0
— B., per lb.	2 0 —	— Kent & Midx. in pecks, from...	2 6-3 0
— Belgian, per lb., new	0 6-0 9	Walnuts, green, pr. bushel	0 0 —
		— per sieve	3 0 —

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0 —	Lettuce, Cos, per score	1 6-2 0
Aubergines, doz.	2 6 —	Marrows, Veg., doz.	1 6-2 0
Beans, English, Dwarf, per sieve	5 0-6 0	Mint, per dozen bunches	3 0 —
— Broad Windsor, in bushels	1 6 —	Mushrooms, house, per lb.	0 10-1 6
— p. bushel	1 8 —	Onions, Egyptian, cwt. bag	4 0 —
— bag	3 0 —	— Oporto and Valencia, cases	5 0-6 0
Scarlet Runners, per sieve	4 0-5 0	— new, bunches...	4 0-6 0
Beetroots, new, bunches	4 0-5 0	Farsley, new, dozen bunches	4 0 —
Cabbage, tally	8 0-10 0	Peas, blues, per bushel	5 0-6 0
— dozen	2 0 —	— tags	7 0-8 0
Carrots, new English, per dozen bunches	1 6-3 6	Potatoes, new Jersey Kidneys, cwt.	4 0-5 0
Cauliflowers, dozen	2 0-3 6	— Kent, pr. bush.	4 0-5 0
Celery, new, per bundle	1 6 —	Radishes, round, breakfast, per dozen bunches	1 0-2 0
Greens, per dozen punnets	1 6 —	Salad, small, punnets, per dozen	1 3 —
Cucumbers, per doz.	2 0-3 0	Shallots, new, doz. bunches	1 6 —
Endive, new French, per dozen	2 6 —	Spinach, New Zealand, per peck	1 0-1 3
Garlic, new, per lb.	0 8 —	— sieves	2 0-2 6
Horseradish, English, bundle	2 0 —	Tomatoes, new English, per lb.	0 3-0 4
— loose per doz., fine	1 6 —	— Channel Islands, p. lb.	0 2-0 3
— foreign, per bundle	1 0-1 3	— French, crates	2 0-2 6
Leeks, new, per doz. bunches	2 6 —	Turnips, new, doz. bunches	3 0-4 0
Lettuce, English, Cabbage, dozen	1 0-1 6	Watercress, p. doz.	0 4-0 6

POTATOES.

Jersey, 80s. to 100s. Bedford, 80s. to 120s. Arrivals of all sorts falling market. John Bath, 32 and 34, Wellington Street, Covent Garden.

REMARKS.—Strawberries are nearly over; Raspberries still coming good; young Peas are a short supply; on Saturday, the 15th inst., they advanced considerably in price, and finished out well. Good Lettuces are also scarce, we have been getting some Cabbage-Lettuce remarkably fine, twenty-four well filling a bushel-basket. Vegetable Marrows and Scarlet-Runner Beans are now coming in fast, and reports state that Scarlet Runners look remarkably well. (In my last report, Dwarf Beans should have read "peck," not "sack.") Buyers of Walnuts for pickling should secure them immediately, as the shells get wooded very quickly, and some varieties sooner than others. Essex Carrots are now very good; they are bunched of a different size to Bedford's. Home-grown Apples have commenced, and the Australians hardly cleared, which proves that we can have Apples all the year round.

SEEDS.

LONDON: July 19.—Messrs. John Shaw & Sons, Seed Merchants, of Great Mass Pond, Borough, London, S.E., report to-day's market bare alike of buyers and of business. Offers of new French Trifolium come lower, and English samples, of which there promises to be a fair abundance, are putting on an appearance. Full prices are asked for Mustard and Rape-seed. New home-grown Rye is expected next week. Canary-seed, following Liverpool's lead, has advanced a further 2s. per qr., whilst Hemp-seed is with difficulty obtainable. More money is also demanded for Millet-seed. The Linseed market is quiet. There is no quotable change in either Peas or Haricots, but Spanish Lentils are scarcer, and dearer.

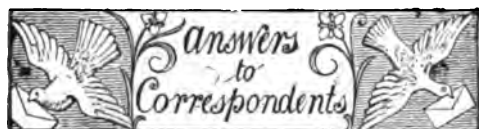
FRUIT AND VEGETABLES.

LIVERPOOL: July 19.—*Wholesale Vegetable Market.*—Potatoes, per cwt., Early Regents, 2s. 6d. to 3s. 8d.; Jersey, 5s.; Kidney, 5s. to 7s. 6d.; do., new, per 21 lb., 1s. 4d. to 1s. 6d.; Turnips, 6d. to 8d. per doz. bunches; Carrots, 6d. to 8d. do.; Parsley, 6d. to 8d. do.; Onions, foreign, 2s. 6d. to 3s. 3d. per cwt.; Lettices, 4d. to 6d. per doz.; Cucumbers, 1s. 8d. to 3s. do.; Cabbages, 10d. to 1s. 10d. do.; Peas, 2s. 4d. to 2s. 8d. per bushel; Beans, 1s. 3d. to 1s. 6d. do. *St. John's.*—Potatoes, 10d. per peck; do., new, 1d. to 1½d. per lb.; Grapes, English, 1s. 6d. to 2s. do.; Pines, English, 4s. to 6s. each; Currants, red and white, 6d. per lb.; do., black, 6d. do.; Strawberries, 4d. to 8d. per lb.; Gooseberries, 3d. per quart; Peas, 1s. per peck; Cherries, 4d. to 8d. per lb.; Apricots, 1s. per dozen; Cucumbers, 3d. to 4d. each; Mushrooms, 8d. per pound and basket. *Birkenhead.*—Potatoes, new, 1d. per pound; Peas, 10d. to 1s. 4d. per peck; Cucumbers, 3d. to 4d. each; Strawberries, 4d. to 6d. per lb.; Cherries, 6d. to 10d. do.; Currants, black, 6d. to 8d. do.; do., red, 4d. to 6d. do.; Apricots, 1s. per dozen; Gooseberries, 3d. to 4d. per pound; Grapes, English, 1s. 6d. to 3s. 6d. do.; Mushrooms, 8d. to 1s. do.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending July 15, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.
	s.	d.	s.	d.	
Wheat	37	1	25	5	— 11 8
Barley	24	1	20	4	— 3 9
Oats	20	10	17	11	— 2 11



APPLES AND PEARS: *Pinus austriaca*. Prune soon after planting. November-planted trees should be pruned at the end of the month of February following. A good deal depends upon the condition of the roots. If the tree is dug up with all care in the garden and planted forthwith, the balance between head and roots will not be much disturbed; but nursery trees that have been headed back but once, need close pruning of the few leading branches they possess, so as to give a sufficient number of main branches for a start, and to relieve the strain on the mutilated and curtailed roots, and these branches must be cut back for the last time in one or two years afterwards.

APPLES ON PARADISE STOCKS: *Pinus austriaca*. If the budding or grafting has been performed at a point about 4 inches above the ground-line, then you may bury them to that depth; but it should be done by degrees, say, at two or three transplantings. There is no necessity to bury the point of union, nothing being gained thereby, the stock itself making roots freely.

AUSTRIAN PINES: *Pinus austriaca*. The only suitable aid to growth would be a 2-inch layer of leaf-mould and loam laid on the soil around the trees, first loosening the crust a little, and using a digging-fork for this purpose. Liquid-manure is inadmissible. Top-dressings may be afforded biennially.

BOUVARDIA: *C. G.* The Bouvardia seems to have suffered from too deep potting, the exterior covering of the stem having been killed at the base. Too fine soil would contribute to the injury. Bouvardias of this class make strong plants when propagated from root-cuttings.

CHIMONANTHUS FRAGRANS: *M. R.* The fungus, *Nectria cinnabarina*, comes after the death of the shoot.

ERRATUM: *Gardeners' Chronicle*, vol. xxvi., p. 58 (Orchid Committee Report, Royal Horticultural Society, July 11, 1899), for "*Cypripedium* × *Phito*," read "*Cypripedium* × *Pluto*."

ESPALIER APPLES AND PEARS: *Pinus austriaca*. The summer pruning consists in rubbing out all weakly and superfluous shoots whilst these are soft and green, but letting the other shoots grow without pinching or stopping till this season, when they may be cut back to 9 inches in length. The final cutting back to two or three buds, is performed in the winter. So that strength may be afforded in greater measure to an espalier-tree, a few of the current season's shoots may be left at full length; and for neatness sake, these may be tied in loosely in a horizontal position, or in the case of a fan-trained tree, then in the direction of the branches. These are also cut back at the winter pruning. Continuation shoots on all branches that have not reached the limits of the space allotted to the tree, should not be pinched at the point at this season.

FIELD MICE: *Brecon*. You might drive the creatures away by the free use of petroleum in their nests and runs, just as rabbits are driven out of their holes into the open for shooting purposes. We should advise surrounding plants that they mostly nibble with shavings dipped in the oil.

GRAPES DISEASED: *R. M.* The berries are affected by the so-called spot-fungus—*Gloeosporium laticolor*. Spray the bunches with the Bordeaux Mixture, or sulphide of potassium, half-an-ounce to 1 gallon of water, after cutting out and burning every berry showing signs of being infected. You should try to destroy every trace of the fungus, in order to avoid trouble another year.

GRAPES: *S. A. M.* The Grapes sent are overrun with the ordinary Vine-mildew, *Oidium Tuckeri*. We cannot say what causes mildew to appear on Vines where the cultural conditions are exactly proper. Perhaps it is due to atmospheric conditions, to the presence of the mildew on other host plants growing in the vicinity of the Vines. Where mildew is apt to attack the Vines, precautions should be taken in late spring, and not relaxed all through the season. One of the best of these is the use of sulphur in the form of wash, mixed with quicklime and milk, applied to the heating apparatus; the free use of flowers-of-sulphur, by means of the sulphuring bellows; syringing the Vines with sulphide of potassium, ½ ounce in a gallon of water; or with flowers-of-sulphur mixed in water. Of all the remedies, we prefer sulphuring the heating apparatus, and the sulphide of potassium. The Grapes are badly shanked, which points to unwholesome conditions of the roots and soil in which these are found. We should advise you to examine the state of the border, and write us again. See a letter from Mr. Smythe, in the present issue, p. 74.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. P.* The trees in Palace Yard are *Catalpa bignonioides*.—*John E. Kistlingbury*. *Alocasia Jenningsii*.—*X. Y. Z.* 1, *Linaria purpurea*; 2, *Tradescantia virginica*; 3, *Lychnis chalcedonica*; 4, *Rivina humilis* (Rouge-plant); 5, *Ardisia crenulata*; 6, *Pitcairnia bromeliifolia*.—*C. L.* *Lathyrus cyaneus*—not Lord Anson's Pea.—*A. Dryden*. *Asclepias curassavica*; not a native of Cyprus, but of the warmer parts of America.—*F. B.* The white variegated *Pelargonium* is *Bijon*, a very old garden favourite.—*Offerton*. *Lathyrus cyaneus*.—*A. W.* *Melilotus officinalis*.—*J. J.* *Periploca græca*.—*Grouver*. *Achillea Ptarmica flore-pleno*, one of the plants which are termed Bachelor's Buttons.—*Cromdale*. *Empetrum nigrum*.—*W. O. W.* 2, *Sedum rupestre*; 4, not recognised; 5, *Scrophularia nodosa variegata*. The Roses were completely disintegrated; send them to some nurseryman. We do not undertake to name florist's flowers.—*G. D.* 1, *Alstroemeria pelegria*; 2, *Anthericum sp.*; 3, *Sedum spurium album*; 4, *Magnolia fuscata*; 5, *Ptelea trifoliata*; 6, *Spiraea Douglasii*.—*J. L.* 1, *Thalictrum minus*; 2, *Semprevivum montanum*; 3, *Genista anglica*; 4, *Sedum spurium album*; 5, *Sedum album*.—*A. T.* *Dendrobium suavisimum*.—*H. R. N. B.* The *Odon-*

toglossum is a singular form of *O. × Coradinei*; the *Cypripedium*, *C. × Ashburtonia superbum*.—*P. W.*, *Magdeburg*. *Stanhopea Devoniensis*, by no means common; and *Cattleya granulosa Dubuyssoni*.—*J. F. M.* If the *Cattleya* was imported with *C. Mossii* it is very extraordinary. It appears to be a form of *C. Mendeli*.—*Lily*. 1, *Alstroemeria aurantiaca*; 2, *Sedum spurium*; 3, *Genista anglica*; 4, *Funkia ovata*; 5, *Campanula*, specimen insufficient.—*L. R. W.* 1, *Agrostemma coronaria*; 2, not found; 3, *Chelone barbata*; 4, *Sedum rupestre*; 5, *Saxifraga longifolia*; 6, *Eryngium campestre*.—*W. H. M.* *Eleagnus longipes*.

NOBLESSE PEACH: *Pinus austriaca*. The flower is large.

PEAS AND TOM-TITS: *A. Dryden*. Use the gun and dust-shot, with half charges of powder; or, better still, net the rows of Peas with fish-netting; or try chickens' feathers tied on lengths of string, and fasten these on the Pea-sticks.

POT POURRI: *Anxious*. There are several formulas for making these delicious scent-pots, and we give you a good one taken from *D. McDonald's* book *Sweet-scented Flowers and Fragrant Leaves*. Take the rind of two Lemons, cut thin, 1 lb. bay salt, 1 oz. of powdered Orris-root, 1 oz. Gum benzoin, 1 oz. Cinnamon, ½ oz. Cloves, 1 oz. Nutmegs, 1 grain Musk, 12 leaves of Sweet Bay, a few of Sage, Rosemary, and Lavender, cut small; 1 oz. Lavender-water, 1 oz. Eau de Cologne, and 1 oz. Bergamot. Mix all together in a pan, and add sweet flowers in their natural state as they expand; stir the whole often, at least once a day. It must be put into a stoneware pot provided with a cover, and a wooden spoon with which to stir the contents. At the end of two or three months this will be a sweet-scented mass ready to fill a number of ornamental jars. From time to time, throw in fresh petals of fragrant Roses.

RED CURRANT "THE COMET": *H. B.* The samples of this Red Currant sent for our inspection are very good, being large in berry and strap, and of a glistening bright crimson colour.

ROSE LEAVES: *A. P.* The injury is due to the larvæ of the Rose sawfly, *Hylotoma Rosa*. These are full grown in July and August, and then descend into the earth, where they remain till the next summer. The same measures may be taken as with the Gooseberry sawfly, that is, dressing the Rose-bushes with hellebore-powder, and removing the upper crust of soil under the bushes and charring it, to destroy the chrysalids. The syringe should be freely used in June and July.

REMOVAL OF EXHIBITS: *J. C.* You should address your complaint to the secretary of the society.

VERBASCUMS: *D. & Co.* These plants hybridise freely in nature; yours seems a distinct cross.

VINE: *K. & B.* So far as we can tell from the specimen sent, this is a case of "browning," supposed to be caused by a slime-fungus, but the matter is still open to doubt. Cut off all the affected shoots and burn them, and carefully watch the Vines that are still unaffected, so as to destroy the shoots on the first appearance of the disease.

COMMUNICATIONS RECEIVED.—Paul Weller.—N. C. B.—A. H. —Dickson.—J. Veitch & Sons.—Sutton & Sons.—G. G. —W. R.—F. B.—Visitor.—D. T. F.—P. F.—E. C.—Harrison Weir.—J. H. M., Sydney.—S. A.—R. P. B.—Latour-Marliac.—W. C.—J. F. H.—W. N.—W. C., Orpington.

PHOTOGRAPHS RECEIVED WITH THANKS.—E. B.—Mr. Cairnes.—E. M.

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "*Gardeners' Chronicle*" has, since the reduction in the price of the paper,

MORE THAN DOUBLED.

Advertisers are reminded that the "*Chronicle*" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal libraries.

(For Weather, see p. viii.)



THE Gardeners' Chronicle

No. 657.—SATURDAY, JULY 29, 1899.

"ADAM OUT OF EDEN."

THE above is the quaint and taking title of a little book composed of a variety of observations, some short, others longer, but none lengthy, on matters connected chiefly with husbandry, but also to some extent with gardening. It is a small work, containing 163 pages of about 12mo size, and the author was a Mr. Ad. Speed, who, according to the preface, had been accustomed to make notes on subjects of a rural nature, and afterwards to distribute them in manuscript among his friends. At length, after having "long been smothered in private hands, by the good nature of a public-spirited gentleman, they have blessed our eyes," or, as we should express it now, they were printed. The book bears date 1659, just two years later in appearing than Cole's folio on gardening, called *Adam in Eden*. In addition to the title, in the usual position, there is also printed in large characters on the last plain leaf at the end of the book, the words "Speed's Husbandry."

The contents, though largely original, are not entirely so, a few notes and recipes having been derived from previous writers. It possesses the no small merit of containing in narrow limits a really wonderful amount of curious information relating to the objects of which it treats; its condensed paragraphs saving the reader much unfruitful labour, wading through pages of irrelevant matter, an experience so common in the case of old works of this nature.

A long list of the values of various crops, as well as of rabbits, coals, &c., provides a notable means of estimating profits 250 years ago. Rents, according to our author, were very low—in some places, as low as a shilling per acre; while within 15 miles of the metropolis it was possible to acquire ground at a rent of 8s. an acre. A contemporary, however, names £6 as having been paid for land in Surrey for fruit-growing.

The profits derived from market gardening were even then very large, for it is here averred that "a gardener about London" in some instances derived so large a sum as £200 for the crops off an acre of land, "and exceeding great profits may be made thereby in most places of England." The above is a remarkable return for the period, and the amount seems to have remained stationary for a very long time, for we find in 1802, in a footnote in Lord Lauderdale's *Essay on Wealth*, £220 quoted as the value at that date.

The undermentioned are but a few of the crops mentioned by Speed, and they throw a not uninteresting side-light on the domestic economy of Old London. Red Roses and Clove-Gillyflowers, for 5 acres, £100; Tobacco, per acre, £30; Roman Beans, £50; 20 acres French Beans, £400; and Pumpions and Cabbages, £20 per acre. The Roses were cut just previous to expansion, and were largely used by

apothecaries. After the crop had been gathered, the young shoots were shortened, in order that a second bloom might be produced towards Michaeltide. Clove-Gillyflowers were propagated from seeds, and were used for a variety of purposes. In medicine they, as well as Rue, were accounted invaluable as a "defence" against the plague and other infectious diseases, though the awful visitation experienced by London a few years later, must have shipwrecked faith in these and other popular specifics. Earlier in the same century the *English Housewife* contains a receipt for preserving in vinegar the flowers of Violets, Bugloss, Primroses, and Gilliflowers, all of which, along with the stems of Purslane, and slices of Cucumber, were employed in the construction of artificial flowers, which were laid out in dishes, and eaten as salads. Mention is also made in Beale's *Aphorisms*, of Clove-July flower-water as "a most grateful cordial as it is infused by a lady in Staffordshire." The flowers in addition were in request for garlands and nosegays, and they were one of the flowers which, when in season, were regularly hawked in London streets.

Pumpkins are commended as a good food for cattle as well as for men. Cabbages were cultivated in fields for "milch cattell," and it is stated when the "Cabbages are cut up, there will be a crop of Coleworts," but how these were utilised is not mentioned. A lengthy chapter, for this book, is that devoted to the cultivation of Turnips; the "Hackney" variety being recommended as the best. As well as being used as a vegetable they were also employed for bread-making. The ingenious Mr. Evelyn, in one of his pamphlets supplies interesting information about Turnip-bread, which was composed of Turnips and "Wheat-meal" mixed in equal proportions, and declares it was an "agreeable sort of bread of which," he adds, "we have eaten at the greatest persons tables." The same authority notes also that "some wrapt Turnips in a paper under the embers, and eat them with sugar and butter" (!). Speed on his part affirmed that as well as bread they "make very good syder,"—albeit with certain additions, not however communicated. Gay's lines, therefore, appear to be written as sober fact—

"Leeks to the Welch, to Dutchman butter's dear,
Of Irish swains Potato is the cheer;
Oats for their feasts the Scottish shepherds grind,
Sweet turnips are the food of Blowelind."

Our author's estimate of Potatoes is as follows: "The like benefit as with Turnips may be made with Potatoes, which usually grow here in England. They will increase exceedingly, and are excellent good food several waies; they will make good bread, cakes, paste, and pyes, and both crust without and food within. They will hardly be destroyed, but increase of themselves in a very plentiful manner, with very little labour. They will, likewise, being cut in slices and so put into the earth, and the very threads coming from the roots will increase to great roots." Ten years later, Worlidge mentions the Potato as being "very usual in forraign parts, and are usually planted in several places of this country to a very great advantage." It was still, however, an uncommon vegetable, and forty years later, Evelyn mentions the green fruit as having been pickled; and how one way of eating the tubers was "with sugar together in the skin, which has a pleasant crispness."

Sowthistle was, at the date of this book, still in cultivation. It was considered an excellent food for cows, its use, as affirmed here,

doubling the yield of milk, and producing cream of a better quality; while cheese made from thistle-milk exceeded in goodness all others. An improved way of growing Musk-Melons without the aid of manure is discussed. The Earls of Dorset and of Tenett (Thanet?) both pursued the method in their gardens, and the author's information was not improbably derived thence. The necessary heat in this instance was derived not from hot dung, but from Barley-straw. Nothing, unfortunately, is said of its preparation; but, judging from the fact that holes had sometimes to be made in the soil of the beds in order to allow dangerous heat to evaporate, it is clear the material could not have been used in a dry state.

We might conclude from the position occupied by Melons in this and in other old works on gardening, that they were a not uncommon fruit, nor difficult to cultivate. Gerarde (1597), for instance, assures us they were grown on beds of hot dung without the protection of glass, and so hardy as to bear the "intemperancie of the climat, although it were in the furthest parts of the North of Scotland"! a remark that almost inclines one to sympathise with Johnston's strictures on the inaccuracies of the gossipy chirurgeon. Pepys, in 1661, presents the Melon to us as a fruit not at all common. Says that prince of diarists:—"Some Grapes and Millons from my lord at Lisbone. The first that ever I saw; but the Grapes are rare things." That the Melon was extremely rare is borne out by what Evelyn states in *Acetaria*, how that in his earlier years it was "very rarely cultivated in England," and the fruit cost 5s. or 6s. each. As to quality, Evelyn was told by the Earl of Sandwich that Onions brought him near the coast of Egypt were "little inferior in taste to Melons" (!). This statement makes it quite possible to believe them to have been "an usual ingredient in our sallet."

Passing over some curious information, note may be made of the following unlikely materials which were used in common with cow-dung in the preparation of liquid-manure. These are "Lyntseed, Oyl, Lees of Wine, Ale, Bear, Perry, Syder, Beef-broth, and Brine of Poudring-Tubs." Among manures laid in a dry state on the land, rags are mentioned as having been carried from London to Herefordshire to the value of £3000 per annum; and it is remarked with a coolness that almost causes one to shudder, "though they (the rags) have been infected by the plague very often, they find benefit from them." A more effectual way of diffusing disease can hardly be conceived. Other materials used as manure were "shaved rabbit-skins, shaved horns, and sheep's trotters," the last-named being best of all with the sole exception of sprats, which could be purchased at 1d. or 2d. a peck. Sixty years previously, saltpetre had been recommended by Markham as a valuable manure, but with it Speed was obviously unacquainted.

The difficulty of applying liquid-manures appears to have been much felt. One common method consisted in filling with the liquid, vessels, which were then placed close to the plants to be watered. One end of a rag having been immersed in the liquid, the other was placed near the neck of the plant, on which a slow but continuous supply resulted. Our author mentions among other wonderful crops produced by this treatment, one of Strawberries, or, in his words, "By vertue of this Liqueur white Strawberries 6 inches compass." This is noteworthy as an example of first-rate cul-

tivation. But Speed was not confined to the above primitive method, for he acquaints us with an engine "in part like that they use in London when houses are on fire," for distributing the liquid over large areas; and adds "this engine is exceedingly convenient and commodious for gardens, which will likewise wash off caterpillars from all manner of fruit-trees, and those that grow against walls." The engine was carried from place to place "like a sedan chair by two men." Another method of destroying caterpillars was effected by the agency of ants; and thus, a nest of these lively insects having been procured, it was placed among the branches of the infested tree, the hole of which was encircled with a band of tar in order to prevent the ants leaving their aerial quarters until, overpowered by hunger, they had consumed every caterpillar!

The above, with some other old-fashioned notions, mar to some extent the symmetry of this little manual, but taken as a whole, it presents a very interesting view of rural economy in the middle of the seventeenth century. I am greatly indebted to the Earl of Haddington for an examination of the copy of this scarce book, contained in Tynninghams Library, and from it the material for the above remarks has now been extracted. *R. P. Brotherston.*

NEW OR NOTEWORTHY PLANTS.

LÆLIO-CATTLEYA ISABELLA (LÆLIA PURPURATA SCHRODERI × CATTLEYA LABIATA SCHRODERÆ).

A most remarkable and charming hybrid, which may be said to be the finest of the light-coloured Lælio-Cattleyas, and the result of the above-mentioned cross, has just flowered with J. Leeman, Esq., West Bank House, Heaton-Mersey (gr., Mr. Edge), who kindly sends a flower of it. The fine flower has the firm substance and delicate Peach-blossom tint of Cattleya Schroderæ, as well as a close imitation of it in the broad, crimped labellum. The influence of the other parent is noticeable in the long acuminate sepals, and in a tendency of both sepals and petals to reflex at the edges.

The sepals are each $4\frac{1}{2}$ inches in length, the expanded petals 8 inches from tip to tip; both sepals and petals are white, tinged with Peach-blossom. The lip is cream-white, with delicate purple pencilling at the base; the disc chrome-yellow, and the front-lobe and edges of the side-lobes rosy-pink in colour, with a slight purple marbling on the front-lobe about the middle. No other crosses of *L. purpurata* and *C. labiata* that we know of possess such delicate tints as this one. *James O'Brien.*

PHALÆNOPSIS DENISIANA, Cogniaux, sp. nov.*

Stem nearly wanting, emitting a small number of aerial roots, whitish, and much wrinkled. Leaves

* *Phalænopsis Denisiana*, Cogn.—Caulis subnullo; foliis amplis, patulis vel deflexis, oblongis, abrupte acutis, inferne longe attenuatis; pedunculo communi robustiusculo, rigido, patulo vel leviter deflexo, teretiusculo vix ramosa foliis æquilongis vel paulo longiore, in dimidio superiore, 10–12 floris; bracteis minutis, carnosius, late triangularibus, obtusiusculis; floribus majusculis, carnosius, longiuscule pedicellatis; sepalis patulis, obovato-oblongis, obtusis, margine revolutis, lateralibus paulo majoribus leviter obliquis; petalis sepalis dorsalibus paulo brevioribus, elliptico-oblongis, apice rotundatis, basi breviter unguiculatis; labello sepalis lateralibus dimidio breviori, lobis lateralibus erectis conniventibus, oblique quadrangularibus, apice emarginatis et acute bidentatis, dorso oblique carinatis, lobo terminali duplo longiore, obovato-suborbiculari, obtuso, satis concavo, inferne ad medium alte uncinatato, basi squama transversa carnea erecta apice acute biloba instructo, disco basi valde concavo, inter lobos laterales papillis 2–3 carnosius conicis acuminatis munito; columna longiuscula, clavato-cylindrica, basi in pedem brevissimum producta.—Hab. in insul. Philippinis.

spreading or deflexed, broadly oblong, abruptly pointed, of a deep green colour, slightly undulated, attaining 30 cm. (a foot) in length, by 10 cm. (4 inches) in breadth. Common peduncle, rather stout, rigid, outspread or slightly deflected, scarcely branched, as long or rather longer than the leaves, bearing ten to twelve flowers on the upper portion. Bracts very small and fleshy. Flowers rather fleshy, from $3\frac{1}{2}$ to $4\frac{1}{2}$ cm. (1½ inch to nearly 2 inches) across. Sepals spreading, oboval-oblong, somewhat of a greenish-yellow colour, the lower half displaying a large irregular spot of brownish-red; the lateral sepals are rather larger. Petals resembling the dorsal sepal, but rather smaller and more rounded at the top. Lip fleshy and rigid, half the length of the lateral sepals; lateral lobes erect, connivent, obliquely quadrangular at the top, bordered with two pointed lobes bearing at the back a well-marked oblique keel, white, with a little yellow spot at the base, and sometimes lightly veined with purple; terminal lobe larger, somewhat erect, obovate-rounded, orange-yellow, with four longitudinal lines of bright brick-red, the lower part with a decided median crest; disc bearing between the lateral lobes two or three appendages conical and divergent, and at the base of the terminal lobe a transverse erect scale, having two pointed lobes at the top. Column somewhat club-shaped, yellowish, the foot very short.

This remarkable species was imported two years ago from the Philippine Islands by M. Fernand Denis, director of the wicker factory (Vaucluse, France), a well-known amateur Orchid-grower, especially fond of Phalænopsis. This species flowered with him last May, and he has kindly furnished materials which have enabled me to describe it, and shortly to figure it in the *Dictionnaire Iconographique des Orchidées*. A. Cogniaux, Verviers.

TILLANDSIA DUVALI ×.

The *Journal de la Société Nationale d'Horticulture de France* for June, gives the following account of the new *Tillandsia Duvali* obtained by MM. Duval & fils of Versailles, from T. Lindeni major × T. Lindeni vera superba:—"Tillandsia Duvali is described by the raisers as being the result of a cross between T. Lindeni, known to the trade as major and T. Lindeni, sent out by Mr. William Bull as T. Lindeni vera, but the variety of it is called superba, which has already been before the Committee.

T. Duvali is the first specimen of a positive result obtained in Europe by crossing two varieties of *Tillandsia*. The *Tillandsia* are, in fact, extremely difficult to fecundate; the style and the stigmata are placed very deeply down the tube of the flower. The stamens are themselves so frail, so slender as to be bruised by a touch; the pollen is scarcely apparent, and it is necessary to operate at the very minute when it is in a state to be laid on the female organ, and this is hardly ever possible. It was after numerous efforts (more than sixty fecundations, and the spoiling of numerous flowers) that we were at last able to fecundate three blooms of T. Lindeni major by Lindeni vera superba. We obtained three capsules, in which were found several fertile seeds, which ultimately yielded eleven plants. The specimen brought forward is the first that has bloomed, and that six years after sowing.

Our object in effecting this crossing was well defined, as will be seen by comparing the two parent plants. T. Duvali was in every way what we desired, and is an acquisition which we, as raisers, consider to be the best we have hitherto attained, independently of the difficulty overcome in securing it.

Further, the plant shown was in flower, that is, the bracts were developed, on April 15 last, when it was on view at the exhibition at Mont Saint Amand, Ghent, then on view at St. Petersburg. It returned from the latter, being twelve days on the journey, and does not appear to have suffered in the least. The bracts have kept comparatively fresh, and it

is plain that if the plant had not been put in a somewhat dark place, the two surfaces of the bracts would have been equally rose-coloured.

The plant may be described as having leaves rather long, lightly streaked and flushed with violet; very closely sheathed at the base, and in the form of a graceful fountain; inflorescence supported by a stiff stem about 20 cm. (8 inches), and formed of bracts, close, much flattened, dentated along the edges, of very bright rose-colour on both sides; large blue flowers arranged, as was the case at Ghent, in opposite pairs."

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA SUPERBO-ELEGANS.

A flower of this richly-coloured hybrid of *Cattleya superba* and *Lælio-Cattleya × elegans*, is sent by Mr. W. H. Young, Orchid-grower, Clare Lawn, East Sheen. In form and in substance, the flower has a resemblance to *Cattleya superba*, and also the hybrid of it *C. × Burberryana*. The sepals and petals are of a bright, rosy-purple tint, the inside of the base of the lip and side-lobes are white, the outside bright rose, and the front lobe dark crimson-purple.

A fine flower of that very darkly-coloured hybrid of *Lælia Dayana* and *Cattleya Dowiana aurea*, named *L. C. × Ingrami*, and an inflorescence of a peculiar form of *Cattleya × Hardyana*, in which the yellow marks on the lip as in *C. Warcewiczii* appear, were likewise sent from the same garden.

CORYANTHES MASTERSIANUS.

By the kindness of Sir Trevor Lawrence we have received a flower of this curious species, originally described by Consul Lehmann in our columns, 1891, ii., p. 463. The flower was partially withered when we received it, but was evidently small for the genus, of a prevailing yellowish tint, the bucket velvety-purple. The relation to *Stanhopea* is very apparent.

CULTURAL MEMORANDA.

LAGERSTREEMIA INDICA.

THE "Indian Crêpe Plant," *Lagerstromia indica*, is now seldom found in gardens, and scarcely ever made mention of, because not generally known to gardeners. Those who possess large bushes of the plant should, at this season of the year, enjoy a magnificent display of bloom. The curious, crinkled, spreading petals are of a pink colour, and bear some resemblance to the fabric from which its popular name, the "Indian Crêpe Plant," is derived. It is a native of China, where it is said to be largely planted about the houses and gardens, it is named in honour of Lagerström, a former Director of the Swedish East India Company, and a great promoter of natural history in that country. It belongs to the natural order Lythraceæ, of which our beautiful, wild *Loosestrife*, *Lythrum Salicaria*, is also a member. It appears to thrive best when planted out in a well-drained bed of good loam, in a house having an intermediate temperature. The flowers are produced on axillary peduncles on the upper part of the current year's growths. When the former are over, the shoots should be half-pruned, and all useless and crowded ones removed. In winter, when the leaves have fallen, they may be cut back to within a few inches of their bases.

The *Lagerstromia* grows quickly in the spring and early summer, and at that period requires a warm and moist atmosphere. When the flowers have faded, and growth has practically ceased, a cooler temperature and less water are necessary to its well being. The flowers do not remain fresh for long in a cut state, but when left on the bush, the plant, treated as a permanent decorative object, is an interesting addition to any collection of plants. In the Mexican-house at Kew there is a splendid specimen planted out, about 10 feet in height. *H. H. T.*

KEW NOTES.

CAMPANULA MIRABILIS is now fully out in a border in the Herbaceous Department at Kew. It is very striking on account of the number of its pale lilac flowers, which are freely produced on the stiffish central and lateral branches. The leaves of the stem are dark glaucous-green, smaller than the radical leaves, and heart-shaped, the margins being edged with stiff hairs. Before flowering, the lower leaves are arranged in a regular, flat rosette. The plant is biennial, and sometimes does not flower until the third year. It was discovered in the Caucasus by M. Alboff, a Russian botanist, and

stem are covered with rough hairs. Dr. Siehe introduced the plants by means of seeds into Europe, and there is a figure of it in the *Gardeners' Chronicle*, vol. xxi., p. 182. A figure has also been prepared for the *Bot. Mag.*

SCABIOSA CAUCASICA

is a hardy herbaceous perennial, and is the largest-flowered and most handsome of the genus. The flowers, which are 3 inches in diameter, are of a lilac-blue colour, borne singly on rather long stems. The lower leaves are almost entire, but the stem-leaves are finely divided. It is easy of cultivation, and is a useful plant for cutting purposes.

found in the South of Europe, and in cultivation prefers a light, warm soil, and is better raised annually from seeds.

MORINA LONGIFOLIA

is a native of the Himalayas, and is one of Dr. Wallich's discoveries. From its appearance one would imagine it belonged to the Acanthaceae, but on closer examination it proves to be one of the Dipsacaceae. It has numerous linear, spiny leaves, from which arises the stem, which bears the whorls of pink and white flowers. These are sub-sessile, with a long funnel-like tube, and enclosed by a hairy, cup-like, modified leaf, which is reflexed, and ends in a long point. It is figured in the *Bot. Mag.*, t. 4092. A. H.

MAXIME CORNU.

AMONG the foreign guests whom we had hoped to have seen in our midst at the time of the Hybridisation Conference, was M. Maxime Cornu, the Professor de Culture or Director of the Jardin des Plantes at Paris. The Jardin des Plantes is, as it were, the head centre of all the botanic gardens in France in intimate communication with all of them, and they are many. In addition to the superintendence of his department, M. Cornu has to deliver set courses of lectures, and now that France has set her mind on expanding and improving her Colonial Empire, M. Cornu's services are in constant request in supplying information with regard to Colonial products and the best way of obtaining them by cultivation. M. Cornu made a name for himself in his researches connected with the Phylloxera, and has distinguished himself in the field of Cryptogamic botany. He succeeded our old friend and correspondent, Decaisne, in the direction of the Paris Garden, the administration of which fully occupies his time.

THE LABURNUM.

It has often been a matter of surprise to me that so few of this fine spring-flowering tree are planted, especially in grounds of limited space, and where ornamentation with trees of medium growth is desirable; and it is not the less astonishing that more has not been done with it by way of hybridisation. But even as it is, there are several much varied in height, growth, habit, and blossom to choose from. The rearing of seedlings is not by any means a tedious process, and it is most interesting to note the different forms that one gets from seeds taken from the same tree. This has been my case. About five years ago, my brother, John Jenner Weir, F.L.S., gave me about a couple of dozen young plants that he found thriving under "an ordinary" Laburnum in his garden. In growth these have differed much, two almost refusing to become trees, and growing as bushes; others tall and tree-shaped, while some are short in stem, and with tops of a compact growth. These last have bloomed very freely, but the racemes of the inflorescence are very short, and almost oval while the taller are long, some above 5 inches, while the shrubby varieties all produced very medium-sized flowers as well as racemes. The foliage also differed in most, both in colour and size. If "variety is charming," then I ought to be charmed by my seedling Laburnums; but that or not, I am by no means disappointed with the result.

Now I wish to call attention to some of the most beautiful, and by the growing of which I derive much pleasure, and in some instances it is little short of delight. The first is the golden-leaved one, bright at all times but winter; but even then, though leafless, the bark has a somewhat orange appearance. Then there is the gay "common" Laburnum, the Watereri, a much improved type; but the grandest of all is Parkesi, a branching grower, with fine foliage, and racemes of bright-coloured flowers, 16 inches in length generally, but I have had a few 18 inches.



M. MAXIME CORNU.

flowered for the first time in this country last year, when it received a Certificate, and was figured in the *Gardeners' Chronicle* for July 9, 1898. The flowers last a long time, and if seeds are freely produced, the plant will probably be a great favourite.

MICHAXIA TCHIHATCHEWI.

This plant is a native of Asia Minor, where it grows on the mountains in rocky debris. Like *M. campanuloides*, it is white-flowered, but lacks the rosy hue of the buds and young flowers of the latter species, and is not so quaint-looking. The flowers are almost sessile, and are set closely all the way up the stem, which is about 3 feet high. Flowers are also produced on lateral branches, which spring from near the base of the plant. The leaves, which are few and greyish-green, are also produced at the base of the plant, and they and the

SENECIO MACROPHYLLUS

is a very showy Composite. It has large, ovate, radical leaves, 2 to 3 feet long, of a greyish-green colour, entire, with serrated margins, and a conspicuous midrib. From the centre of these leaves arises the strong flower-stem, which at a height of 6 feet is surmounted by a large cone, from 9 to 12 inches long, of yellow flowers. It is a hardy herbaceous perennial, and a native of the Caucasus. It is easily propagated from cuttings of the roots.

CORIS MONSPELIENSIS

is a beautiful little alpine of procumbent habit, which resembles a Thyme at first sight, but is a member of the order Primulaceae. The flowers are bright lilac with deep orange anthers, and are arranged in terminal heads. The leaves are small and linear, after the style of an *Æthionema*. It is

When in full bloom it is a marvellous sight, and being a rapid grower, soon furnishes "the station" where it is planted. As a strong grower, with very large leaves of a deep, rich, purplish-green, gigantea, or by some called magnifica, excels; its habit is sturdy and somewhat upright, and even without its flowers, with its rich-coloured foliage it is a very handsome tree. As a floral variety, it is not so good as some others, the blossoms being much concealed by the foliage; still, it is well worth growing; but for supreme beauty and elegance, planted on a lawn, where it can assert itself, there is none to equal the weeping variety. My neighbour has two, and this year they have been, as it were, "fountains of gold"; they being about 15 feet high; and the branches descending to and resting on the ground, and these clothed with a deep inflorescence of wonderful brilliancy. Among flowering shrubby trees I have never seen the equal. Even without its natural floral decoration, with only its green, prettily-shaped leaves, it is more than simply attractive. Nor should the curious, freaky Adami be neglected; neat in growth, and oddly interesting with its now a raceme of yellow, then one partly a dusky purple, then a number all purple—more of yellow, and so the tree is decked in two or more colourings. Even the very bark is longitudinally striped. How it came, why it is, and so persistent, is a matter that has been much discussed, and possibly will be again. Still, the "oddity" remains, and for the last twenty years at least, to my knowledge, has been varied, and is yet variable. Of the *Cytisus* I say nothing: some are very beautiful, grafted on tall stocks, others as bushes, but with me they have not been lasting.

In planting Laburnums, care must be taken to place them in such positions as to show themselves to advantage, with a good background, or none, or mixed among coloured foliage trees or shrubs, or the centre of a bed on a lawn, and in such cases, the drooping or weeping variety is a "wonder" that baffles description. *Harrison Weir, Sevenoaks, Kent.*

HYBRIDS AND THEIR RAISERS.

(Continued from p. 46.)

THE BEGONIA.—The development of the various races of Begonias have been so well and exhaustively traced by Mr. F. W. Burbidge, and that of the tuberous-rooted in particular by Mr. B. Wynne, in his treatise published ten years ago, that there is no difficulty in arriving at the facts. No plant, perhaps, has been so rapidly improved, and has attained to such a high degree of popularity in a short space of time, as this interesting subject.

The Rex type, once so much grown for decorative and exhibition purposes, has largely gone out of cultivation. In recent years, some attractive, small-leaved varieties have come over from the continent, though at present there are no signs of returning popularity, though some of the old varieties are still planted in ferneries.

Fifty years ago, *B. fuchsioides* could be found in almost every collection of plants having a claim to be at all representative. The late Colonel Trevor Clarke was probably one of the first to cross *B. fuchsioides*, and other allied species and varieties, obtaining many hybrids which probably attached to themselves more of a botanical than a horticultural interest. The most useful of Colonel Clarke's hybrids was *B. weltoniensis* ×, which became very popular as a greenhouse and window plant, and which is still much grown in some parts of the country. An interesting hybrid, named *B. digswellensis*, was obtained by Mr. W. Earley, when gardener at Digswell, and was popular until superseded by the new tuberous-rooted varieties.

It was to the introduction of *B. boliviensis* (fig. 38, p. 87) by Messrs. Veitch & Sons, in 1864, that we owe the foundation of the tuberous-rooted section. This was followed by such imported forms as *B. Pearcei*, *B. Veitchi*, *B. roseiflora*, *B. Davisii*, and *B. Clarkei*; and it was by the use of such material

that Mr. Seden produced his first hybrids, though it does not appear there is any certainty as to the exact time when Mr. Seden commenced the work; but the first hybrid to be put into commerce was *B. Sedeni* ×, in 1870. A distinct species, named *B. Froebeli* introduced in 1872, was subsequently employed both as a pollen and seed-bearing parent, the seedlings frequently partaking to a great extent of the character of the type.

In 1871-72, as a consequence of *B. Sedeni* × and some others having been put into commerce, Mr. O'Brien, who was then at the Wellington Road Nurseries, carefully crossed some of the flowers of the Chelsea varieties, and obtained some which were deemed good enough to have among them a variety named White Queen, which with Queen of Whites, obtained by Messrs. Veitch & Sons, no doubt laid the foundation of the fine white Begonias which have since appeared. All Mr. O'Brien's efforts to obtain crosses between the new tuberous-rooted forms, and the *B. Rex* type, were failures. He was more fortunate in raising the first two double varieties, but they were unfortunately lost; also in conjunction with Mr. W. Bull, Mr. O'Brien raised several fine novelties. It is worthy of note that about the time Mr. O'Brien obtained his double-flowered varieties, a double-flowered form of *B. Sedeni* made its appearance in one of the public gardens of Lyons, and was successfully perpetuated; M. Victor Lemoine and Mr. John Laing were the earliest producers of the double form.

By this time Messrs. J. Carter & Co. and Messrs. Sutton & Sons were active in raising new varieties, the latter making rapid progress in developing new tints of colour. About this time Mr. J. Laing, at the Stansted Nurseries, Forest Hill, commenced cross-breeding *B. boliviensis*, *B. Veitchi* (fig. 37, p. 87), *B. Pearcei*, &c., but the first results were a little disappointing. He then secured all the best varieties he could of home and foreign production, and then began those improvements which will associate the name of Laing with the tuberous-rooted Begonia for all time. The enterprise at all times exhibited by Mr. Henry Cannell led him to throw himself with characteristic energy into the work of improvement, and the Swanley strain is known far and wide for its high quality and variety. Contemporary improvers were Messrs. B. R. Davis, of Yeovil; J. R. Box, Croydon; H. J. Jones, Lewisham; Messrs. Webb & Sons, Wordsley, Stourbridge; and T. S. Ware, Ltd., Tottenham—the last named, at the recent Temple Show, staging varieties of superb quality, and especially of double-flowered forms. Their manager, Mr. S. Pope (p. 85), was the raiser of the first round-flowered tuberous-rooted Begonia, viz. *Begonia Woodmani*, out of *B. Veitchi* crossed with *B. Pearcei*. A native of Torquay, he was for many years with the late Messrs. Lucombe, Pince & Co., of the Exeter Nursery, and with Messrs. Laing & Sons, Forest Hill, and as manager of their Begonia Nursery at Bexley Heath. In other parts of the country excellent work has been done, especially by certain private raisers. The single Begonia is now nearly, or quite, a large symmetrical circular flower, with equal-sized petals; the double forms rival the Hollyhock in size, shape, and fulness.

The introduction of *B. socotrana* (fig. 36, p. 87), placed in the hands of Mr. J. Heal, of Messrs. J. Veitch & Son's material from which he has been able to evolve an invaluable race of winter-flowering varieties, both double and single. His first hybrid, *Socotrana* × *Viscountess Doneraile*, was appropriately named John Heal. Since then, wonders have been performed by this enterprising raiser; and it may be said of the flowering Begonia, that it need never be absent from our plant houses.

It is difficult to too highly appraise the important work performed by M. Victor Lemoine and others with the winter-flowering varieties and the shrubby section, which has culminated in Gloire de Lorraine and other splendid forms.

Messrs. Sutton & Sons' valuable achievements with the Brazilian *B. semperflorens* must not go unrecorded; for not only have they secured ever-

blooming sorts for pot-culture, but also for summer bedding, as, for instance, *Crimson Gem* and *Princess Beatrice*. Truly, what has been done with the Begonia during the past quarter of a century savours of the romantic, so important and far-reaching are the results. *R. D.*

[Portraits of the raisers mentioned above have been given in previous issues. Ed.]

DWARFED JAPANESE TREES.

THE Japanese genius in "dwarfing" trees and shrubs is so well known to horticulturists and botanists, that it would seem rather late in the day to dwell at any length on so obvious a fact. The art is exclusively a Japanese one, or, at all events, the Japanese are its most successful exponents. Nearly two dozen of these miniature trees, ranging from 6 inches to 20 inches high, and from thirty to eighty years old, attracted quite a small crowd on Wednesday last (July 19) to Messrs. Robinson & Fisher's, at Willis' Rooms, King Street, St. James' Square, London. They were described as "the property of a lady," and many of them were recently exhibited at the Royal Botanic Gardens, and were declared by the Council to be "the finest specimens of this peculiar art ever seen in this country." Every one of the little trees is the picture of health, and has been from two to seven years in England. More than half the number were Maples, and several of the examples had had three or four varieties grafted on one stem. The prices paid for the Maples ranged from £3 12s. 6d. up to £14 14s., which latter amount was paid for a specimen 20 inches high, and 53 years old, in an oblong, white, cracked china pot. The oldest Maple in the series measured 21 inches high, and its age is placed at 60 years; this realised 10 guineas.

There were three specimens of a tree named *Zelkova*, or "Kelkova," *Keaki*, and the most important specimen has a stem 19 inches high, and is 12 inches in circumference, its age being stated to be 83 years, and this realised £11 11s. A solitary specimen of *Lagerstrœmia indica*, the normal height of which varies from 6 to 10 feet, with a stem 12 inches high, and 17 years of age, sold for £2 2s. There was also a single specimen of the Cherry, the botanical name of which is given as "*Prunus Mume*," and this has been 82 years in attaining its height of 23 inches, and its circumference of 19 inches; in the spring, this little tree is covered with beautiful white blossoms, and specimens are said to be extremely rare in this country; it realised £12 12s. The specimen Larch (*Larix leptolepis*) is especially interesting, for in Japan it is often found 40 feet high, although on very high elevations it becomes a mere shrub of 2 feet in height; the "dwarfed" specimen, with its stem twisted and gnarled, is only 6 inches high, although its age is placed at 23 years; this sold for £11. The only Conifer in the collection is incorrectly described as "*Thuja obtusa nana*," or *Cupressus obtusa nana*; it has been eighty-five years in growing a stem 17 inches high, and a circumference of 16 inches; it is exceedingly vigorous, and has been in England for seven years, and is probably unique so far as this country is concerned. It realised 39 guineas, its purchaser being Mr. Owen, who bought a number of the other specimens, and who is understood to be acting for the Crystal Palace Company. The total of the twenty-two lots amounted to no less than £189 13s. *W. Roberts* [Several fine specimens may be seen in the Cape-house at Kew. Ed.]

THE FERNERY.

THE CROSSING OF FERNS.

ALTHOUGH it has become the fashion to speak of crosses and hybrids in order to discriminate between crossed varieties of the same species and crosses between different species and even genera, crossing

and hybridising are essentially the same process, and the terms should not therefore be used as implying two different ones. In both cases it is a simple question of transferring the fertilising element from one sex to another on different plants, and the mere extent of difference between those plants has nothing to do with the process itself, though it may justify a differentiation of the results.

With regard to Ferns, indeed, the similarity between the prothalli of nearly all genera is so great, and the area occupied by both classes of reproductive organs so small, that we have not even to deal with incompatibility of size such as may, in the case of different flowers, prevent the pollen from exercising its influence on the too distant ovary, a difficulty which the hybridist might experience, and not the simple crosser, introducing a difference in the process. Owing to this great similarity, and the extremely minute character of the floral organs of the Fern, coupled with their awkward position as regards manipulation on the under side of the prothallus, it is a practical impossibility to effect crosses in the same systematic way as with flowers proper. The whole history of Fern fertilisation is of comparatively recent date, their genesis being wrapped in mystery until, in 1850-53, Naegeli and Suminski lifted the veil, and proved conclusively that it ran on similar lines to the rest of organic creation, the equivalents of pollen and fertilisable seed being produced upon the tiny green scale (prothallus), engendered by the spore and the subsequent Fern plant arising by their interaction, and a resulting fertilised ovule, or seed. Naturally, this discovery led on to the assumption that if it were possible for a fertilising organism (antherozoid), to pass from one prothallus to another, it might there effect a union with the ovule or egg cell, at the base of the archegonium, and so effect a cross; but the difficulty of this was also seen, viz., that these microscopic antherozoids were ciliated organisms, free it is true, but only capable of travelling in the minute deposit of dew-like moisture, in which, under congenial conditions, they found themselves when ejected from the antheridium or containing sac, and in which also, a fraction of an inch away, were the clustered archegonia awaiting them. Under such circumstances, self-fertilisation seemed a necessary law. Then, too, it was seen that the transfer of the antherozoids artificially was fraught with endless uncertainties apart from the practical impossibility of handling them effectively. The generic, specific and varietal differences which undoubtedly exist in prothalli to a certain extent, are even now, quite unspecified; hence, with every care in collecting and sowing, there is no certainty of parentage of a prothallus until it yields a plant with fronds of characteristic type. This in itself discouraged and rendered impracticable any systematic attempts at crossing, the primary factors being always doubtful. In time, however, the appearance of Ferns of intermediate, and apparently combined characters, strengthened a conviction that crossing did occur, though how it occurred was unknown.

The value of these cases was, however, depreciated by the consideration of the great capacity of the Fern tribe to vary, and vary widely, independently altogether of sexual action. Several presumed natural hybrids, *Asplenium adiantum nigrum* var. *microdon*, *A. lanceolatum* var. *microdon*, and *A. trichomanes confuens Stablerii*, all three forms, barren, and imputed to the influence of *Asp. marinum* as one parent, are doubtful on this ground, and especially so owing to the fact that, in two cases at least, *A. marinum* was unknown in the locality of the finds. These questionable cases, therefore, did little to strengthen the impression that crossing was possible, despite the mechanical difficulty of transfer of the antherozoids. Eventually, however, it was conclusively demonstrated that cross-fertilisation could be effected by Mr. E. J. Lowe's success in imparting the distinct cruciate character of a form of *Polystichum angulare* to a plain but dense form of *P. aculeatum*, the result being a cruciate and only

slightly fertile *P. aculeatum*, both features together establishing hybridity beyond all reasonable doubt. These and other equally striking results were brought about by relinquishing the idea of individual treatment and transfer, and resorting to a crowded sowing of such distinct varieties as would, by their combination of characters unmistakably prove admixture. This crowding together of the prothalli, causes them to overlap each other, and hence increases the chance of accidental transference either by insect agency or by flooding, the latter probably being the better means of transfer, as a general wetting of a crowd of ripe prothalli would certainly cause a wide dissemination of any free antherozoids, and this contributes greatly to the chances of success. Mr. Schneider, however, obtained his remarkable hybrid, *Polypodium Schneideri* X, by selecting prothalli from two pans, and placing them in juxtaposition, a plan adopted owing to the different periods of maturation of the prothalli of the two parental Ferns, native and exotic aureum and vulgare, which precluded simultaneous sowing



SAMUEL POPE.
(*Begonia* Hybridist, p. 84)

together. It has been also suggested that inasmuch as the two classes of organs are usually separated in the prothallus, this latter may be cut up, which it bears with impunity, so that the sexes are separated, thus hindering, on the one hand, that previous self-fertilisation which is always to be feared, and facilitating, on the other, the integrity of the subsequent union. There is here, however, an element of uncertainty; prothalli vary greatly, and often bear the organs most erratically, the antheridia especially being scattered broadcast. Hence, it will not suffice to simply cut the prothallus across just below the indentation, as figured in Mr. Lowe's *Fern Growing*, unless it has previously been closely examined under a lens to ascertain that the antheridia are confined to the lower half. Normally, the prothallus is a small heart or kidney-shaped green scale, about one-sixth to half an inch in diameter. This is attached to the soil by a great number of root-hairs, springing mainly from the roundly-pointed end of the heart. In the centre, and close up to the indentation, is a thickened cushion of cells, upon which are some five or six tiny teat-like projections, called the archegonia, at the base of each of which, embedded in the

cushion, is an embryo plant. Among the root-hairs are a number of smaller, round-headed, pimple-like bodies, termed the antheridia, and these burst, when ripe, and emit a considerable number of minute tadpole-like corpuscles (antherozoids), which swim about freely, if there be moisture present, by means of motile cilia. These make their way to the archegonia, and penetrating them, fertilise the embryo seed, precisely as a pollen-grain would do in the case of a flower, though more directly. Abnormally, however, and very frequently, the prothallus, instead of developing in this orderly fashion, breaks out into all sorts of eccentric growths, bearing both classes of organs and root-hairs, and even bulbils and sporangia, or spore-capsules, and roots proper, in lieu of fronds; or it may develop into a cluster of prothalli, subject to like peculiarities. In any of its protean forms, it may be cut up almost *ad infinitum*, and each piece, hydra-fashion, will grow and develop any or all of the said products. This being so, it is clear that in cases of severance with a view to isolation of the sexes, arbitrary cutting across affords no scientific evidence of the facts, unless the parts be also examined before being replaced in the soil, and even then the subsequent growth which ensues, may mean subsequent development of fresh organs, reconstituting the prothallus as bi-sexual. I merely mention these details in order that lay experimenters may be on their guard. My own opinion is that Ferns, like flowering plants proper, are benefited by cross-fertilisation, and that provisions are made to that end; otherwise, why should one and the same prothallus, as I once witnessed myself, bear a well developed, rooted young Fern, at a time when its antheridia were bursting, and emitting a crowd of antherozoids? This is equivalent to pollen ripening at a time when seed has already perfected, which is certainly an indication that it is intended to reach other flowers. For reasons which are easy to gather from the foregoing facts, although no Fern-grower now doubts the possibility of crossing, the cases which are scientifically acceptable as proofs are very few in number as compared with those of which the Fern-fancier is sure. To those who are familiar with the British varietal forms, the union of marked but diverse characters suffices to convince. When, for instance, I see an *Athyrium* with the percruciate and tasselled character of *A. f. f. Victorise*, but fringed all over with the peculiar translucent bristles of *A. f. f. setigerum*, I need no other proof of crossing; Lowe's cruciate *aculeatum*, Schneider's *P. Schneideri*, and Lowe's cross between *Ceterach officinarum* and *Scolopendrium vulgare*, wherein the dual fructification of *Scolopendrium* figures in a scaleless and somewhat confluent *Ceterach* frond, are all conclusive proofs. Not so, however, are examples gathered from mixed sowings of very variable types in themselves.

In one of Mr. Lowe's experiments (No. VI., p. 84, *Fern Growing*), eight forms of *Athyrium* are used, viz., *multifidum* (crested), *Victorise* (cruciate and crested), *uncum* (lax), *Frizellie* (lunulate), *truncatum* (truncate), *proteoides* (cruciate, with irregular pinnae), *crucipinnulum* (cruciate in the pinnules), and *ramosum* (branched); and in some of the progeny it is claimed that the features of no less than seven parents out of the eight are discernible, implying multiple parentage as a result of crossing. Now, what are the facts?

<i>multifidum</i>	} are all tasselled, or ramoso, a form of tasselling.
<i>Victorise</i>	
<i>ramosum</i>	} are all cruciate.
<i>Victorise</i>	
<i>proteoides</i>	
<i>crucipinnulum</i>	
<i>truncatum</i>	} are truncate.
<i>Frizellie</i> (apt to revert)	

And finally,
A. f. f. proteoides } is, as its name implies, an eccentric, variable form.

We have here, consequently, two thorough-breds, *A. f. f. Victorise* and *multifidum*, mated with a number of inconstant or erratic forms, and presenting traces of similar character. Obviously, a

cross between any two would display a lot of features common to all, to say nothing of the vitiation of the whole experiment by the introduction of an eccentric like proteoides, and the fact that the reproduced photos of the Fern with seven parents show precisely the sort of seedlings proteoides would yield by itself.

In my humble opinion this sort of crossing is an entire mistake; it convinces no one of multiple parentage, and by breeding a number of curious and mongrel types, lowers the general average of merit. In fact, unless crossing be pursued on systematic lines with definite ends in view, and with a firm determination to weed out and destroy all but thoroughly good forms, it does far more harm than good. The field is immense, and the material practically inexhaustible, considering the immense number of natural good "sports," and the possibility of alliances with foreign species; hence, there is no excuse for haphazard admixtures, and a serious risk of swamping the world with "monstrosities," properly so called, and not merely in the sense of the scientific botanists, by whom the term is too often misapplied. *Chas. T. Druery, F.L.S., V.M.H.*

NURSERY NOTES.

MESSRS. CARTER & CO.'S SEED-TRIALS AT MORTLAKE.

THE extensive seed-trials carried out by Messrs. Carter at Mortlake, with a view to testing various stocks of seeds, testify to the care, trouble, and expense to which the firm goes with a view to providing their customers with "tested" seeds of their respective kinds. When we state that the total of stocks of seeds now being tested amounts to 5756, some extent of the magnitude of the labour involved may be imagined, as every stock is carefully booked, with full particulars concerning each, and any improvement or variation from the type duly noted. Among the most important now in condition for inspection, are culinary and sweet Peas; of the first-named over a thousand distinct trials are made, and constitute an object lesson to those interested in this important vegetable. Besides these now in condition are Broad Beans, Lettuce, Parsley, and Carrots; while later a very extensive planting of 1000 Tomatos, a large breadth of Vegetable-Marrow, French and Runner Beans, Beet and Onions in great variety, each sown on the same day and under precisely similar conditions to ensure a fair trial, will prove most interesting and worthy of inspection.

PEAS.

Taking the culinary Peas first as of most importance, one is struck with the remarkable cleanliness and freedom from thrips maintained throughout the trial, notwithstanding that the soil is of a somewhat light, porous character, and in spite of the extreme heat of the past few weeks. The loose nature of the surface has here, no doubt, acted partially as a dry mulch in assisting to hold what moisture there was in the soil below. These Peas were all sown on March 28, under precisely the same conditions, and visited for inspection on July 14. Taking the earliest section of dwarf Peas, it is remarkable to note the progress made by selection and intercrossing, relating especially to the size of the pod, with Peas of the Marrowfat type, together with free-cropping qualities. One particular desideratum is also that the ends of the pod must not be pointed, but so filled with Peas that it may appear blunt at both ends, ensuring a well-filled pod. This was fully demonstrated by comparing the improvement made over earlier-raised varieties of somewhat similar habit growing close by for comparison. One of the best early dwarf Peas was found in Carter's New-forcing, a great improvement on American Wonder. Witham Wonder is a rather stronger grower than the preceding, but a few days later in podding.

William Hurst and Chelsea Gem are two well known dwarf Peas; while Premium Gem, an old prolific variety, still has its admirers, and finds a considerable sale. A selection, No. 47, represented a dwarf form of William I., and an improvement on English Wonder. The Stanley, 2 feet, is a variety of American origin, and bears pods of two shapes; while the Stanley Improved, of similar height, carries large pods of improved form, and is about four days later than Chelsea Gem. Early Morn represented one of the finest of early Peas of the Marrowfat type, like an improved Gradus, a very regular and abundant cropper, and on all points a Pea of the highest class. A dwarf variety known as Market Morn is in request by market-growers, and is a good early Pea for this purpose, growing to a height of 2½ feet. Carter's Daisy (2 feet), a cross between Lightning and Giant Marrowfat, and raised at Forest Hill, is a grand form of Pea, partaking of the Marrowfat type of the one parent, with the earliness of the other, and a free and regular cropper. Daylight represented a cross between Daisy and Lightning, resulting in a blue wrinkled Pea of 2 feet growth. In noting the rather taller-growing early varieties, Carter's Lightning held the position as the earliest Pea on the trial, being almost ripe and dried up, and the character of this early Pea is maintained by a selection of the earliest pods for seed purposes. Carter's Selected William I., was also in advance of the old stock growing alongside, the crop being much heavier. Kenilworth is a market Pea of this class, and most in request by German growers; while seed of Princess Royal, a good old Pea, is sent to France in quantity, where it is known as Glory of the Market.

In second early varieties, Carter's Pride of the Market was much in advance of several others; height 2½ feet, and bearing a profusion of fine pods of the Telegraph type, from which variety this was a dwarf selection. Stratagem, another well-known variety, was in fine form; it is rather earlier than the preceding variety, as the pods were somewhat old. Carter's Majestic, 2½ feet, sent out last year as an exhibition Pea, raised from Stratagem, was bearing very fine, well-filled pods. Danby's Stratagem is a fine selection with long pods, but growing rather taller than the type. Gladiator is a fine market Pea, 3 feet, and is much grown by the Essex market gardeners. Abundance is grown chiefly to supply the American and Continental markets; while Carter's Delicatsse, 3 feet, bearing long pods, freely produced and filled with small wrinkled Peas, is not much in request in this country, but finds a ready sale in France, where the variety is used for bottling, and in this form largely returned to the English markets. This method of preserving Peas for winter and spring use appears to be neglected by our home growers. Edible-podded Peas in several varieties are also among the trials, but these are little patronised by English consumers. A good stock of Prince of Wales represented a market Pea much grown in the Evesham district; it has the merit of retaining its sweetness when somewhat old, a very important point with growers for market.

Of taller growers, Telegraph still maintains its high reputation, and is largely grown; it was originally raised by Mr. Culverwell, and was the pioneer of large-podded Peas of this class. The trial rows here are in fine condition; and Telephone is almost similar, but with wrinkled seed. In this section, a new Pea, "The Carter," is in very fine form; it appears to partake of the Duke of Albany character, but with longer and better filled pods, and is a more regular cropper. Duke of Albany was present under other names besides the original—Hero of Trowbridge and Prodigy proving to be identical with this well known variety; while Duke of Norfolk represented a second stock of the Duchess—this latter was a good cropper, differing but little from Duke of Albany. Duke of York is a dwarf form of the last-mentioned popular Pea. Among

later Peas, Dwarf Monarch, a Pea of the Omega style, proved to be a free-bearing variety with large pods filled with deep green Peas; and Captain Cuttle, 4 feet, was a good late-bearing variety. The well-known Autocrat was doing remarkably well, proving its good character. Carter's Michaelmas claimed to be the latest Pea grown, was also here in good form. Three other late varieties were a tall selection of Latest-of-All, late and good; the old Ne Plus Ultra, which well maintained its character as one of the best late small-podding Peas; and St. Duthus, which also promised to be a good late variety.

BROAD BEANS, &c.

In a trial of about forty varieties, the best were Carter's Leviathan re-selected, a very fine stock of long-pod Beans; Masterpiece, a green long-pod, very good; Carter's Leviathan and Seville Long Pod; Beck's Green Gem, an old variety with small pods, and Beans produced in great abundance, was the best of its class. The Carrot-trials were scarcely forward enough for comparison, but attention was directed to the Carter Forcing, an admirable variety for cooking whole, the colour and texture of the root being similar throughout, and devoid of the yellow heart so often found in Carrots. Among Parsley, the Champion Curled and Fern-leaved were the best selections.

LETTUCES

were a strong trial. Carter's Jumbo Cos was a very fine variety, and easily first for size and weight; while Long-Stander, New York, and a selected form of All-the-Year-Round in the Cabbage section, were respectively good. Carter's Harbinger is highly recommended as a forcing Lettuce. A variety known as "American Gathering," has leaves of a dark red colour, with bright red tips, was more remarkable for its colour, and might be grown as a decorative variety. The dark-leaved Lettuces, although some are very good, as, for instance, Continuity, are not generally appreciated by the public at large, and appear to be little grown for market purposes.

SWEET PEAS.

Among flowers, the Sweet Pea is undergoing an extensive trial in some 200 varieties, and at the date of our visit they were just at their best. In a dainty little catalogue of Sweet Peas just issued, Messrs. Carter & Co. say:—"Much stimulus has been given to the culture of Sweet Peas by the phenomenal number of introductions of recent years. This has necessitated elaborate provision on the part of those whose business it is to satisfy the demand thus set up, and as we aim at being in the van of progress in all that we undertake, we have maintained our position as head-quarters for Sweet Peas by growing year by year, an up-to-date and complete assortment, including all the newest, as well as retaining all the original varieties. We have this year, in our grounds, upwards of 180 different-named selections, each claiming its own peculiar characteristic, whether in colours or blendings, form of flower, habit of growth, or earliness, the whole constituting a study of beauty worthy of the attention of all who take an interest in flowers. Among so many good varieties it is somewhat difficult to make a selection, but those mentioned were noted as being distinct and effective in their respective varieties. The best and purest white was found in "The Bride," and the best light-yellow was Primrose. The following were all very good: Venus, blush pink; Orange Prince, orange, pink, and scarlet; Rising Sun, orange and carmine, wings blush white, distinct; Meteor, salmon-pink; Lady Penzance, bright rose; Princess Beatrice, delicate carmine rose; Mrs. Gladstone, delicate shade of pink; Cardinal, crimson scarlet; Prima Donna, the best pink; Firefly, glowing crimson; Butterfly, white with blue edging; Countess of Radnor, delicate lavender; Emily Eckstone, reddish-mauve; Duke of Clarence, large rosy-claret; Stanley, large deep maroon; Princess of Wales, white and mauve striped; Duchess of York,

FIG. 36.—*BEGONIA SOCOTRANA*: FLOWERS PINK. (SEE P. 84.)FIG. 27.—*BEGONIA VEITCHII*: FLOWERS RED.
(SEE P. 84.)FIG. 38.—*BEGONIA BOLIVIENSIS*: FLOWERS
SCARLET. (SEE P. 84.)

white and pink; Lottie Hutchins, cream, flaked with pink; Daybreak Coronet, white and rose, tinted orange; Mrs. J. Chamberlain, white, with bright-rose stripe; Aurora, pink stripe on white ground; Mars, deep scarlet; Red Riding Hood, a novelty only of hooded form, of rosy-pink colour.

A collection of dwarf bedding *Tropæolums*, in fifteen distinct colours, was very effective; those of mixed colours were also very bright. The Pearl is of a cream-colour, and the nearest approach to a white yet obtained; while in *Cerulea rosea* there was a shade of blue; Empress of India, crimson-scarlet, with dark foliage; King of Tom Thumbs, scarlet with green foliage, may be mentioned. A large stock of Pansies, from seeds sown last August, of an excellent strain, were flowering profusely, although somewhat past their best, and selections in colours were being made for seed-saving.

COLONIAL NOTES.

"WEST INDIAN BULLETIN."

THE first number of this publication, described as being the Journal of the Imperial Agricultural Department for the West Indies, is now before us. The *West Indian Bulletin* is issued from Bridgetown, Barbados, where the head office of the department is located. The London agents are Messrs. Dulau & Co., 37, Soho Square, W. The first number of the *Bulletin* contains an introduction by Dr. Morris, Imperial Commissioner for Agriculture for the West Indies, explaining the motives for the appearance of the publication thus:—"The West Indian Royal Commissioners recognised that communication between these colonies is difficult, and with the outside world it is both tedious and expensive. The persons engaged in cultivation suffer from this state of isolation, and are often without any information as to what is being done elsewhere. The cultivator of one product is often quite ignorant of the best means of cultivating any other, and does not know whether his soil and climate might be better adapted for something else. These remarks have special reference to the small cultivators, but they are not wholly inapplicable to persons interested in the larger estates. . . . Although it is proposed to deal fully with scientific problems, and afford assistance in the improvement of Sugar-cane cultivation and manufacture, and of other established industries, the *Bulletin* will form an important means whereby the people generally will be educated in sound and scientific methods for cultivating the soil, and in the growth and preparation of economic products suitable to the varied circumstances of these Colonies. . . . A few years ago, in the whole of the British West Indies, there were only two botanical institutions (Jamaica and Trinidad). Now there are twelve. While the *West Indian Bulletin* will follow on the lines so successfully adopted in the *Kew Bulletin*, and more recently in the useful *Bulletins* issued by the botanical departments in Jamaica and Trinidad, it is hoped it may be possible to add a few new features, especially in the number of illustrations."

The *Bulletin* further chronicles the first Agricultural Conference held in the West Indies (Barbados) last January, reporting the presidential address of Dr. Morris, referring to the inquiry made by the royal commission in 1896 into the Sugar-growing industry of the Colonies, and further papers as follows:—"Sugar-cane Manurial Experiments," by Professor J. B. D'Albuquerque; "Field Treatment of the Diseases of the Sugar-cane in the West Indies," by J. R. Bovell; "Central (Sugar) Factories for the West Indies," by William Douglas, and again by Francis Watts; "Cost of Growing Sugar-canes in Barbados," by J. R. Bovell; "Agricultural Education," by Rev. W. Simms; "Teaching of Agricultural Science at Colleges," by Professor D'Albuquerque; "Agricultural Instruction in Jamaica," by William Fawcett; "Practical Field Instruction in Jamaica,"

by the same author: "Suggestions for Agricultural Development in the Leeward Islands," by Dr. H. A. A. Nicholls; "Improvement in Agricultural Methods in the West Indies," by J. H. Hart; "Prevention of the Introduction and Spread of Fungoid and Insect Pests in the West Indies," by William Fawcett; and "Suggestions on Colonial Industries," by Professor P. Carmody.

Altogether, the new *Bulletin* may be described as being worthy of the important centre whence it comes, the first (a double) number giving good promise of a vigorous future for the publication.

PLANT NOTES.

MORISIA HYPOGÆA.

THIS very pretty new alpine plant, belonging to the Cruciferae, has been recently introduced from Sardinia, and it is named in honour of Professor Moris. It is well adapted for planting in shady recesses on the rockery, growing and blooming freely. Its characteristics are intense green, prettily-cut leaves, and flowers of bright yellow, and of the size of a shilling, projecting from the axils of the former. The plant is very dwarf, and the flowers appear in the month of May.

RUDBECKIA GOLDEN GLOW.

The Cone-flower, as the Rudbeckias are sometimes called, especially such species as *R. speciosa*—often called *R. Newmani*, whose flowers have golden yellow florets and black disc, and appearing late in October when flowers are scarce, are extremely useful. Much as perennial Sunflowers are valued, they cannot be said to possess as much merit as Rudbeckias; besides, they have been long past when Cone-flowers are at their best. A recent introduction from America, with double flowers of a very bright yellow, named Golden Glow, is deserving of a place in every herbaceous border. It is vigorous in growth, reaching 5 feet and more in height. It is seldom that one now sees Rudbeckia purpurea (Don's Echinacea), introduced 300 years ago, with large crimson-coloured flowers that appear in September. All of these species thrive best in partially-shady positions.

INULA GLANDULOSA.

It would be imagined in these days when Marguerites and Sunflowers are so much in fashion, that *Inula glandulosa* would have long ago come to the front. This may be due to the fact that it is not well-known. A native of Georgia, it is allied to *Helenium*, it possesses long and large leaves of a pleasing shade of green, and large blooms with great discs borne on stems some 2 feet in height. The deep yellow-coloured petals are narrow, and the flowers gyrate. The plant was introduced almost a hundred years ago. *W. Earley*.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGLEY, Bart., Clare Lawn, East Sheen, S.W.

Lælia tenebrosa.—In most cases this free-flowering species makes new growth at the time the plant commences to flower, and before the flowers are past, the fresh growths may be showing roots from their base. But before such roots have grown it is best to afford the plants what new material they may require, either as a surface-dressing or by repotting them. In the latter case carefully break the present receptacle, pick away all decayed matter, cut off any dead portions of roots, and insert the ball with the clinging potsherds into another pan, sufficiently large to accommodate the plant for two seasons. Place more crocks around the mass in an upright position, and surface with peat and sphagnum-moss in equal proportions. Return the plants to the lightest and warmest position in the Cattleya-house, where the syringe may be used amongst the pans during the summer months. This species is not easily injured by an excess of moisture at the roots, but it is inadvisable

to afford water in a haphazard fashion, especially for some time after root disturbance; and for the present, if the sphagnum-moss be kept alive, this will be sufficient. A small white scale which infests these plants can only be removed by means of a stiff-bristled brush and a strong solution of soft-soap. *L. grandis* and *L. xanthina* may be treated similarly to *L. tenebrosa*.

Cattleyas retutina and *Dormaniana*.—In whatever receptacles either of these species may be cultivated, a very small quantity of peat or sphagnum-moss need be placed about their roots, but an abundance of crocks. The peculiar stem-like pseudo-bulbs are now in course of development, and when flower-sheaths appear the pseudo-bulbs will emit roots from their base. Whatever attention the plants may require, should be given them before these roots have become of much length. Although the pseudo-bulbs are small, a moderately dry condition appears to suit them better than a wet one. They should be placed in the Cattleya-house, and where the air will circulate freely around them.

Stanhopeas.—Contrary perhaps to general experience, I find *Stanhopeas* comparatively easy of cultivation, and this, it may be, is due to my practice of disturbing the plants as little as possible. With one or two exceptions they will all thrive in a well-regulated Cattleya-house if planted in shallow baskets. Instead of crocks use a few rods of charcoal, laid at right angles to the bottom bars, and pack some lumps of good fibrous peat around the base of the pseudo-bulbs. If the plants are not then secure, they should be made so by means of some copper-wire. Excepting when the plants are making roots freely they need but little water, and this should be supplied most carefully, so that none may lodge among the young leaves. A continental grower once remarked to me that *Stanhopeas* were partial to rotten wood, but my own experience has been distinctly opposite to this, for when plants have been removed into new baskets their health has considerably improved. It is useless to try to confine the plants to their respective baskets, but leave them alone until the baskets can be broken away piece-meal. It is a suitable time to re-basket any plants that require this attention immediately they have flowered.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Affording water to the borders.—The lack of rain and the great heat of the past few weeks has rendered the application of water to fruit-trees a pressing necessity, any lack of moisture at the root greatly reducing the size of the fruits and the amount of wood-growth. This will apply with great force to gardens the soil of which is light or shallow. Pyramids and bushes of the Apple on the paradise stock are those most affected by long periods of dry and hot weather, and orchard standard trees worked on the crab stock, less so—although these, if carrying good crops of fruit should be supplied with water copiously twice or thrice on successive days to ensure it reaching the lowermost roots. Previous to the last application, a mulch of partly decayed stable-manure should be applied to the soil. Even should rain set in, the soil is now so dry that, unless it is unusually heavy, it would fail to reach the roots in time to assist the swelling of the fruits.

Pears, and especially bushes and cordons on the Quince-stock, should be afforded water. It will assist the trees if the surplus growths be now removed, going over all of the trees. The leading shoots should be secured betimes to the fence or wall, so as to avoid breakage from any cause.

Apricots now approaching ripeness, should be afforded sufficient water at the root to thoroughly moisten the soil. The branches of this tree frequently die off suddenly in hot weather, and this mischance may be reduced by applying water freely at the root and following it with a mulch. Where none of the fruit is ripe, the garden engine may still be plied night and morning. The Peach and Nectarine trees need similar treatment. The great heat has hastened the ripening of the early Peaches, and I was enabled to gather good fruits of Amaden June and Waterloo about the 15th of the present month.

The Fig.—The roots of Fig-trees being usually restricted to a small space, the need of an occa-

sional application of water will be very obvious. Keep the young growths thinly trained in, removing all laterals while in a young state.

Apple-thinning.—The trees of such early culinary varieties as Lord Grosvenor, Ecklinville Seedling, Grenadier, Potts' Seedling, &c., which may be carrying heavy crops may be gradually thinned, and the thinnings sent into the kitchen for immediate consumption. Nothing adds so much to the size and appearance of the fruits left on a tree as this early thinning of heavily-cropped trees, and the more severe the thinning the larger the fruits. Apply liquid-manure after first affording clear water to the trees that are in bearing, but not necessarily to those which, having no fruits, are running greatly to wood.

FRUITS UNDER GLASS.

By W. STAPSWELL, Gardener to the Right Hon. W. H. Lowe, Wood Ashton, Trowbridge.

The Early Peach-house.—Where the varieties comprise Waterloo and Alexander, the utmost care must be taken to keep the atmosphere rather cool at all times, so that the development of the buds may proceed slowly. If the roof-lights are portable, it is better to remove them. Where this is not possible, the most ample ventilation should be afforded, and a slight shade of fish-netting laid on the roof, or lime-wash sprinkled on it with the syringe. Concentrated sunlight, like that occurring under a glass-roof or over, is apt to cause the premature development of the buds, which usually ends in bud-dropping later on. We do not think that this is the cause in less sunny parts of the country, or when shoots are allowed to grow, and thus draw sap away to distant parts of a tree. A mulch may be applied to keep the soil moist. Red-spider is prevalent this season, and timely measures must be taken to clear the trees of them by syringing with water once or twice a day; or where this is impracticable, by covering the leaves with flowers-of-sulphur, applied as a wash with the syringe—but the trees cannot be rid of the creatures by one application. If from any reason the wood that has borne fruit this year has not been removed, or at least a sufficient quantity to admit of the season's growth being evenly distributed over the trellises, no time should be lost in getting this sort of work done. Old trees are usually benefited by applications of liquid-manure, especially if they have borne heavy crops of fruit, or been weakened by infestations of insects.

Succession Peach-house.—The foregoing remarks apply generally to the succession-houses, and a reference to earlier Calendars will indicate what has been recommended for the second Peach-house in regard to summer-pruning, laying in wood, &c. If scale be found on any of the trees, and these are cleared of fruit, they may be dressed with petroleum emulsion and water at 140°, well stirring it during use. Trees on which the fruits are swelling should have the shoots neatly tied in, and every fruit exposed as much as possible to the sun, and not the base, but the apex. There are various methods of doing this with bits of lath, bands of matting, &c. Ventilation and shading must be modified to suit the various houses, some fruit being required soon, others later, and no rule can be laid down that would meet all requirements. Let the borders be kept moist when a crop of fruit is on a tree or trees swelling finally, the tax on the resources of the plant being then the greatest.

Pines.—Plants which have fruited should be carefully attended in the matter of water at the root till the suckers are sufficiently large for removal; and if neatness be a consideration, they may be taken out of the fruiting-house and placed in a heated pit, and their places filled with plants of fruiting age. Having got to a fit size, twist the suckers off of the stems, and lay them aside, to allow the wounded end to dry somewhat, then pot them in clean, well-drained 7-inch pots, and plunge them in a pit or frame close to the glass, and where a bottom-heat of 78° to 80° can be maintained with leaves or tan for a period of five or six weeks. Keep the frame rather close till the suckers are rooted a little, then afford air during the warmer parts of the day, and afford slight shade for three or four hours during bright sunshine. The frames or pit must be kept fairly moist, with top heat of 75° max. Those suckers which were potted early in the summer, having now made roots freely, should be repotted. Queen and Black Jamaica Pines being moderate growers, succeed in 10-inch pots, and the larger-

fruiting varieties in pots 2 inches larger. Do not pot any Pine-plant without first affording it water; and if the new soil is dryish, let them have a fairly heavy application after replugging them in the bed. Do not crowd the plants, or the foliage will get weakened and drawn. The bottom-heat should range from 80° to 85° for succession plants, and 5° to 6° higher for fruiters. If tanner's bark be employed to afford bottom-heat or for plunging the plants in, the present is a suitable season to renew it wholly or in part. If the latter, then sift out the decayed particles, and preserve the siftings to mix with the new bark. Plants with swelling fruits are benefited by applications of weak guano-water.

PLANTS UNDER GLASS.

By O. R. FIELDER, Gardener to the Dowager Lady Howard de Walden, St. James's House, Malvern.

Nerine sarniensis, *N. recurva*, &c. — These autumn-flowering bulbs having been dried off since May, will soon show their flower-spikes, and any of them which may require to be repotted should receive attention forthwith, that is, while the plants are in a dormant state. The usual practice is to repot as seldom as possible, the idea being that the bulbs flower more profusely when the roots are restricted. It is not often that a large percentage of the bulbs can be induced to flower, and therefore plants which flower in a satisfactory manner when treated in the above manner, should be left undisturbed beyond removing the surface-soil an inch or two in depth in order to afford as much fresh compost. In the case of bulbs which have not flowered satisfactorily, the whole of the soil should be shaken from the roots, and the bulbs repotted singly in relatively small pots, placing the largest bulbs in 4-inch pots, and others in smaller sizes. Let the pots be well drained, and a compost of three parts loam, one part flaky leaf-soil, and a liberal allowance of silver-sand be employed. The bulbs should not be afforded any water before leaves or flower-spikes become visible, when a good application may be made, and afterwards in increasing quantities in accordance with the growth of the foliage and roots. As the plants cease flowering, place them in their winter quarters, that is on a shelf near the glass in a temperature of between 50° and 55°, where they will continue to grow, and where they may remain till the foliage dies down in the month of May.

Richardia Elliotiana and *R. Penlandi*. — The yellowing of the foliage of these plants at this season, is an indication that less water is necessary at the roots, and the quantity should be gradually reduced, until by the time the foliage has quite died off, the ball of earth has become dry. When this stage is reached, store the plants in a place safe from drip until the spring. These *Richardias* winter safely in a temperature of from 45° to 50°. Seeds of *Richardias* sown as soon as ripe, germinate freely if the seed-pots are placed in the stove or plunged in a hot-bed.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Iris. — At this season it is prudent to remove the seed-vessels and stalks from the Spanish and English varieties, and in gardens that have been well drained, and the soil warm, the bulbs may remain undisturbed; but in retentive ones, it is better to lift the bulbs carefully as soon as the foliage has died down, and dry them off gradually in a cold frame. The German *Iris* should be kept well supplied with moisture during the next month.

Plants on Walls. — The pruning, thinning, and regulating of the shoots should have attention this month, thereby exposing the season's growth to the sun, so that it may get matured whilst warmth endures. In pruning the shoots, do not impart to the plants a flat surface, but only shorten them if growing too far from the wall. Such berry-bearing shrubs as *Crataegus pyracantha* and *C. Lelandi*, or *Cotoneasters*, if heavily laden with berries, should be relieved of some of the bunches and shoots, laying-in other shoots that will be likely to flower next season. *Eunonymus* and *Elæagnus* in variety, *Azara microphylla*, *Griselinia littoralis*, *Escallonia macrantha*, and others, Myrtles and wall plants of a tender nature, should be so pruned that the growths may protect the main stems from frost. *Jasminum nudiflorum*,

Forsythia suspensa, *Bignonia*s, and *Banksian* Roses only require the points to be thinned out where they are growing too thickly. *Pyrus japonica*, *Chimonanthus fragrans*, and *Wistaria sinensis* should have the summer growths cut back to within 2 inches of the spurs, so that strength may be directed into next season's flower-buds now forming. The summer-flowering *Clematis* will require little pruning, but as many shoots as possible left at the base of the stems.

Magnolia grandiflora. — Both this and the free-flowering Exmouth varieties require that all lateral growths pushing out from the base of the flower-bud and those on flowerless shoots should be broken out, as if left they deprive the stems and leaves of nourishment, and tying them in alters the character of the plant by giving it a leafless appearance, and accounts in a great measure for scarcity of bloom.

Deutzia scabra, and the varieties *candidissima*, *discolor*, *purpurea*, *flore-pleno*, *Walteri*, and *Wallisii*, are excellent summer-flowering shrubs that succeed in most kinds of soil. They require, when making growth, to be well supplied with moisture at the roots; and now that they have just passed out of flower, the greater portion of the wood which has flowered should be cut out, in order to encourage the young retarded growths. Remove all root-suckers, these being injurious to the chief stems by robbing them of sap.

Colchicum speciosum and other species of *Colchicum* are handsome autumn-flowering bulbs, and here they are planted in the grass under tall trees in dry, exposed parts of the garden, and flowers are profusely produced by the bulbs each year. The bold-looking foliage is 18 inches high, and in the spring months it is very effective. Bulbs should be obtained and planted at once if flowers are wanted this next autumn. In planting them, select trees whose feeding roots are at a good distance from the stem. Prepare holes 1 yard apart, and of irregular outline, digging out the soil 1 foot deep, and filling-in with some sandy loam and leaf-mould. Then replace the turf, and in the centre make a hole with a dibber, in which one bulb should be placed not less than 4 inches deep. *C. Parkinsoni* is a very pretty flower, tessellated and barred with purple colour on a white ground—a gem for the rock-garden; *C. umbrosum* succeeds well in shade; *C. luteum* has delicate yellow flowers, but is rather tender, and requires to be covered with Cocoa-nut-fibre refuse, &c., in the winter.

Sternbergia lutea is another lovely late autumn-flowering bulb, that requires to be planted at this time of year. Choose a dry position exposed to full sunshine in the rock-garden, or on a border close to a south wall, placing the bulbs about 4 to 6 inches apart; they then may remain in the same position for at least five years, by which time the bulbs will have increased a good deal, and be in need of lifting. *S. macrantha* is in colour a brighter yellow than the former, and the leaves shorter and more glaucous; it should be similarly treated. *S. Fischeriana* resembles *S. lutea* in growth, but the flowers come in the spring; a deep, open soil of a light nature suits this class of bulb the best.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Cabbages. — Two good sowings of some approved varieties should be made, one about the 30th of the present month, and another fourteen days later. Choose an open position for the seed-beds which is in good heart. The seed may be put into drills made 1 inch deep, and 10 inches apart, on light and hot land, and rather less deep on heavy land. By sowing in drills, it is so much easier to keep the land stirred, and to eradicate weeds. If no rain has fallen recently, apply water to the drills before sowing, and afterwards when it is needed. If the Cabbage crop is to follow Onions, and the land for the latter was deeply dug and heavily manured, digging for the Cabbages will not be required, but the surface should be loosened with a digging-fork, and the lumps of soil broken, and then all should be made moderately firm; after which, draw drills—4-inch drills—and set out the plants when these are sufficiently large enough. Land which has to be deeply dug must be well manured, and if it be now vacant, no time should be lost in preparing it, so that it may have time to settle a little before being planted. Sow largely seeds of

Ellam's Early, and also a pinch of Red Cabbage. It is always prudent to sow three or four varieties of Cabbage, in the event of any variety bolting.

Carrots. — Sow a large bed, or beds, on a sheltered border of some of the Shorthorn varieties for drawing whilst young, a later sowing being made in September. These late sowings will prove useful throughout the winter and spring, and will fill the place of early forced roots, if taken up, and placed thickly in trenches in a cool spot.

Winter Greens, &c. — Let all gaps be now filled up, and ascertain if a sufficient quantity to meet the demand has been planted.

Tomatos. — The leading shoots should be stopped when a good set has been obtained, the side-shoots removed and the leaves tipped if the plants are growing very strongly. Afford moisture to and mulch the roots on warm, dry soil, with short dung.

Miscellaneous Hints. — Let the hoe be kept going amongst all kinds of crops; afford water when required to plants till they have got well over the removal, to encourage root growth. Broccoli for late use, or such as were transplanted into nurse-beds, should now be planted out, and if on Strawberry-land, merely grub up the plants, prick up the surface, and plant out, and if necessary, make use of a pointed bar of iron in making the holes. Broccoli-plants should have ample room to grow, and the land should be firm and in good heart.

THE APIARY.

By EXPERT.

Swarming. — For the straw-skepiat the season must be a poor one, seeing that so few skeps were ready to swarm, and consequently the sudden influx of honey stopped progress, as it did in frame-hives. Therefore swarms have been scarce everywhere; apiaries of over twenty hives have only had swarms from a fourth part of them. In one place where forty hives are kept there have only been four swarms. This is, of course, a serious matter, as the owners will have to reduce stock to secure any "take" this year. Yet these swarmless apiaries have shown symptoms of swarming every day, large clusters of bees hanging idly out around the entrances, whereas had the owners known that the swarms were not coming off, supers would have been given, and surplus-honey secured. But the bee-keepers watched and hoped in vain for the hives to swarm. Can we blame them? Nay, rather let us acknowledge that it is easy to be wise after the event. The cold weather in May also retarded queen-breeding, at least in my hives; then came the rush of work involved in securing the honey-flow, together with the packing and dispatching of swarms. In consequence of all this extra labour, a fine lot of queen-cells were lost by an over-sight of a few hours. This meant work to be done over again, and a loss of a fortnight in getting them tested. The tendency amongst advanced apiarists is to supersede towards the end of the honey-harvest, this plan giving the opportunity of testing the capabilities of the queen after introduction, and also a chance of making sure that the colony is going into winter quarters headed by a young queen, and thus laying the following year. The many enquiries that come in the spring for queens to introduce to queenless colonies, proves that many die in the winter season, or that the colonies supersede late in the year, either by excessive swarming or otherwise, and often in cold weather the young queens fail to become fertile; this means the loss of the colony the following spring.

Removing sections. — Honey in sections when fully sealed, should be at once removed from the hives. This prevents the face of the comb being travel-stained. I also advise that second racks of sections should be set below those already on; this also prevents travel-stains. It also assists in the same direction if the combs in brood-nests are moderately new, i.e., not more than four years old. Swarms that have travelled a long distance by rail, should be fed on arrival; and if the weather should be cold and chilly, put them in a warm room for an hour or two while they are feeding. This treatment will put the bees in good form for hiving, and enable them to start "comb-building." Good syrup for feeding in this way may be made by mixing two parts of sugar to one part of water, or honey thinned with water will do as well.

APPOINTMENTS FOR AUGUST.

TUESDAY,	Aug. 1	Scottish Horticultural Association, Meeting.
WEDNESDAY,	Aug. 2	Midland Carnation and Picotee Show, at Edgbaston Botanic Gardens, Birmingham (2 days).
MONDAY	Aug. 7	Bishop's Stortford Horticultural Society's Show. Northamptonshire Horticultural Show at Northampton (2 days). Worksop Floral and Horticultural Society's Exhibition. Atherstone Horticultural Society's Exhibition.
TUESDAY,	Aug. 8	Flower Show and Gala at Abbey Park, Leicester (2 days). Horticultural Show at Weston-super-Mare.
WEDNESDAY,	Aug. 9	York Florist's Exhibition of Carnations, &c.
THURSDAY,	Aug. 10	Royal Botanic Society (Anniversary Meeting). Taunton Deane Horticultural Society's Show.
SATURDAY,	Aug. 12	Coniston Horticultural Society's Show.
TUESDAY,	Aug. 15	Royal Horticultural Society's Committee.
THURSDAY,	Aug. 17	Royal Horticultural Society of Aberdeen: Show in Duthie Park (3 days).
FRIDAY,	Aug. 18	Devon and Exeter Horticultural Society's Exhibition.
SATURDAY,	Aug. 19	National Co-operative Flower Show at the Crystal Palace.
TUESDAY,	Aug. 22	Brighton and Sussex Horticultural Society's Show (2 days).
WEDNESDAY,	Aug. 23	Shropshire Horticultural Society's Exhibition at Shrewsbury (2 days). Hastings Horticultural Show. Harpenden Horticultural Show.
THURSDAY,	Aug. 24	Swansea Horticultural Show. Ellesmere Horticultural Society's Show.
FRIDAY,	Aug. 25	Royal Horticultural Society of Ireland, Show.
MONDAY,	Aug. 28	National Chrysanthemum Society's Executive Committee Meeting.
TUESDAY,	Aug. 29	Royal Horticultural Society's Committee.
WEDNESDAY,	Aug. 30	Dumfriesshire and Galloway Horticultural Society's Show in the Drill Hall, Dumfries.

SALE FOR THE ENSUING WEEK.

FRIDAY,	Aug. 4	Imported and Established Orchids, at Protheroe & Morris' Rooms.
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METHEOLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period July 16 to July 22, 1899. Height above sea-level 24 feet.

1899.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.				LOWEST TEMPERATURE ON GRADE.
		At 9 A.M.		DAY.	NIGHT.		At 1-foot deep.	At 2-foot deep.	At 4-foot deep.		
		Dry Bulb.	Wet Bulb.								
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.						
JULY 16 TO JULY 22.		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.	
SUN. 16	W.S.W.	68.9	58.4	76.9	53.5	...	65.9	63.5	59.7	44.3	
MON. 17	W.S.W.	69.1	61.6	77.9	50.5	...	66.5	64.9	59.8	42.9	
TUES. 18	S.S.W.	72.9	60.8	81.1	51.9	...	66.2	63.9	59.8	44.1	
WED. 19	S.S.E.	75.1	63.5	85.1	61.2	...	67.8	63.9	59.9	51.5	
THU. 20	E.S.E.	78.8	65.1	84.1	56.9	...	68.5	64.5	59.9	49.6	
FRI. 21	W.	72.6	64.9	86.2	61.9	0.06	60.2	64.9	60.1	56.5	
SAT. 22	S.S.E.	65.0	63.7	80.1	62.6	0.57	70.2	65.5	60.4	60.9	
MEANS...	...	71.8	62.6	81.6	60.9	0.63	67.8	64.4	59.9	50.0	

Remarks.—The weather during the week has been very hot, the temperature on five days exceeding 80°. Friday, July 21, was the hottest day this year. Rain fell on the evening of the same day, and a heavy storm, accompanied by thunder and lightning, on July 22.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—63.2°.

ACTUAL TEMPERATURES:—

LONDON.—July 26 (6 P.M.): Max. 82°; Min. 61°.

PROVINCES.—July 26 (6 P.M.): Max. 74°, Home Counties Min. 54°, Orkneys.

Fine, warm; slight rain; wind.

The New Charter of the Royal Horticultural Society.

On a very hot afternoon (July 21), the petition to HER MAJESTY in Council to grant a new charter to the Royal Horticultural Society was, after some little discussion, adopted unanimously. The Council was, of course, strongly represented on the occasion, the general body of Fellows more than sufficiently so to form a quorum.

The President, always to be found at his post when work has to be done, explained that some doubts existed as to the legality of certain procedures connected with the election of new members of Council, and other matters which it was desirable to clear up. It will be remembered that at one of the late annual meetings, the proceedings were challenged by Mr. SMEE, and that the Council then undertook to look into the matter. The result has been that the doubts expressed have been seen to be probably valid; whilst, owing to the lapse of time, and the evolution of different conditions, circumstances have so changed that much of the old charter is now a mass of obsolete or irrelevant verbiage. The new charter, the draft of which was read by the solicitor, and approved by the meeting, will simplify matters very much. It contains, as was stated by the Council, nothing that was not fundamentally essential in such a document. So far as possible, the government of the Society will henceforth be effected, not by the charter, but by the medium of bye-laws which will have to be reconstructed and carefully considered. The great advantage of these bye-laws is that if they are not found to work well, or if otherwise they require modification, the necessary change can be effected by the will of the Fellows, in meeting assembled for the purpose, at any time, after due notice has been given.

In the discussion that followed, Mr. GORDON hoped, that so far as the election of new members of Council is concerned, there would be no departure from the plan of periodically introducing "fresh blood" into the Council at the annual meetings, a practice sanctioned by the experience of ninety-six years. In reply, the President, while mainly, if not entirely, agreeing in principle with the remarks of Mr. GORDON, alluded to the difficulty experienced of getting men willing to sacrifice the necessary time, labour, and expense in the service of the Society. Some gentlemen, with the necessary business capacities, were otherwise so much engaged, that they could not attend to the business of the Society, and scarcely ever attended its meetings.

Ultimately, the President proposed the resolution that the draft charter as read be approved. This was seconded by one of the Vice-Presidents, Sir JOHN LEWELYN, supported on behalf of the non-official Fellows by Dr. MASTERS, and carried without a dissentient vote. It was explained that the revised bye-laws would be circulated among the Fellows in time to give them an opportunity of studying them before the meeting. We trust this may be done in such a way as to enable the Fellows readily to compare the new with the old.

It was also stated that, in all probability, owing to the near approach of the vacation, some months would elapse before the new charter was granted. The meeting concluded with the usual vote of thanks to the President, who adroitly shunted the compliment on to the Sub-committee of Council chiefly concerned in the work.

Riverside Gardens.

It may be remembered that last year a syndicate of some importance proposed to "take over" that portion of Westminster lying between Old Palace Yard and Lambeth Bridge, with the object of turning the area into a new "quarter," made up of a riverside garden with piles of "mansions," and with sites for public buildings, &c. It all looked very pretty, but the House of Commons thought that either the Government or the London County Council should take in hand the proposed improvement, and the Bill was thrown out, the Council undertaking to put forward a scheme worthy of the magnificent situation. Mr. SHAW LEFEBVRE's Committee has considered the whole matter, and it now remains for the County Council to overhaul the report now before it, and take such steps as may be determined upon—first securing an Act of Parliament for the purpose. The scheme provides for the purchase of all the property, Government or otherwise, between Old Palace Yard and Lambeth Bridge; and between these points a 70-foot wide road is proposed to be constructed, the ground trending to the river being turned into an embankment-bordered garden, giving a fine promenade east and west; that lying to the north of the road-line it is proposed to lay out in wide streets, suitable for all kinds of high-class buildings—all of these roads to be planted, with, we believe, special points here and there for planting displays. It will be necessary to attend afresh to the main-drainage schemes; and though the cost will necessarily be somewhat large, still there can be little doubt but that large sums will be recouped by the lease of eligible sites for long terms.

In as few lines as possible, we believe we have indicated the scheme about to be considered by those who have now charge of a great deal of the ratepayers' money. Should this improvement be carried out, the view from the bridge or the river, ending with the Victoria Tower, will be very fine; and it is to be hoped that power may be retained by the London County Council as to the nature and elevation of the buildings to be erected, so that no undue or any dwarfing or shabbiness may be allowed.

NEPENTHES BALFOURIANA ×.—The very handsome Nepenthes illustrated at fig. 39, p. 91, formed part of the remarkable exhibit made by Messrs. JAMES VEITCH & SONS at the recent Hybridisation Conference. Messrs. VEITCH, as is well known to our readers, have achieved many successes in hybridising Nepenthes, the species of which lend themselves readily to the gardener's art. The present pitcher is the outcome of a cross between *N. mixta* ×, *Mast.*, and *N. Mastersiana* ×, *Veitch*; *N. mixta*, *Mast.*, is itself a hybrid between *N. Curtisii* and *N. Northiana*, *Hook. f.*, and *N. Mastersiana* × is the result of a cross between *N. sanguinea* and *N. Khasyana*—so that the present plant is the descendant of four distinct species.

DISASTROUS HAILSTORM NEAR MAIDSTONE.—From the following intelligence, supplied us by Mr. GEO. WOODWARD, Barham Court Gardens, Teston, we fear that the fruit crops around Maidstone have suffered severe damage: "On the morning of the 21st inst. we experienced the most destructive hailstorm I have ever seen. So far as one is able to judge, the whole of our Apple-crop is ruined. Hundreds of the fruits are cut as if sharp flints had been thrown at them, and these fruits are commencing to decay; the rest have from three to a dozen bruises upon them. Some of the fruits which were fully exposed are quite pulped on the uppermost side. In one section of the glass-houses 150 panes of glass have been broken; and in

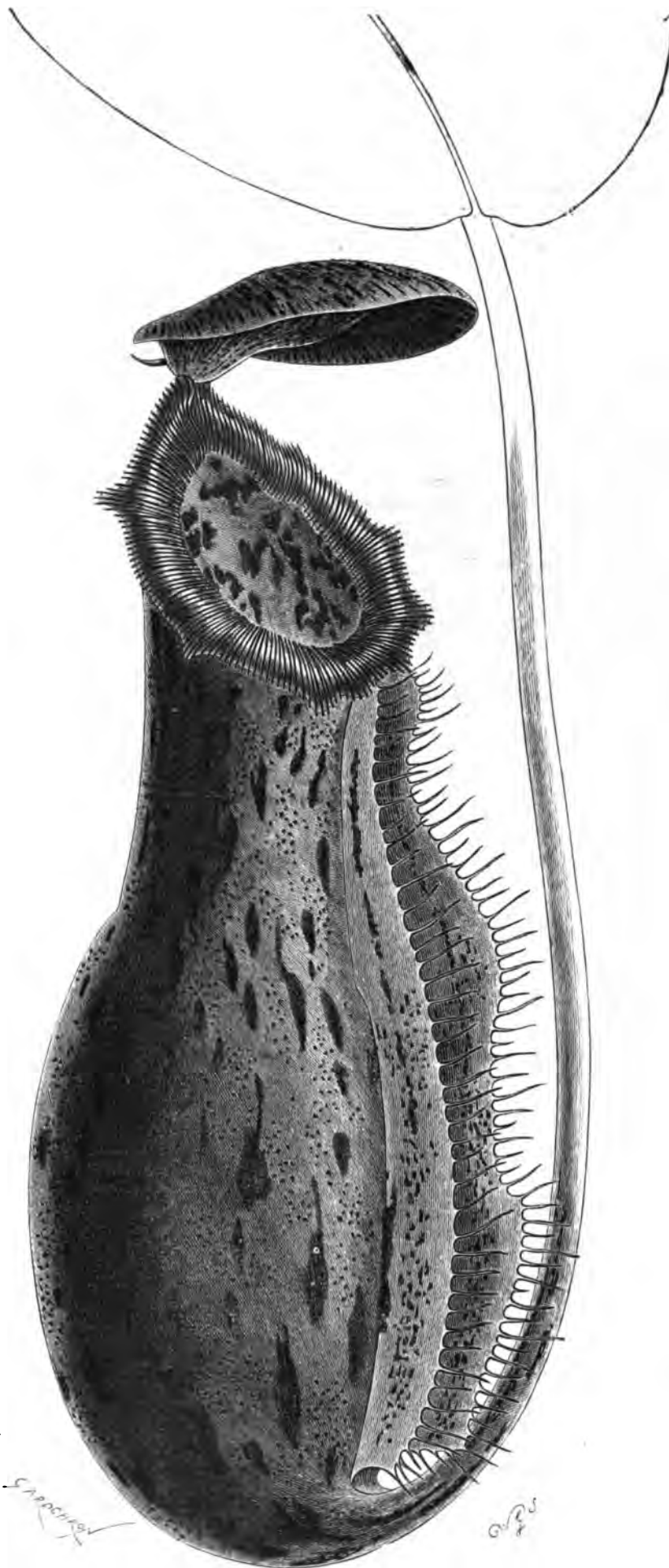


FIG. 39.—*NEPENTHES BALFOURIANA* x : HORT. VEITCH. (SEE P. 90.)

another section, where English glass of 21 oz. is used, scarce any is broken. The hail, fortunately, did not extend over a very large area, certainly not more than 2 miles in length, and $\frac{1}{2}$ mile in width. Begonias in the beds are completely stripped, and Chrysanthemums, of which I have about 1500, present a sorry appearance. The stones were of enormous size, similar to ordinary lump-sugar, though I hear of many larger having been seen. The lawn in front of my cottage was completely covered, two or three layers deep, and in some places it had frozen together in lumps, so that one could pick up masses a foot or two across, and 2 inches deep."

THE OLD CHISWICK ARBORETUM.—Old Fellows of the Royal Horticultural Society who have still pleasant recollections of that portion of Chiswick Gardens formerly known as the arboretum, will learn with sorrow that this once charming spot, for some years the gardens of Mr. Watts' fine house, has been sold, and may soon be covered with the inevitable houses. It is reported that lofty ranges of flats for residential purposes are to be erected there, and as these are to immediately touch the wall which now divides the gardens from the old arboretum, it is but too evident that Chiswick will suffer severely. This fact serves to make all the more pressing the need for a new trial-ground, and the Council can hardly secure the needful area for that purpose too soon.

"BOTANICAL MAGAZINE."—The July number comprises figures of *Yucca Whipplei*, Engelm., t. 7662. This is described as a native of the Rocky Mountains in California from San Bernardino to Monterey, extending thence eastward to North-west Arizona. It is a very stately species, attaining twice the height of an ordinary man, with copious bright-green foliage, a stout bracteate scape, and a noble panicle of large subglobose flowers. The drawing was made at Commander HANBURY'S garden at La Montola by Lady TRISLTON-DYER. It was figured in our columns in 1876, ii., p. 197, fig. 42.

Acacia sphaerocephala, Chamisso & Schlechtendal, t. 7663.—A Mexican species, with stout thorns, bipinnate foliage, and globose heads of flowers in branching panicles. Some of the leaf-pinnae bear on their tips fleshy oblong appendages, that supply food to stinging ants, which nest in the spiny stipules.

Masdevallia muscosa, Rehb. f., in *Gard. Chron.*, 1875, i., p. 460, t. 7664.—Remarkable for the sensitiveness of the lip, as pointed out by Mr. W. J. BEAN. By this agency an insect is entrapped, detaches the pollen, is released by the falling back of the blade, and flies off to another flower, and thus effects cross-fertilisation.

Crassula pyramidalis, Linn. f., t. 7665.—Burbidge, in *Gard. Chron.*, 1872, p. 289.

Rosa xanthina, Lindley, *Mon. Bot. nomen*, t. 7666.—This is the Rose discovered abundantly in the Kuram Valley of Afghanistan by the late Dr. ARCHERSON, and described by him under the name *R. Ecce*. It is, however, stated to be identical with a Central Asiatic species of wide dispersal. It is a species with small leaves, stout conical prickles, and small yellow flowers, solitary at the end of small branches; sepals entire.

SCARCITY OF INSECTS.—Sir JOSEPH HOOKE, writing from Sunningdale, Berks, notes the scarcity of insects this summer. He has not seen a wasp, or a bluebottle or a house-fly. The Brimstone butterfly has been very scarce, and very few of the white Cabbage-butterflies, and never two in a day have been seen. The Peacock and Admiral are generally not rare, but this season they have not put in an appearance. On the other hand, birds are more abundant than usual. Blight is very rare on Roses.

BACTERIAL DISEASE OF THE TOMATO.—Among many diseases treated of by P. H. ROLFS (*Florida State Bulletin*, No. 47) that attack the Tomato, the bacterial blight is alluded to, and the results of

meeting the attack by fertilisers that push on the growth of the plant, so that it does not succumb. No special fertiliser was singled out as the best by the experiments, but one that would strengthen the stem and make the plant woody rather than succulent would, if any, have the advantage. The distance of the plants apart has an effect upon the rapidity with which the disease spreads.

OSMANTHUS AQUIFOLIUM IN FRUIT.—Sir JOSEPH HOOKER sends us from Sunningdale, Berks, a branch of this shrub bearing an abundance of fruit. The berries are borne on short, slender axillary stalks, about the length of the leaf-stalk; each measures about 16 mill. (rather over half-an-inch) by 8–9 mill. in breadth, cylindric-oblong, deep purple, with a grey bloom upon it. The stone occupies nearly the whole of the berry, is curved, and marked with purplish stripes from end to end.

WELSH HONOUR TO A SCOTS GARDENER.—The well known gardener at Cardiff Castle, Mr. A. PETTIGREW, has been granted an honorary degree by the National Eisteddfod, which recently met at Cardiff. The name associated with this particular degree is "Gwinnlanydd Ynys Prydain."

GREENHOUSE RHODODENDRONS.—With a persistency only equalled by the appearance of *Acalypha hispida* (=Sanderi), the greenhouse Rhododendrons of Messrs. VEITCH appear regularly at the meetings of the Royal Horticultural Society. They are excellent illustrations of the valuable results obtained by hybridisation, as they are in bloom all the year round, flower in small plants, have a wide range of colour, and are not affected by fog.

THE VICTORIA MEDAL.—We understand that Mr. JAMES DOUGLAS has been awarded by the President and Council of the Royal Horticultural Society, the Victoria Medal in place of the late MALCOLM DUNN. Mr. DOUGLAS was one of those originally selected; but as he was a member of the Council at the time, he was debarred from accepting the honour that everyone who knows him recognises as his due.

WAXED TAPE FOR BUDDING.—The *Bulletin of the Botanical Department, Jamaica*, for June, contains the following recipe for preparing budding-wax: To every pound of bees-wax add a lump of rosin the size of an egg, and 1½ table-spoonful of raw linseed-oil. Boil, and then dip the tape in.

CIGARETTE SMOKING IN JAPAN.—The prevalent European habit seems to have taken root in Japan, judging from the following paragraph in the British Consul's report from Yokohama. The development of the cigarette trade has, during the last few years, been quite phenomenal; and the local transaction of one English firm alone amounted to over £50,000. The import of tobacco in 1898, mostly Virginian, to be used in the manufacture of cigarettes, amounted to 8,391,715 lb., of the value of £97,136; whereas, in 1897, the import appears only as valued at £11,264, an increase in 1898 of £85,872. The small Japanese pipe is said to have almost disappeared, and that cigarette-smoking is universal.

WHAT IS PRUNUS INSITITIA?—If we had been asked off-hand to answer this question, we should have said it was the Latin name for the Bullace. Professor WAUGH, after discussion of the literature of the subject, concludes that there is no such species as *Prunus insititia*. Professor WAUGH refers it to *P. domestica* as a variety—*P. domestica* var. *damascena*. ASA GRAY included it under *P. spinosa*. HOOKER, in the *Student's Flora*, adopts *Prunus communis* of HUDSON as the species with three sub-species—*spinosa* = the Sloe, or Black-thorn; *insititia*, the "Bullace," and *domestica*, which is marked as "not indigenous," though called the "wild Plum." To this latter we presume the Damson belongs. HOGG, in the *Fruit Manual*, ed. 5, p. 688, says the Damson and the

Bullace originated from the same source, and that the difference between them is little more than a name, the round ones being called Bullaces, and the oval ones Damsons. HOGG also mentions black Bullaces, which are probably referable to *P. spinosa*, the true Bullace being yellow.

HYBRID DROSERAS.—Among the exhibits in the Great Vinery at Chiswick, at the time of the Hybridisation Conference, were some plants of a hybrid between *Drosera filiformis* and *D. intermedia*. They were sent by our correspondent, Dr. MACFARLANE, but from their small size may have escaped general observation. A history of these plants is given in the *Contributions from the Botanical Laboratory of the University of Pennsylvania*, a copy of which has lately reached us. Detailed comparison of the leaves, flower-stalks, inflorescence, flowers, and period of blooming, confirmed the opinion formed by general inspection, whilst histological investigation demonstrates a minute blending in all parts of the hybrids of the histological peculiarities of *D. filiformis* and *D. intermedia*. *D. rotundifolia*, which grows with the others, does not appear to hybridise with them.

ANNE PRATT'S FLOWERING PLANTS.—The re-issue of this old favourite book, under the editorship of Mr. STEP, proceeds with regularity. Its illustrations, which are free from exaggeration, and, so far as they go, characteristic of the plants they represent, will be of great service to beginners and others desirous of knowing the names of our wild flowers.

"BOLETIM DA SOCIEDADE BROTERIANA."—The first part of the volume for 1899 contains a classified enumeration of the species of *Salix* and of *Populus* inhabiting Portugal, by Senhor COUTINHO. The clavis and the descriptions are in Latin, the annotations in Portuguese, so that the monograph is available for other than natives of the peninsula. *Populus canescens* is, following Krause, treated as a hybrid between *P. alba* and *P. tremula*.

SWEDISH FRUIT.—Under the title *Scenska Fruktorter*, a series of coloured illustrations of fruits, accompanied by descriptive text in Swedish, is being issued by Messrs. AXEL FRIEL & JAKOB ERIKSSON. The publishers are P. A. NORSTEDT & SÖNERS, Stockholm. The plates are of quarto size, and coloured. The representations are accurate, but the climate of the northern kingdom is responsible for what we should consider the small size of the specimens. The Apples figured in this first fascicle are Gravenstein, Grägylling, Gul Richard, Ribaton, Sienkyrkeapple, and Akerö-apple.

DWARFED CONIFERS.—These Japanese curiosities represent sometimes a century of work and care, so that the prices asked are not extravagant. Plants of *Pinus parviflora* a foot high and a foot in spread of branches are offered at 2 yen each, a yen being the equivalent of 2s. Trees measuring 2 feet each way are priced at 10 yen, that is £1. A set of such plants is offered by TAKAGHI & Co., of Tokyo, for 25 yen. The plants most used are *Pinus parviflora*, *P. densiflora*, *Podocarpus macrophylla*, *P. Nageia*, *Thuja* (= *Cupressus*) *obtusata*, *Pinus Thunbergii*, and *Sciadopitys verticillata*.

ST. PETERSBURG EXHIBITION.—A large Gold Medal was awarded at St. Petersburg to the *Revue Horticole* in recognition of its long and valued services to horticulture. There can be no question but that the compliment has been well earned, and we tender our cordial congratulations to our honoured contemporary.

CANCER IN HUMAN BEINGS AND IN TREES.—M. BRA has published in the *Comptes Rendus* of the Académie des Sciences a paper, wherein he suggests an analogy between Nectria and its effects on trees, and a similar organism which, according to the author, is associated with the production of cancer. We publish this under all reserves.

PELAGONUM.—We are indebted to Mr. BLISS, of Tulse Hill, for a photograph showing a fine truss of a zonal Pelargonium "Phyllis." The truss is not only a fine one, but it has produced by proliferation a second stalked truss. The entire inflorescence measured 11½ by 8 inches. Such formations are not uncommon in vigorously-grown plants.

A BOUQUET OF "ALEXANDRA" ROSES.—On the occasion of the opening of the new Alexandra Hospital Buildings in Bloomsbury by their Royal Highnesses the Prince and Princess of WALES on the 20th inst., a bouquet of Roses was presented to the Princess by Lady KATHERINE HOWARD. This bouquet was given by Messrs. WM. PAUL & SON, of Waltham Cross, and consisted of buds and blossoms of the Alexandra Rose, a new buff-coloured variety raised by them, and named after the Princess by H.R.H. the Prince of WALES at the Royal Botanic Society's *fête* in June of last year. The bouquet was tastefully tied with a broad, mauve-coloured silk ribbon, which bore the words, "The Alexandra Rose," with the date, in gold letters. Messrs. WM. PAUL & SON also furnished a beautiful bouquet of "Caroline Testout" Roses for the Princess VICTORIA of WALES on the same occasion.

BEE-KEEPING IN CONGESTED DISTRICTS MAY BE A NUISANCE.—Our attention is drawn to a case reported in the *Morning Leader*, which was heard at the Bath County Court on the 20th inst. A lady sued her next-door neighbour for £50 caused her by defendant's bees. She was badly stung twice, and the bees frequented her garden to such an extent that she had to let it go practically out of cultivation. The jury awarded her £10, and the judge granted her an injunction, with costs on the higher scale.

TEMPERANCE DRINKS.—The following recipes are recommended for use in the home, the hay and harvest-field, the workshop, or the laundry. It is not claimed that they will be all that expensive drinks would be, but that they are nourishing, thirst-quenching, palatable, cheap, and easily made. All of them are nourishing, none of them are in any sense injurious, and they may be freely partaken of. The "Barlikos" is, in especial, a drink suitable for any table.

BARLIKOS.—2 ozs. Robinson's Patent Barley, ½ lb. of sugar, one lemon. Mix the barley to a smooth paste with a little cold water. Add the sugar and the juice and thin rind of the lemon, then pour over it a gallon of boiling water. Stand till cold. Cost, 3d. per gallon. Many people will prefer rather more lemon, but this is according to taste. N.B.—It will be noticed that this recipe avoids the necessity for boiling the barley.

STOKOS.—4 ozs. of fine oatmeal, 6 ozs. sugar, one lemon. Mix the oatmeal to a smooth paste with a little cold water; add the sugar and the juice and thin rind of the lemon, then pour over it one gallon of boiling water. Stand till cold. Cost, 2d. per gallon. Half the quantity of oatmeal may be used.

COKOS.—4 ozs. of fine oatmeal, 2 ozs. of Cadbury's cocoa,* and 6 ozs. of sugar. Mix the oatmeal and the cocoa with a little cold water into a thin batter, then add the sugar, and pour over it a gallon of boiling water. Stir while the water is being added. Cost, 4d. per gallon. Half the quantity of oatmeal will be preferred by many. Rev. G. B. Charles, Sec., C.E.T.S., 94, Oakfield Road, Croydon.

FLOWERS IN SEASON.—We have received from Mr. M. CUTHBERTSON, of the Sunny Park Nurseries, Rothesay, N.B., a very beautiful form of *Eurothera*, selected, as he tells us, from a batch of plants of *Æ. Fraseri*, the seeds of which were obtained from M. BENARY, of Erfurt. The plant

* If other cocoa is used, care should be taken that it is pure, or a larger quantity will be required.

is a real novelty, of erect growth and branching habit. The leaves and stems are of a deep-red colour, and the flowers yellow, numerous and continuously produced. It is excellent for planting in beds and borders, or in window-boxes. The variety, which is to be called Cuthbertsoni, has been

Warrant of July 4, 1899, awarded to M. C. A. COGNIAUX, Professor at the École Normale de l'État at Verviers, the prize for the best botanical work accomplished from 1892 to 1898. The value of the award is 5000 francs, and the work for which it is awarded relates especially to Orchids, in-

TOMATO SPORTING.—Amongst the varieties of Tomatos that may be regarded as singularly acceptable for dessert purposes, is the one now being largely grown at Chiswick for distribution amongst the Fellows in seed form next winter. This sported in the gardens last year from the Red Peach. Its foliage and fruit are singularly distinct; the former is small, the fruit round, of quite medium size, handsome, and of a pale lemon colour, carrying a dense bloom. The fruits are of excellent flavour. From out of the stock has come a variety that is of a rich yellow colour, and without bloom; also a red one, smaller, and diverse from the original Peach, and also devoid of bloom. We thus see how one variety can break into several diverse forms so speedily. It is hoped that the new Lemon Peach variety will be associated in name with that of Chiswick.

PLANT PORTRAITS.

ANEMONE CORONARIA:—1, Leverrier, rose; 2, Rosette, petals white, stamens rose; 3, Sir Joseph Paxton, sepals white, stamens violet; *Florilegium Haarlemense*, t. 30.

APPLE STURMER PIPPIN, a cross made by Mr. Dillstone between Ribston Pippin and Reinette Nonpareille, the latter being the pollen parent, *Bulletin d'Arboriculture*, &c., June, 1899.

BEGONIA HYB. GRAF JOHANN HARRACH, one of the B. rex section, with dull purple leaves, claret-red on the under surface; *Wiener Illustrirte Garten Zeitung*, June, 1899.

BOUGAINVILLEA GLABRA VAR. SANDERIANA, *Gartenflora*, t. 1463.

CYMBIDIUM TRACEYANUM VAR. GRANDIFLORA, *Garden*, July 15.

HYACINTH GENERAL PELISSIER, single red, suitable for forcing; *Florilegium Haarlemense*, t. 28.

INCAVILLERA GRANDIFLORA, *Garden*, July 8.

MANETTIA BICOLOR, *Garden*, July 1.

MINA CORDATA, *Revue Horticole*, July 1; Mexican clim' er, flowers red.

PHALANOPSIS SCHRODERA, *Garden*, June 24.

RHYNCANTHUS BLUTHIANUS, Wittmack, *Gartenflora*, t. 1464.

STRAWBERRIES ROYAL SOVEREIGN, KÖNIG ALBERT VON SACHSEN, KAISER'S SAMLING, SCARLET QUEEN, SEMINATION; coloured figures; *Tijdschrift voor Tuinbouw*, t. 5.

TULIPS, single early varieties:—1, Mon Tresor, yellow; 2, Van der Neer, purplish; 3, Rembrandt, deep red; *Florilegium Haarlemense*, t. 29.

STRAWBERRY "MENTMORE."

GARDENERS are again indebted to Messrs. Laxton Brothers, of Bedford, for having raised a new variety of Strawberry (fig. 40) of large proportions and pleasing colour. It is a cross between the much-over-rated Noble, a variety the same raisers introduced in the eighties, and British Queen. The fruit possesses much of the brisk and luscious sweetness of Royal Sovereign, comes of a large size, and is flatly pyriform. It is borne in loose trusses very abundantly, and is in colour of a deep shining crimson.

Large quantities of Mentmore were exhibited at the Royal Horticultural Society's meeting on June 27 last, and it received an Award of Merit on being shown in 1897. Messrs. Laxton inform us that the plant forces well, and is not attacked by mildew.

HOME CORRESPONDENCE.

THE PARSNIP-FLY.—Whilst on a matter relating to ordinary observation I differ from Mr. G. Massee, with all due modesty, yet I feel bound to say that, having been of late engaged day after day in all parts of Surrey in inspecting allotments and cottage-gardens, from which at this season a crop of Parsnips is never absent, I have been specially struck with the absence from the leafage of the fly-grub or maggot; indeed, I have not seen Parsnip leafage more free from attacks, or Celery either, than is the case this season. Not only does this observation apply to all parts of Surrey, but it equally applies to several hundreds of diverse beds or crops. It also applies to sand, chalk, and clay equally, for if one day I have seen beds on soil so hard-baked and cracked that fissures 2 inches wide in all directions were visible, next day I have been on sand like that of the sea-shore. Of all places where insect-pests may be looked for, large groups of allotments are the most likely. A. D.

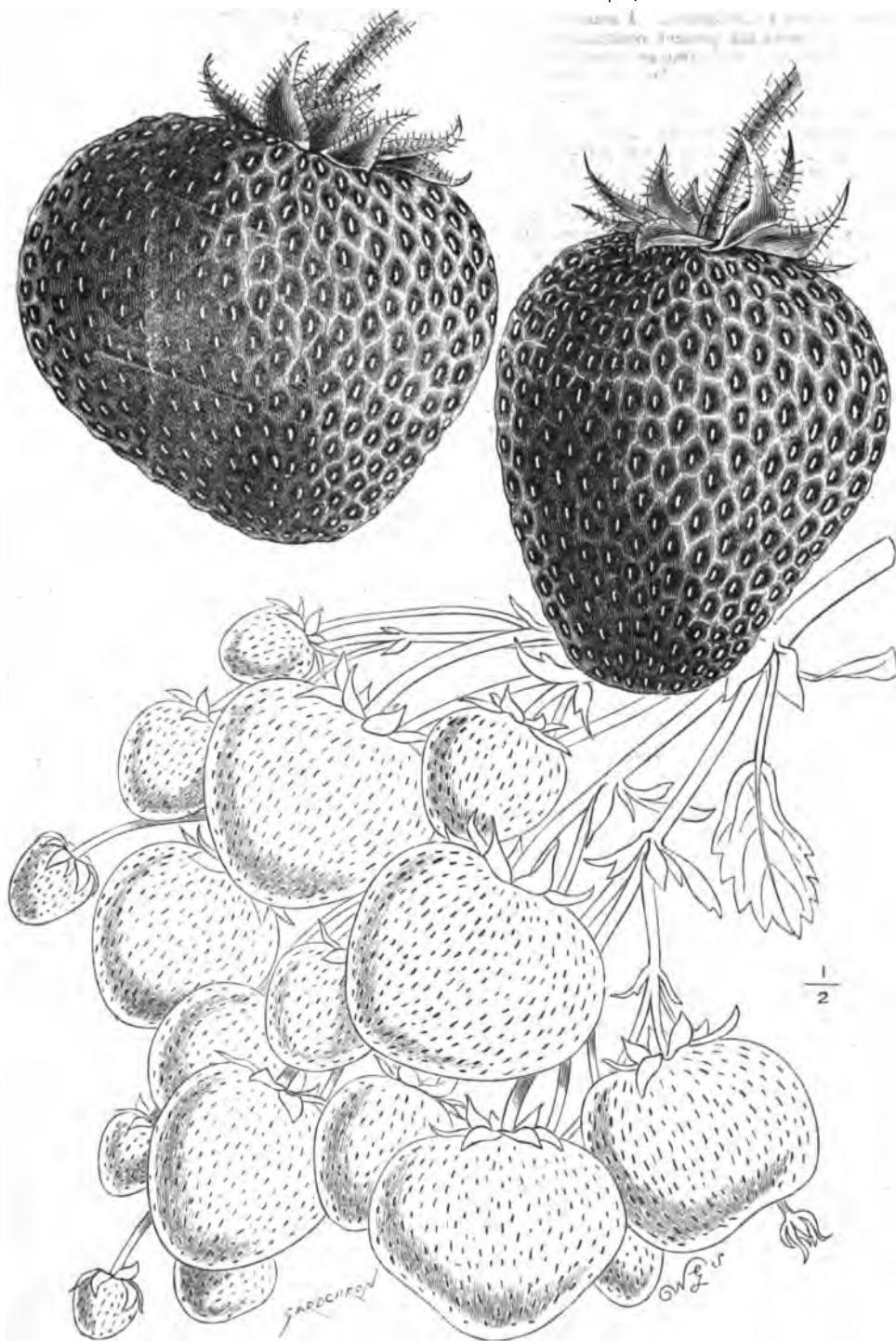


FIG. 40.—STRAWBERRY "MENTMORE."

From a cross between British Queen and Noble.)

several times certificated at northern horticultural shows. It would be preferable not to give it a specific name which would be misleading, but to call it Cuthbertson's variety, or simply "Cuthbertson."

M. COGNIAUX AND HIS WORK IN THE ORCHIDS.—We are informed that the Decennial Congress of Botanical Science of Belgium has, by Royal

cluding principally the monograph of Orchids in the *Flora Brasiliensis* and the *Dictionnaire Iconographique des Orchidées*, with its supplement, *La Chronique Orchidienne*. The Dictionary has therefore to be considered as one of the books which have obtained from the Belgian Government the highest distinction that can be awarded for botanical science.

LIME-TREE.—I should be glad if I could learn anything of the history of the magnificent old Lime-tree which stands in the garden of the New Bath Hotel, Matlock, and remains grand in its decay. The trunk, though it has had a large piece rent from it, measures about 13 feet round at 3 feet or so from the ground, and is 4 feet 6 inches across at the widest part; the branches on its best side extend to 45 feet from the trunk; the leaves are decidedly small, but the tree is full of blossom now. *L'hilodendrist.*

THE ORIGIN OF THE RIBSTON PIPPIN.—One often finds matters of great interest in gardening books of a past generation or two, and when recently making a reference to the volume of the *Florist* for 1857, I came across a cut of the original Ribston Pippin Apple-tree as it stood in 1828. As represented, it is only the shivered remnants of the once famous tree, what remains of the trunk, nearly snapped off, apparently 3 feet or so above the soil, resting upon supports placed in the ground, and having as its termination one attenuated branch supported in the same way. It is seen that the tree is in *extremis*, here and there a few leaves, the almost expiring efforts of an arboreal existence. In the account which accompanies the figure, it is stated that the information extant respecting the origin of this Apple is contained in a part of a letter preserved at Ribston Hall, Knaresborough, written by a descendant of the introducer; consequently its authenticity may be relied upon. A great portion of this letter is almost indecipherable from wear, but the following portion is legible: "My grandfather, Sir Henry Goodrich, being at Rouen, in Normandy, in ye year 1707, he eat an Apple of very superior flavour, and saved ye seeds, which he sent to Ribston, where they were sown, and ye produce planted in ye park. Out of ye trees planted, five proved bad, and two proved good. They are growing yet, and never were grafted, and one of these trees is ye celebrated Ribston Pippin which," &c. The old stem of the Ribston Pippin was blown over, as is shown in the cut, during a severe storm in 1815, after which only one branch remained, which was carefully propped up, and while in this state it bore fruit for many years. It lingered until 1835, when it died, and was cut down. Mr. Thos. W. Abbott, who in 1857 was gardener at Ribston Park, wrote to say that "a young shoot had previously been put forth from the old stem, about 4 inches below the surface of the soil. This has been encouraged, and is now a tolerable tree, from which I have gathered as fine fruit, both as regards size and colour, as I ever saw in any part of England. The old man who cut down the original stem is still at work on this place; he vouches to me that the young shoot was never either budded or grafted, and he has seen the tree almost daily ever since. The situation is a very cold and exposed one, consequently I do not expect the tree to be long lived." Mr. John Lindley, in his *Orchard and Kitchen Garden* (1831), states that the pips from which the Ribston Pippin was raised were brought from Rouen about the year 1688, but he admits that this is according to traditionary account. But he adds:—"I visited Ribston Hall in 1789, and found the tree in a very healthy state. It was, however, in a violent gale in 1810 thrown down, and five years afterwards still continued to bear fruit, although lying on the ground." Dr. Hogg in his *Fruit Manual* states that the gardener at Ribston Hall, by whom the Apple was raised, was the father of Lowe, who during the last century was the fruit-tree nurseryman of Hampton Wick. *R. D.*

"BLADDER-RUST" OF PINUS STROBUS.—In last week's *Gardeners' Chronicle*, it is stated that "specimens of the so-called Bladder-rust of the Weymouth Pine were sent to the Imperial Sanitary Institute Office (Berlin), in the beginning of and middle of May last," but as long ago as March 28, 1893, the present writer submitted both specimens of this fungus, as well as a short communication to the Scientific Committee of the Royal Horticultural Society (London), in which it was pointed out that Klebahn's observations on the life-history of the fungus were confirmed, inasmuch as the *Peridermium strobii* then sent had grown in the garden of Mr. F. C. Boyes, at Oakwood House, Tottenham, near King's Lynn, where, the previous autumn, the leaves of the Currant-bushes were observed to be badly affected with *Cronartium ribicolum*. The account of the meeting will be

found in the *Gardeners' Chronicle*, April 8, 1893, p. 425. It may interest your readers to know that through the kindness of Mr. Boyes, I was able to repeat and confirm Klebahn's cultures. On March 31, 1893, I applied the ascospores of *Peridermium strobii* on *Pinus Strobus* from Mr. Boyes' garden to three healthy Currant-bushes which were growing in my garden at King's Lynn, and on April 18 I had the satisfaction of finding the uredo of the *Cronartium* was produced upon each, this in due course was followed by the teliospores. I should not have troubled you with the present communication had it not been for the concluding sentence of your note on p. 73, in which you say, referring to *Peridermium strobii*: "We have received no information regarding its appearance in these islands." So much work has been done during the last few years with regard to the life history of the Uredines, that we hardly know where we are, and it is quite excusable for even the editor of the *Gardeners' Chronicle* to have overlooked the advent of *Peridermium strobii*. I would suggest, however, that he, as well as all others interested in this subject, should attend the meeting of the British Mycological Society, which is to be held early next October, somewhere in the New Forest; as I have reason to know that a paper will then and there be read with the avowed object of bringing our knowledge of the Uredines up to date. *Charles B. Plowright, M.D., King's Lynn, July 23, 1899.*

HOME-GROWN PINE-APPLES.—The older generation of gardeners who have handled Queens, Cayennes, Providence, and Black Jamaica, which were varieties well grown by Paxton, Fleming, Barnes, the Thomsons, and many more, will heartily sympathise, and in the main agree with Mr. Coomber in his letter in a recent issue of the *Gardeners' Chronicle*, in praise of this king of fruits. In colour, flavour, and perfume, no imported Pine-apple comes up to the well-grown and ripened home-grown fruit. I can recall the impression made upon me by my visits to the ripe Pine-rooms at Chatsworth and Bilton, where the air seemed to be steeped in the luscious odours of the ripe fruits, waiting their turn to appear on their owners' tables. The memory of those stately fruits suggests to me the more general use of ripe Pines as ornamental plants in entrance-halls and corridors of our staircases, dining, and drawing-rooms. Some who know little about the Pine-apple will hasten to tell me that thus to make them subservient to decorative purposes would prove fatal to their quality. But it would not. Most country mansions are warm enough for the long and safe keeping of ripe Pine-apples. They are also sufficiently dry for the purpose; and if a plant be removed from the fruiting-house in good time, it is surprising for how long a time a Pine may remain as a decorative object without losing in quality. These ripe Pine-apples need little or no water at the roots, and if any should be needed, the leaves and stems should not be touched with water. To grow Pine-apples well was considered in those days the acme of good gardening, and there seems no good reason why we should not have a renaissance of Pine-culture. I agree with Mr. Thomas Coomber, that neither the development of steam, nor any difficulties of soil and climate, nor any lack of skill in modern cultivators, stand in the way. Home-grown Pines have simply got out of fashion, and have, therefore, dropped largely out of cultivation. They are still, however, grown rather extensively in some large gardens, as, for instance, at Dalkeith, and in Sir Chas. Tennant's gardens at The Glen, Innerleithen. One of the late James Barnes' Pine-growing experiments was to ripen the fruit in the open air, which he did in the following manner:—Queen Pines that had set their fruits were early in June planted out in trenches something like Celery, and ripened, or lifted again about the middle of October. Bottom-heat was afforded from stable-manure. If my memory serves me aright, Queen Pines of excellent quality, and some 6 lb. in weight, were thus grown in the open air. Those who have filed their volumes of the *Gardeners' Chronicle*, will find all about this and other successful modes of culture, as carried out by Paxton, and other famous growers down to current times. *D. T. Fish.* [We fear that the large size of the pots used for fruiting Pines, the prickly edged leaves of most varieties, and the large size of the plants, would deter many from putting them to the uses suggested by our correspondent. And then, to

have the aroma of the Pine-apple penetrating into the best rooms of a country house, would not be quite to everyone's taste. The dining-room seems to be the most suitable place for them, provided sufficiently large vases can be found into which the pots might be dropped. *Ed. J.*

AMERICAN BLIGHT ON APPLE TREES.—I am anxious to ascertain whether readers of the *Gardeners' Chronicle* who are interested in the cultivation of fruits agree with me in assuming that American blight is alarmingly on the increase in this country. My observations on this subject have been chiefly made in Sussex and southern parts of Surrey; but I suppose that it is the same everywhere. In old orchards and on old garden trees, on which ten years ago scarcely any blight was discoverable, it now hangs in clusters on the shoots. To clean these trees seems to me to be almost impossible, or, at least, to most of the owners of them, who have neither the time nor labour required for so great a task. I have seen many methods recommended in books on fruit-growing, but none which seemed to be practicable for very large trees, which perhaps have never been pruned since planted. Working in a large nursery I notice that it is getting more troublesome to keep under every year; and I am told that in the same nursery, six years ago, no American blight was to be found. That it increases rapidly I feel sure; but whether it is due to the succession of dry summers, and a check would be given to the scourge by some wet ones, I am unable to say. It seems to be a question that cannot be lightly treated by fruit-growers. *P. Fry.*

IMPROVEMENTS IN COVENT GARDEN MARKET.—There is now approaching completion a covered market adjoining and contiguous to the structure built in recent years at the corner of Russell Street. The new market is chiefly iron and glass, with a substantial wooden fence surrounding it. There is a road running through it from the old market into Bow Street, which road will probably be used only for the purpose of unloading or loading, and not for stands. The ground-plan of the structure is in the form of the letter L, the longer limb running from E. to W. This market will be a great benefit to those who have hitherto had to stand out in the open. The stands are already fully occupied. *T. P., July 19.*

A SURE AND HUMANE METHOD OF CATCHING FIELD-MICE.—In a garden of 8 acres, in which fruit, flowers (mostly bulbous), and vegetables are grown, and which was originally waste land attached to a farm that would not keep a sheep, but now gives employment to two men and pays for the labour, the men catch field mice by the hundred by sinking 2 and 3-lb. glass marmalade-jars level with the earth, fill them three parts with water, and then smear the inside of the neck with grease of some kind, such as beef dripping or suet. I have seen the men pull out nine or ten dead mice from one jar. *R. M., Newbury.*

HOT WATER AS A CURE FOR MILDEW.—In the last issue of the *Gardeners' Chronicle*, Mr. W. Smythe explains that the reason he would not employ hot water on Vines for curing mildew is, that to do so would disfigure the Grapes, and also set up a tendency to scalding. I cannot agree with this. I have to-day forwarded you two bunches of Grapes (unripe), one Black Alicante, and one Gros Colmar, both of which have been subjected to the hot-water treatment; and would like you to say whether they are disfigured or spoiled. As far as I can see they were on the way to finish off in every respect, as though hot water had never touched them. Mr. Smythe also thinks that no practical man would ever employ hot water; but in my opinion, it is just these practicals who would employ it. Another correspondent during this discussion, stated that no well managed vinery would suffer from the malady, but this statement I beg to differ from; mildew not arising from one cause only, but from several, and let the man be never so skilful or careful, if the local climatic conditions are not all they should be, he will find it is not all bad management which is responsible for mildew attacks. Two of my vineries and my Tomato-houses here have a westerly aspect, and I am always troubled more or less with mildew, both on the Vines and Tomatoes, but in every one of my houses that face full south, I am never troubled with anything of the kind. The former get the stiff, south-westerly winds off.

the sea. I do not wish to deny that sulphur has not had the desired effect on Mr. Smythe's Vines, &c., but I would call his attention to the *Gardeners' Chronicle* for July 8, p. 40, in "Answers to Correspondents," where sulphur has again failed. My opinion is, that Mr. Mallett has brought forward a cheap and efficient remedy in the hot-water cure. Perhaps he would inform us how his Grapes are looking that have undergone the treatment. *G. Littlewood, Stratton Vineeries, Worthing.*

FLAVOUR IN MELONS.—Your correspondent, "D. T. F.," on this subject is interesting reading, but rather optimistic. I fear, were he to sit at the table of the Royal Horticultural Society's Fruit Committee for one season (and I for one should appreciate his company), he would, at the conclusion, have to admit that so far as Melons are concerned, they, amongst fruits, are very deceitful, if not desperately wicked. How much his fervid description of the Beechwood variety, so rarely heard of now, makes me long to taste the fruit! How many others of my colleagues must long for similar experience. How many of us who have had to taste perhaps a dozen, perhaps more, diversely named and coloured Melons, either at the Drill Hall or at fruit shows frequently, but have realised how very inconstant and unreliable they

ture practised in producing the fruits, after the manner of the Veitch prizes for flavour in Apples and Pears. *R. M., Newbury.*

TWO CROPS OF STRAWBERRIES IN ONE YEAR.—Replying to the note of "A. D." whether any gardener has had experience of the second fruiting after forcing of the variety Royal Sovereign Strawberry, the following incident may, perhaps, be interesting as well as amusing, and useful to growers, and especially to those who are in loud praise of the abundant bearing of Royal Sovereign. It was in the spring of 1897, when, at Combe Abbey, after having forced a number of plants, they were turned out of doors; and about that time an intelligent Scottish farmer happened to call on me, to whom I offered some of these plants. "Mon," said he, "I know nothing about gairdening. I would not know how to manage them;" but knowing the man to be a first-class cultivator of Potatoes, being the foremost enterprising farmer in Warwickshire, I was pretty sure his intelligence as a cultivator would guide him to a successful issue. I had intended the plants only as a stock of a good variety for his garden. It was some time in autumn when I again saw my farmer friend. His speech was short, but it gave convincing proof how well he had succeeded:



FIG. 41.—A CROSS-BRED RHODODENDRON, SHOWN AT THE HYBRIDISATION CONFERENCE AT CHISWICK.

After sixteen years' very careful cultivation is now only about 8 in. high.
(See *Gardeners' Chronicle*, July 15, 1899, p. 57, col. A.)

are. "D. T. F." seems to think that when I assert that in the same variety, or even in a fruit from the same plant, only one fruit out of several may be good, and the others tasteless, or nearly so, that I mean the fruit will have changed in appearance. But I mean nothing of the sort. I refer to the presence or absence of flavour; and over and over again rich odour has been found in fruits quite disappointing to the taste. There is plenty of time yet for new Melons, as they are called, to crop up this season; but so indifferent generally have been results for the past few years, that probably growers are getting tired of interbreeding them. In very many cases interbreeding has simply resulted in spoiling two generally regarded good varieties by seeking to combine them. If anyone can secure us such a wonder as a Melon that is always constant and rich flavoured [Under correct cultivation. Ed.], they will merit all praise. Of course, "D. T. F." may say, "Why, you have it already in the Beechwood." If that be so, then this wonderful Melon cannot be too speedily made a special object of cultivation, and be by the Melon-growers in universal demand. *A. D.*

—One is pleased to see your able correspondents, "D. T. F." and "A. D.," recently discussing this matter; and in such a case, when doctors differ, it shows the need of the Royal Horticultural Society's Fruit Committee taking up the matter. It might easily demand from exhibitors of Melons a brief statement of the method of cul-

"Mon," said he, "you remember yon Strawberry-plants you gave me. I planted them just as you recommended me to do; they grew, but we were more surprised to see them come into flower. Yes," he continued, "and they fruited splendidly, fine, luscious fruit, and we did enjoy them during harvest time. I can tell you. I never saw anything like it." From this incident need it surprise anyone if my Scottish friend, who showed the Warwickshire farmers how Potatoes should be grown, could also give them a "wrinkle" and a lead in cultivating Strawberries in the field; as a variety for this purpose, the fruitfulness of Royal Sovereign has much to recommend it. *W. Miller, Berkswell Nursery, near Coventry.*

SOCIETIES.

ROYAL HORTICULTURAL.

(CHISWICK, JULY 24.)

A MEETING of the Fruit Committee was held here on the above date, Messrs. Balderson (chairman), Wythes, Farr, Bates, Barron, Fife, Reynolds, and Dean being present.

POTATO TRIALS.

A considerable number of early Potatoes was first seen. Some were at a disadvantage, because the tops had been cut down by late spring frosts, materially weakening their growth. Nine varieties were selected for cooking, having shown good, clean crops when lifted. These were Early Peter,

long, oval, white tuber (Bradley, Peterborough); Hibbard's Seedling, yellow-flesh Kidney, good crops (Hibbard, Bitley, Hants); Norbury Park, singularly like the preceding (Solomon. Norbury Park, Dorking); Caradoc Seedling, very white, round (Caddick, Caradoc Gardens, Ross); and Johnson's Prolific (Johnson, of Boston). All these were of high cooking excellence. Pride of Tonbridge, Triumph, Snowdrop, St. Lawrence, and a few others well known, had previously been dealt with, or were left to be tried again later.

KIDNEY BEANS AND TOMATOS.

A large collection of dwarf Kidney Beans was next seen. Some were only suitable for forcing; some others were late, and not yet in form. A few seemed to have been much affected with spider. The following were selected for three marks: Ne Plus Ultra, Stringless, Veitch's Progress, Sutton's Perfection, Covent Garden, Tall Negro (Watkins & Simpson), and Everbearing, a great cropper. There were fifty-five diverse stocks sown. Three marks were given to Tomatos Chiswick Peach, a primrose coloured form of fine flavour; Cherry Ripe, much like the Red Dessert, but of rich flavour; and Comet, large red; Golden Gem, Chemin Rouge, Young's Eclipse, and Golden Drop were excellent.

(DRILL HALL, WESTMINSTER.)

JULY 25.—An ordinary meeting of the committees was held, in the Drill Hall, James Street, Westminster, on Tuesday last.

The number of visitors present was only moderate, and the hall was not quite full of exhibits, but there were many novelties shown, and a large number of distinctions were granted by the several committees.

The ORCHID COMMITTEE recommended the awards of three First-class Certificates, and one Award of Merit. The Floral Committee distributed one First-class Certificate, and thirteen Awards of Merit; and the Fruit and Vegetable Committee recommended First-class Certificates in the case of a new Grape named The Lady Hastings, a sport from Muscat Hamburg that occurred in Lord Hastings' garden; a new Strawberry named Lady Suffield, was shown by Mr. ALLAN, of Gunton Park Gardens; a new Cherry named Noble, from Messrs. RAY & Co., Teynham, Kent; and several Awards of Merit to varieties of Potatoes, Tomatos, and French Beans, that had been tried at Chiswick. In the afternoon, a lecture was delivered by Mr. Boulger upon the "Dispersion of Seeds."

Floral Committee.

Present: Geo. Paul, Esq. (Chairman), and Messrs. Owen Thomas, H. B. May, R. Dean, Jas. Hudson, C. J. Salter, J. D. Pawle, Jas. Walker, W. Bain, Geo. Gordon, Herbert J. Cutbush, E. H. Jenkins, H. J. Jones, E. T. Cook, D. B. Crane, H. Selve Leonard, J. Jennings, and W. Bain.

ROSES.

Messrs. GEO. COOLING & SONS, Bath, made an exhibit of garden and decorative Roses, showing about ninety bunches. Some of the more decorative as shown were Blanche de Coubert, large semi-double white, with thick, deeply green leaves; Grand Duc de Luxembourg, magenta shade of rose. Cooling's Yellow Rosette, Allister Stella Gray, a very well known double white Polyantha or Noisette; Fellemberg, a showy pale purple Rose; Duchesse d'Auerstadt, coppery-yellow; Paul's Single White, Gustave Regis, a large white semi-double Rose, centre flushed with yellow; Almée Vibert, pure white, double; Marquis of Salisbury, crimson; Rosa rugosa flumbriata, with single flushed pink flowers, with flimbriated petals, &c. (Silver Banksian Medal).

Mr. W. RUMSEY, Joining's Nurseries, Waltham Cross, showed a nice group of cut Roses in considerable variety, conspicuous amongst them being that of H. P. Mrs. Rumsey (Silver Banksian Medal).

Messrs. PAUL & SONS, Old Nurseries, Cheshunt, showed a pretty group of cut Rose blooms in variety; also flowers of show varieties of herbaceous Phlox, one of which is described under "Awards." Sprays of some of the more decorative of flowering and other shrubs were also exhibited by Messrs. PAUL (Silver Banksian Medal).

HARDY TREES, ETC.

Mr. ANTHONY WATERER, Knapp Hill Nursery, Woking, showed Arundo Donax macrophylla, a robust variety, larger in all its parts than the type, leaves exceedingly glaucous, and 2½ inches in width; Andromeda arborea, a tree-like shrub, with long flower-spikes freely produced, the flowers, not open in this instance, are small, and white; leaves 5 in. long, narrow, and folded inwards at the edges. Flower-sprays of Koeleruteria paniculata, from a tree 40 feet high; Abies concolor var. violacea, with cones cut from another tree; Fagus sylvatica var. purpurea pendula, very fine dark tint, the plant of continental origin; Vitis Cointetiae, V. Thunbergi, a splendid form, with leaves 9 inches wide, and of a dark green tint—the leaves had five or six lobes; Ulmus campestris Louis van Houtte, with a leaf of lemon-yellow, having the faintest trace of chlorophyll in it, the shoots showing robust growth, but it did not appear from what part of the tree they were taken; Robinia neomexicana, resembling R. hispida in leaf and flower; Quercus pedunculata purpurea, a handsome variety of the Oak, with leaves purple-brown on the upper surface, and purplish-green beneath; Abies Douglasii pumila (First-class Certificate), a dwarf variety, with light-green, short needles. Messrs. J. VEITCH & SONS, Ltd., King's Road, Chelsea, S.W., showed cut shoots of Clethra canescens, having white flowers in thin drooping panicles; Esculus (Pavia) macrostachya, a handsome Horse-Chestnut, with long drooping racemes of

white flowers; and *Hypericum Androsaemum* in fruit, and in that state very showy. They also showed sprays of *Magnolia macrophylla*, *Cornus macrophylla*, and *Hydrangea quercifolia*; this latter plant has very large-lobed leaves, and brown-coloured pubescent growths. The inflorescence as shown bore a few sterile flowers, consequently was less showy than would be the case if some of the fertile flowers had been sterile. It is a bold-growing, handsome-flowering shrub.

CACTI, &c.

Messrs. CANNELL & SONS, Swanley, Kent, had one of the most remarkable exhibits in the hall, in the shape of a very interesting group of succulents, representing 100 distinct varieties. There were some fine pieces of *Echinopsis* (Cereus) included, such as *E. Grusoni* (the Golden Cactus), *E. cylindraceus versicolor*, with very long and formidable spines of a reddish-purple tint; *E. chrysanthus*, *E. Emoryi*, &c. There might also have been noticed good plants of *Cereus peruvianus*, commonly known as the "Rock of Ages"; *Pilocereus senilis* (or Old Man's Cactus); *Opuntia ursina* (Grizzly Bear), a species covered with stiff grey hairs; the paper-spined *Opuntia*, *O. papyracantha*; *Mammillaria elephantidens* (Elephant's Tooth), and others. Seldom now-a-days is so good a collection of these interesting plants exhibited (Silver Flora Medal). Messrs. CANNELL had also a pretty group of their "pigmy" strain of *Antirrhinum* in various colours. Golden Gem appears to be a fixed variety, and is a good golden-yellow-flowered *Antirrhinum*, growing only a few inches high.

GLADIOLI AND BEGONIAS.

Messrs. KELWAY & SON, of Langport Nurseries, Somerset, adorned a very considerable space with an exhibit of cut spikes of GLADIOLI, there being 112 of these in about seventy varieties. It is too early at present for Gladioli to be shown at their best, and probably Messrs. KELWAY will show finer spikes and flowers at the next meeting. Nevertheless, the collection was very pretty, and an earnest of the Gladioli displays that are always made at these shows in August. No Awards were made to novelties on this occasion, but the varieties, Mrs. G. W. Willard, very large, warm pink, with deeper throat; Sir W. Scott, a very deep, velvety-like crimson self; Margaret Irill, and others, were of commendable merit. Messrs. KELWAY had also choice varieties of *Coreopsis*, double and single-flowered *Hollyhocks*, *Liatris elegans*, and other good border-flowers, in fine condition.

Messrs. R. HARTLAND & SON, Cork, exhibited a group of flowers of varieties of double-flowered tuberous-rooted BEGONIAS. There were about 300 of these, and generally they were of exceedingly high quality. As a collection they were admirable, and two of them are recorded in our list of awards (Silver Banksian Medal).

HUMESAS, FERNS, &c.

Humea elegans, shown so well at a recent meeting of the Drill Hall by Sir C. PIGOTT, Bart., Wexham Park, Slough (gr., Mr. J. Fleming), was again the principal feature in a large group of miscellaneous plants from the same establishment. There were upwards of a dozen plants of *Humea*, most of them more than 8 feet in height, and almost in full flower. Then there were also a fine lot of plants of blue-and-white-flowered *Campanula pyramidalis*, *Carnations*, *Cannas*, *Codieums*, *Lobelia cardinalis*, *Palms*, *Ferns*, &c. The *Gloxinias*, with which it was intended to brighten the face of the group, were spoiled through an accident that overtook the van whilst on its way to the hall. But the group had a very pleasing effect, and was much admired, the *Humesas* attracting considerable attention (Silver-gilt Flora Medal).

Messrs. J. HILL & SON, Burrowfield Nurseries, Lower Edmonton, exhibiting a large bank of *Ferns*, consisting mostly of large specimens. Mention may be made of *Davallia epiphylla*, *Gymnogramma chrysophylla*, *Pteris tremula Smithiana*, a finely and densely-tasseled variety; *Asplenium marginatum*, a handsome species, with light-green pinnae, 6 inches long, by 2 inches wide; *Nephrolepis rufescens bipinnatifida*, *Davallia tenuifolia Veitchii*, *Osmunda palustris*, *Pteris aspericaulis*, a plant in fine form; *Cibotium Schiedei*, *Adiantum elegantissimum*, *Todea barbara*, *Pellaea hastata*, *Stenochloa scandens*, &c.—a very fine group indeed (Silver-gilt Flora Medal).

MISCELLANEOUS EXHIBITS.

Messrs. JAS. VEITCH & SONS also showed *Diaxia Barberae*, a scrophulariaceous annual, that grows about 1 foot high; the flowers are deep rosy pink, and double spurred; it is a useful plant for bedding purposes, and was figured in the *Botanical Magazine*, t. 5938.

The same firm again made a lovely display of their Javanico-Jasminiflorum and multicolour hybrids of *Rhododendron*, which were noticed in some detail on p. 57, from a collection shown at Chiswick. Also a most effective group of hardy flowers, annuals, and sprays of flowering shrubs. The flowers in this group were arranged and set up beautifully, and though nothing very novel was included, the general effect of these finely-grown popular species was excellent (Silver Flora Medal).

Messrs. DOBBIE & CO., Rothesay, N.B., and Orpington, Kent, showed a number of varieties of *Pansies*, which they describe as their Wallflower-coloured strain. The predominant colour of these flowers is very similar to the red-brown common in the Wallflower, and marked variously with deep brown.

Mr. R. C. NORCUT, of Wood's Nursery, Woodbridge, showed a nice collection of Sweet Peas.

Messrs. WALLACE & CO., Kilnfield Gardens Colchester had a very pretty group of cut flowers, consisting mostly of summer-

flowering Lilies. A new variety of *L. auratum*, at present unnamed, reminds one of *L. auratum vittatum*, but has a broader band of red through each petal. *L. chalcidonicum*, *L. Humboldtii*, *L. canadense*, *L. Thunbergianum* in several varieties, *L. pardalinum*, *L. Brownii*, &c. *Iris Kempteri* was shown well also in several fine varieties, *Gladiolus*, *Calochortus* in variety, including *C. macrocarpus*, with very narrow sepals; *C. Plummerie*, &c. (Silver Flora Medal).

Sir TREVOR LAWRENCE, Bart., Burford, Dorking (gr., Mr. Bain), exhibited a plant of *Michauxia campanuloides* in flower. The blooms are white but for a very faint tinge of pink. It is an old plant, and grows from 3 feet to 7 feet or 8 feet in height. Some excellent varieties of *Canna*, *Pentstemon*, *Gladiolus Nanceanus* were also shown from this remarkable garden, but no award was made to any of them.

Some lovely bunches of *Carnations* were shown by T. B. HAYWOOD, Esq., Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter). The varieties included the fine self-coloured *Isinglass*, raised in these gardens.

Messrs. BARR & SONS, King Street, Covent Garden, showed a table of hardy cut flowers in season in much variety; we noted *Brodiaeas* in variety, *Pentstemon barbatus Torreyi*, *Astromeria chilensis*, *A. psittacinus*, *Eupatorium ageratum Fraseri*, a neat, white flower in small corymbs; *Coreopsis*, *Japan Iris*, *Phlox* in variety, *Platycodon Mariessii*, and *P. m. alba*, &c.

Messrs. CURTIS & SON, The Nurseries, Highgate Hill, N., showed forty-five distinct varieties of *Ivies*. The collection contained the choicest of green and variegated-leaved varieties, and was richer in those with small than with large leaves (Silver Flora Medal).

AWARDS.

Abies Douglasii pumila Colorado var. — From ANTHONY WATERER. (First-class Certificate). See col. 3, p. 95.

Acer californicum aureum. — A small group of plants of this very ornamental golden-leaved *Sycamore* was shown by Messrs. Low & Co., Bush Hill Park Nursery, Enfield (First-class Certificate).

Arundo Donax macrophylla. — From ANTHONY WATERER (Award of Merit). See col. 3, p. 95.

Begonia Mrs. Jno. Canfield. — A tuberous-rooted variety with very bright red double flowers that show several centres, but are very large and showy. From Messrs. R. HARTLAND & SON, Cork (Award of Merit).

Begonia M. Wannon. — A tuberous variety, with large salmon-pink double flowers, the petals being particularly fine. From Messrs. R. HARTLAND & SON, Cork (Award of Merit).

Caladium Madame Jenn Dybowski. — A large red-leaved variety, with bronzy-green margins, and the same tint occurs on the surface of the leaf. This and several other choice *Caladiums* were shown by Messrs. JNO. LAING & SONS, Forest Hill Nurseries, London, S.E. (Award of Merit).

Campanula x Mayi. — This would appear to be a hybrid from *C. isophylla* and another, or possibly a variety of *C. isophylla*. The habit and growth is stronger and more vigorous than that of *C. isophylla*; and, moreover, the foliage, &c., is distinctly glaucous in tint, more fleshy, numerous and very regularly toothed, and very pubescent. The flowers are about 1½ in. across, and in shade are mauve-blue. When staked from the pots, the growths were nearly 2 feet high, and in this form, or drooping under the pot, the plant was a most decorative one. Mr. H. B. MAY, of Dyson's Road Nursery, Upper Edmonton, showed a group of plants, many of them from cuttings struck five months ago (Award of Merit).

Campanula "Warley". — Described as a natural hybrid. As shown, the growths were not more than 1 foot high, very slender, with narrow, lanceolate leaves. The small flowers are generally semi-double, of a pretty lavender shade of blue, 1 inch across, apparently the same as a very old form known to botanists. From Miss WILMOT, Warley Place, Essex (Award of Merit).

Cornus macrophylla. — A very strong-growing, handsome species from the East, with large ovate, oblong acuminate leaves, paler on the under surface, and numerous small, whitish flowers in terminal panicles. From Messrs. JAS. VEITCH & SONS (Award of Merit).

Delphinium José Maria de Heredia. — A singular variety, by reason of its very finely-formed, double flowers. Each bloom combines shades of purple, blue, and white. From JAS. VEITCH & SONS, Chelsea (Award of Merit).

Nicotiana sylvestris. — A new species of vigorous and branching growth, that will be very valuable as a sub-tropical plant. The flowers are pure white, tubular, sweetly-scented, and pendent, but expand during the daytime, and at evening they assume a horizontal position. The slender tubes of the flowers are ¾ inches in length, and the flowers but half-an-inch across when fully expanded. The corymbs are produced very freely, both terminally and laterally. Shown by Mr. JAS. HUDSON, Gunnersbury House Gardens, Acton (Award of Merit).

Phlox Fiancée. — A herbaceous variety with pure white flowers, produced exceptionally freely in large trusses. From Messrs. PAUL & SON, Old Nurseries, Cheshunt (Award of Merit).

Rose J. B. M. Camm. — A very pretty pink-flowered Rose with darker centre; in form, somewhat suggestive of *La France*. From a cross between H. P. Madame G. Luizet and Bourbon Mrs. Paul. From Messrs. PAUL & SON, The Old Nurseries, Cheshunt (Award of Merit).

Vitis Thunbergii. — From ANTHONY WATERER (Award of Merit). See col. 3, p. 95.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. De B. Crawshaw, H. Little, S. Courtauld, W. Cobb, J. G. Fowler, J. Colman, H. T. Pitt, E. Hill, H. J. Chapman, W. H. Young, H. Ballantine, J. Gabriel, F. W. Moore, and Jas. O'Brien (Hon. Sec.).

As usual at this season, the number of exhibits was restricted; but if only to see the beautiful and extraordinary novelty *Sophro-Cattleya x Queen Empress* (*Cattleya Mossiae* ♀, *Sophrontitis grandiflora* ♂), raised and exhibited by Messrs. JAS. VEITCH & SONS, no lover of beautiful flowers would regret a visit to the show. In *Sophro-Cattleya x Queen Empress*, which secured a First-class Certificate, is seen the highest example of the several pretty crosses of *Sophrontitis grandiflora*, and as its rich and uncommon colour is accompanied by a much larger flower than in other crosses of the class, and that too on a very small plant, it seems to foretell for the future a large-flowered hybrid with the bright reddish, rosy-crimson tint, for which hybrids of *Sophrontitis grandiflora* are admired (see Awards).

Messrs. VEITCH also staged a pretty group of other good things, for which they were awarded a Silver Flora Medal, and among which were *Cypripedium Alice superbum* (*Stonel x Spicerianum*), a really handsome form of a rather alighted hybrid; *C. x Astrea* (*Spicerianum x Philippineuse*); *C. Euryale* (*Lawrenceanum x superbiens*); *C. orphanum* (*barbatum x Druryi*); *C. Morganii*, in fine form; *C. x Harrisonianum superbum*, and other *Cypripediums*; *Laelio-Cattleya x callistoglossa ignescens*, *Laelia Olivia* (*xanthina x crispata*), *Cattleya x Atlanta*, *Diss x Veitchii*, *Epidendrum x elegantulum*, &c.

Messrs. HUGH LOW & CO., Bush Hill, Enfield, had a good selection of *Orchids*, including two fine white forms of *Cattleya Eldorado*, a good *C. Leopoldi*, with twenty-six flowers on a spike; the fine yellow *Phaius x Ashworthianus*, the showy red *Dendrobium sanguineum*, the handsome and rare *Cattleya x Prince of Wales*, *Cattleya Dowiana*, &c.

T. B. HAYWOOD, Esq., Woodhatch, Reigate (gr., Mr. C. J. Salter), showed cut spikes of the large pure white *Miltonia vexillaria* *Daisy Haywood*, and some good coloured forms.

Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. W. H. White), showed *Stanhopea aurantiaca*, of the S. Wardi class, with rich orange flowers, bearing some nearly black blotches on the hypochile.

ELIJAH ASHWORTH, Esq., Harefield Hall, Wilmslow (gr., Mr. Holbrook), showed the fine *Dendrobium x formosolowii*, with handsome yellowish-white flowers, with reddish-orange lines on the lip, and for which Sir Trevor LAWRENCE had previously received an award.

Franz IDA BRANDT, Riestbach, Zurich (gr., Mr. Schlecht), sent *Zygopetalum* (*Boilei*) *Lelandi*, with purplish-rose flowers, having a singular, fleshy, yellow labellum; also *Phalaenopsis Kamehameha antennifera*.

Messrs. F. SANDER & CO., St. Albans, showed six distinct hybrids of *Cypripedium Rothschildianum*, the finest being a fine hybrid between *C. callosum* and *C. Rothschildianum*, with large white upper sepal, with purple lines, and broad greenish petals, with large purple spots. Messrs. SANDER also showed a curious *Bulbophyllum*.

T. A. REHDER, Esq., Gipsy Hill (gr., Mr. Morris), showed *Cypripedium x Miss Rehder* (*Argus x hirsutissimum*), a delicately tinted hybrid profusely dotted with purple. Lieut.-Col. SHIPWAY, Grove House, Chiswick (gr., Mr. Walters), showed a fine specimen of *Cattleya Warszewiczii*, and a species of *Gongora*. J. GURNEY FOWLER, Esq. (gr., Mr. Davis), showed *Renanthera Storlei*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Diss x Diorex var. *Clio superba* (*Veitchii x grandiflora*). — This is one of the most brilliantly-coloured of hybrid *Dissas*. Flowers glowing magenta-crimson, with yellowish and purple markings in the centre. From Messrs. JAS. VEITCH & SONS, Chelsea.

Sophro-Cattleya Queen Empress (*Cattleya Mossiae* ♀, *x Sophrontitis grandiflora* ♂). — A most charming hybrid with flowers much resembling *Cattleya Mossiae* in form, but smaller. Sepals bright rosy-crimson, petals broad and well displayed bright rosy-crimson, with a dark reddish-crimson veining. Lip yellow at the base, with showy dotted purple lines, the front lobe reddish rosy-purple, the margins of the side lobes of the same hue as the front, but with a yellow margin. From Messrs. JAS. VEITCH & SONS, Chelsea.

AWARD OF MERIT.

Vanda teres, Gunnersbury Park var. — A singular and pretty light-coloured form, with the general appearance of the hybrid *V. Miss Joaquim*. Flowers white, tinged with bright rose-pink on the outer halves. Base of the lip yellow, front lobe bright light rose. From Messrs. DE ROTHSCHILD, Gunnersbury Park (gr., Mr. Geo. Reynolds).

Fruit Committee.

Present: Philip Crowley, Esq. (Chairman), and Messrs. Jas. Smith, Geo. Reynolds, Robt. Fife, W. Poupert, A. F. Barron, M. Gleeson, Jas. H. Veitch, A. H. Pearson, Alex. Dean, S. Mortimer, J. W. Bates, G. Wythes, R. Balderson, F. Q. Lane, W. Wilks, and Joseph Cheal.

Messrs. JAS. VEITCH & SONS, Chelsea, showed a grand collection of Gooseberries in about a hundred varieties; also about a score that had been lifted and planted in pots, which represented the different methods of training employed (*Gardeners' Chronicle*, July 31, 1897, p. 73). Red, yellow, and green varieties were each represented by all the best

varieties, including the new ones, Langley Beauty, Yellow Champagne (see *Gardener's Chronicle*, August 8, 1896, p. 155), and Langley Gage, a green or white fruit of very fine flavour and moderate size. In this large collection, the following were some of the most noticeable varieties:—Green or white fruits: Telegraph, Surprise, Progress, Eagle, Green London, Clifton, Matchless, Hedgehog, Tom Joiner, and Green Overall. Yellow: Leveller, Pretty Boy, Tiger, Pilot, Gipsy Queen, and High Sheriff. Reds: Clayton, Dan's Mistake, Industry, Bollin Hall, Highlander, Beauty, Registrar, Lancashire Lad, Eskander Bey, Early Red Hairy, Lomas' Victory, Ironmonger, Red Champagne, and Forester. A Gold Medal was awarded to this exhibit, and we may remark that the bushes lifted from the open ground would indicate a first-rate lot of Gooseberries at Langley this year.

Messrs. VEITCH & SONS also exhibited fruits of the Loganberry, and a pleasantly acid preserve made from this fruit. The Loganberry is said to be a cross between the Raspberry and the Auginbaugh Blackberry, and to be thornless; but Messrs. VEITCH's plants have many thorns.

Mr. CHAR. JENNINGS, Walkhouse Gardens, Barrow-on-Humber, showed fruits of a Raspberry "Eclipse," and of a good-looking Pea, "Competitor."

Messrs. HARRISON & SONS, Leicester, showed a collection of eighty sorts of culinary Peas, including a number of excellent and well-tried varieties. Many, too, of their own introduction, such as Leicester Hero, Fascination (with very pretty pods), Jno. Harrison (a good late sort), Emperor of Japan, Gradus, and Beatrice. The last-named grows but 18 inches high, and is an excellent dwarf Pea (Silver Knightian Medal).

Mr. G. Norman, gr. to the Marquis of SALISBURY, Hatfield House, showed a collection of fruit, including Strawberries Waterloo and British Queen, Royal George Peach, Brown Turkey Figs, Nectarine Lord Napier, Raspberries Hornet and Superbette; Biga-reau Napoleon, May Duke, and Black Tartarian Cherries; Whitesmith Gooseberry, and White and Red Currants.

AWARDS.

Grape The Lady Hastings.—A first-rate Black Grape of fine appearance, that originated as a sport from Muscat Hamburg in 1886, in the gardens of Lord HASTINGS, Melton Constable (gr., Mr. W. Shingler). It is said to ripen as early as any Grape, and to keep good till the turn of the year. The bunches are disposed to shoulder considerably, and are heavy. The berries are large, moderately round in form, and are highly coloured, and covered with a dense "bloom." It is described as very free, and a good "setter," and the foliage and growths shown were certainly very strong. The fruits are pleasantly sharp and rich, and have a slight Muscat flavour, as is possessed by the variety Madresfield Court. It was stated that the best results had followed when the roots were moderately restricted, and the canes treated upon the extension system. Shown by Mr. Shingler (First-class Certificate).

Strawberry Lady Suffield.—A deeply-coloured fruit, of long and rather tapering form; flavour good. Shown several times previously for Certificate, but unsuccessfully until Tuesday last. From Mr. W. ALLAN, Gunton Park Gardens, Norwich (First-class Certificate).

Cherry Noble.—This fruit in appearance is very similar to the Morello, but in taste is quite sweet, and of pleasant flavour. The flesh is firm. From Messrs. RAY & Co., Teynham, Kent (First-class Certificate).

Potatoes Early Peter, Caradoc Seedling, Norbury Park, Prolife, and Hibbert's Seedling.—These five varieties of Potatoes were exhibited from Chiswick, where they have been under trial. Awards of Merit were recommended in each case. The varieties are described in column 2 and 3, p. 95.

Tomatoes Cherry Ripe, and The Comet.—These are described in column 3, p. 95. Recommended Awards of Merit, after trial at Chiswick.

French Beans.—Everbearing, Veitch's Progress, Stringless, Ne Plus Ultra, Covent Garden, Early Negro, and Sutton's Perfection. All of these varieties were recommended Awards of Merit, after trial at Chiswick. See column 3, p. 95.

Lecture on "Seed Dispersal."

Prof. G. S. BOULGER delivered an interesting lecture upon "Seed Dispersal." Prof. Geo. Henslow, F.R.S., presiding. The lecturer dealt pretty fully with the subject, and explained how certain seeds were adapted for transportation by natural and varied means, such as by sea, by wind, by floods, animals, &c. Many plants, too, were capable of distributing their seeds over a more or less wide area without any external help whatever. The squirting Cucumber may be instanced, and it was one of the plants to which attention was drawn by Prof. Boulger.

NATIONAL CARNATION & PICOTEE (Southern Section).

JULY 31.—The twenty-third annual exhibition of this Society took place at the Crystal Palace on the above date. The dry weather has acted unfavourably on the flowers, especially those from the south, from which most of the blooms at this exhibition are drawn; and not only were the blooms generally small and thin in petal, but they lacked purity of the ground colour. The selfs, yellow-grounds, and fancies, larger in size, and later in blooming, were shown in much better form. What is required is two separate exhibitions, with an interval of about ten days between them; the first for the white-ground bizzarres, flakes, and Picotees; the other for the later selfs, &c.; but this would be, perhaps, difficult of arrangement. The heat was very great, even in the spacious Palace.

Judging from the length of unoccupied tables, many would-be exhibitors were unable to be present. The blooms lost much from the large size and the colour of the tables; and from their being undraped. There was a decided want of effective arrangement of the exhibits, which is, perhaps, inseparable from the kind of table employed. An attractive feature of the show was the decorated dining-tables, eight of which were provided, but seven only were covered. It is a vexatious matter to managers of shows when an entry of this sort fails, an empty table detracting from the harmony of the whole. Some of the tables were in the full sunlight, an accident which ought to be avoided in the future. The important task of selecting the premier blooms was delayed until the afternoon, but this selection should certainly be done before any adjournment to luncheon.

BIZZARRES AND FLAKES.

Despite the great heat, there were seven stands of twenty-four blooms competing, and the task of making up this number of flowers was rendered all the easier as there was to be not fewer than twelve dissimilar varieties. The 1st prize was awarded to Mr. MARTIN ROWAN, Manor Street, Clapham, who grows his flowers very near to the Clapham Station of the L. C. & D. Railway. He had, for the season, pure and well-marked blooms of S.B.'s, Admiral Curzon, Robert Houlgrave, and Robert Lord; C.B.'s, J. S. Hedderley and W. Skirving; S.F., Sportsman and Thetis; R.F., Mentor, John Buxton, and Mrs. Rowan; P.F., James Douglas, Gordon Lewis, and George Melville. Mr. C. TURNER, Royal Nursery, Slough, came 2nd, with larger and fuller flowers, but some of them a little passed; he had of S.B.'s, R. Houlgrave, Duke of York, and Admiral Curzon; C.B., Arline, Thaddens, and Master Fred; P.F., C. Henwood and Prince George of Wales; S.F., Guardsman; and R.F., Mrs. Rowan.

SELFS.

There were eight stands of twenty-four selfs, not fewer than twelve dissimilar. Mr. C. BLICK, gr. to M. R. SMITH, Esq., Hayes Common, Kent, took the 1st prize, with some highly-developed blooms; of yellows, Cecilia, Miss Edith Harbord, and Michelet; white, Ensign (very fine), Much the Miller, and Helmsman; bluish and pink, Blushing Bride, and Her Grace; buff, Benbow, Rose, Bomba, Mrs. A. Gilbey, Commander, and Conqueror; crimson, Etna and Dudley Stuart; maroon, Sir Bevy's, Kara, Proserpine, and Agnes Sorrel. Mr. C. TURNER came 2nd also with some very good blooms, chief among them Agnes Sorrel, Zachara, Zampa, Much the Miller, Mrs. Buchanan, Anna Boleyn, Miss Julia Harbord, and Benbow; Mr. J. DOUGLAS was 3rd.

FANCIES.

A Fancy Carnation is anything which may not compete in the two foregoing classes. With twenty-four blooms, in not fewer than twelve varieties, Mr. BLICK was again 1st, also with very fine flowers, chief among them, Lily Duchess, Monarch, Goldlocks, Bedemere, deeply edged with crimson maroon; Agalis, Falka, The Dey, Electra, Galileo, deeply edged with crimson-purple; Guinivere, delicate amber, flaked with pale and deeper pink; Heroine, Alexandra, Queen Beas, Hidalgo, Cervantes, clear yellow, with slight pencilled lines of carmine; Ossian, Voltaire, Chas. Martel, yellow veined, and pencilled with carmine, &c. 2nd, Mr. C. TURNER, who had very good blooms of the following: Vespasian, Lady Bristol, Palemon, Golden Eagle, Galileo, Pagan, Potentate, Hesperia, &c.

Picotees, white ground.—With twenty-four blooms, not less than twelve distinct, Mr. TURNER was first, having fairly good flowers but showing stress of weather; among them were red Etna, Heart's Delight, and Mrs. Gorton; P. E. Mary; Rose E. Favourite, Lady E. Vander Weyer, Madame Ritcher, Duchess of York, Little Phil, and Mrs. Payne. 2nd, Mr. W. ROWAN, who had as his best flowers, Little Phil, Lady Louisa, Miriam, Nellie, and Morina.

Yellow ground.—With twelve blooms in not less than six varieties, Mr. BLICK was 1st with very good blooms of Argosy, Badminton, Dinorah, Duke of Alva, Anthos, Fenella, Empress Eugénie, Lady Bristol, Childe Harold, a perfect yellow-ground Picotee, having a wire edge of rose-red; Busy Body, and Alcimus. Mr. C. TURNER was again 2nd, having in good character, Anther, Lady Bristol, Onda, Galatea, Volage, and Hesperus.

A class for six blooms of any variety of self Carnation was a happy innovation, and out of eleven competitors, Mr. F. A. WELLESLEY, Woking, was 1st with the fine white self, Mrs. Eric Hambro; Mr. C. PHILLIPS, Blacknell, Berks, was 2nd with a yellow self—probably Britannia; Mr. J. DOUGLAS coming 3rd with Trojan, also a white self.

The best six blooms of any variety of Fancy Carnation came from Messrs. THOMSON & Co., Sparkhill, Birmingham, who had Voltaire in fine character; Mr. F. A. WELLESLEY came 2nd with Monarch, and Mr. BLICK 3rd with Hidalgo.

The best six blooms of a yellow-ground Picotee were those of Lady St. Oswald, from Mr. C. BLICK; Messrs. THORNTON & Co. came 2nd with Golden Eagle.

Single Blooms.—Scarlet Bizzarres: 1st and 2nd, Mr. J. J. KEEN, Southampton, with Admiral Curzon; 3rd, Mr. C. TURNER, with Robert Houlgrave; and 4th, Mr. R. SYDENHAM, Birmingham, also with Admiral Curzon. Crimson Bizzarres: 1st, Mr. C. F. THURSTON, Wolverhampton, with J. S. Hedderley; and 2nd, with Master Fred; 3rd, Mr. R. C. CARTWRIGHT, Birmingham; and 4th, Mr. R. SYDENHAM, both with Master Fred. Pink and purple bizzarres: 1st Mr. R. SYDENHAM, and 2nd, Messrs. THOMSON & Co., with William Skirving; Mr. THURSTON was 3rd, with Sarah Payne, and Mr. SYDENHAM 4th, with Arethusa. Purple flakes: Mr. R. C. CARTWRIGHT was 1st and 3rd, Mr. SYDENHAM 2nd, and Messrs. THOMSON & Co. 4th, all with Gordon Lewis. Scarlet flakes:

a very fine scarlet flake named John Wormald won all four prizes; Mr. R. C. CARTWRIGHT was 1st and 2nd, and Mr. R. SYDENHAM 3rd and 4th. Rose flakes: Messrs. THOMSON & Co. were 1st and 2nd, with a new variety named Merton; Mr. C. F. THURSTON was 3rd, with Mrs. Rowan.

Selfs.—The best white, a grand flower, was named Ensign, from Mr. BLICK; Mr. A. W. JONES came 2nd, with Dick Donovan; Mr. C. F. THURSTON was 3rd, with the same; and Mr. R. C. CARTWRIGHT 4th, with Ibis. Rose: 1st, Mr. SYDENHAM, with Exile; 2nd and 3rd, Mr. BLICK, with Anne Boleyn. Scarlet: The Sirdar was placed 1st, from Mr. R. SYDENHAM; Mr. THURSTON was 2nd and 3rd, with Mrs. J. Douglas; and Mr. BLICK 4th, with Burma. Maroon: Mr. BLICK came 1st, with Sir Bevy's; Mr. C. PHILLIPS was 2nd, with a flower unnamed; and Mr. R. SYDENHAM 3rd, with Highgate (?). Yellow: Mr. R. C. CARTWRIGHT was 1st and 2nd, with Lady Dora; and Mr. BLICK 3rd, with Cecilia. Buff: Mr. BLICK was 1st, with Benbow, a decided acquisition of this colour; Messrs. THOMSON & Co. were 2nd and 3rd, with Mrs. Colby Sharpin. Yellow ground: 1st, Messrs. THOMSON & Co., with Voltaire; Mr. C. TURNER, was 2nd, with Vespasian; and Mr. CARTWRIGHT 3rd, with the same.

Other Fancies.—Mr. A. R. BROWN, Handsworth, Birmingham, was 1st and 2nd, with Artemis; Mr. BLICK 3rd, with Black Prince.

PICOTEES.

H. R. E.: 1st, Mr. R. SYDENHAM, with Isabel Lakin; 2nd, Mr. R. C. CARTWRIGHT; and 3rd, Mr. J. J. KEEN, with John Smith; 4th, Messrs. THOMSON & Co., with Isabel Lakin. L. Red E.: 1st, Mr. BLICK, with Thomas William, and 2nd, with Mrs. Gorton; the latter, shown by Messrs. THOMSON & Co., was 3rd; and Mr. C. TURNER 4th, with Acme. H. P. E.: 1st and 2nd, Mr. R. SYDENHAM, with Miriam; 3rd and 4th, Mr. THURSTON, with Amelia. L. P. E.: 1st, Mr. R. SYDENHAM; and 2nd, Mr. F. A. WELLESLEY, with Harry Kenyon; and 3rd, Mr. C. TURNER, with Seedling H. Rose E. A variety named Mrs. Foster was placed 1st and 2nd, but no exhibitor's name was given—it was probably from Mr. T. LORD; Mr. A. R. BROWN was 3rd; and Mr. F. A. WELLESLEY 4th, with Madeline, L. Rose E.; Mr. R. SYDENHAM was 1st with Fort-rose; and Mr. THURSTON 2nd with the same; Mr. TURNER coming 3rd and 4th with Seedlings. Yellow-grounds H. E.: Mr. BLICK was 1st with Gertrude, and 2nd with Aldebaran; Mr. R. SYDENHAM 3rd; and Mr. KEEN 4th, with Mrs. R. Sydenham. Yellow-ground L. E.: 1st, Mr. BLICK, with Childe Harold, and 2nd with Speranza; Mr. WENT was 3rd with Mrs. Douglas; and Mr. C. TURNER 4th with Fanforela.

Premier Blooms.—Bizarro: C. B. Master Fred, from Mr. R. C. CARTWRIGHT; Flake: S. F. John Wormald, from Mr. R. SYDENHAM; Self: Ensign, white, from Mr. C. BLICK; Fancy: Hidalgo, from Mr. BLICK; H. E. Picotee Lady Louisa; H. Rose, from Mr. M. ROWAN; L. E. Picotee Fort-rose, from Mr. R. C. CARTWRIGHT; yellow-ground Picotee Gertrude, from Mr. C. BLICK; L. E. Childe Harold, also from Mr. BLICK.

White-ground Carnations.—There were six exhibitors of twelve Carnations, bizzarres and flakes; and Messrs. THOMSON & Co., who showed uniformly good flowers in all the classes, were 1st with P. F. Gordon Lewis, S. F. John Wormald, P. P. B. Wm. Skirving, R. F. Mrs. Rowan, C. B. J. S. Hedderley, P. F. James Douglas, R. F. Merton, C. B. Master Fred, C. B. Martin Rowan, S. B. R. Houlgrave, C. B. R. Bealey, and S. F. Sportsman; Mr. R. SYDENHAM was 2nd, having in good character S. F. John Wormald, C. B. Lord Salisbury, P. F. Gordon Lewis, C. B. Master Fred, P. P. B. Sarah Payne, and S. F. Guardsman; 3rd, Mr. C. PHILLIPS, Bracknell. Selfs: with twelve selfs, Messrs. THOMSON & Co. were 1st out of nine competitors, having Exile, Britannia, J. Douglas, Mrs. E. Hambro, Miss A. Campbell, Seagull, Nabob, Mancunian, Dick Donovan, &c.; 2nd, Mr. C. PHILLIPS with Nabob, Britannia, Mrs. A. J. Palmer, and Seedlings.

Fancies.—1st, Messrs. THOMSON & Co. having in good character Voltaire, Monarch, Golden Eagle, The Imp, The Gift, Eldorado, Gossip, Romance, Ladas, &c.; 2nd, Mr. C. PHILLIPS, whose leading blooms were Don Juan, Cardinal Wolsey, Czarina, Romulus, The Gift, Brodrick, &c.; 3rd, Mr. F. A. WELLESLEY.

White Ground Picotees.—Once more Messrs. THOMSON & Co. came to the fore with twelve blooms, having H. P. E. Amy Robsart, L. P. E. Mrs. Gorton, L. P. E. Pride of Leyton, H. red E. Brunette, L. ro. E. Favourite, H. red E. Isabel Lakin, H. P. E. Miriam, H. P. E. Mrs. Openshaw, L. ro. E. Fortrose, L. P. E. Elizabeth, H. ro. E. Mrs. Payne; 2nd, Mr. F. A. WELLESLEY, whose best blooms were H. ro. E. Clio, L. P. E. Jessie, L. P. E. Her Majesty, L. P. E. Pride of Leyton, and H. ro. E. Little Phil.

Yellow Grounds.—The best six blooms were also from Messrs. THOMSON & Co., who had in good character Empress Eugénie, Gossip, Badminton, May Queen, Doris, and a seedling; Mr. F. A. WELLESLEY was 2nd.

None of those showing in the previous division could compete in this, which is a wise arrangement, as it gives the growers of small collections an opportunity to come to the fore as 1st prize winners, which is the natural ambition of every grower for exhibition.

White-ground Carnations.—Mr. R. C. CARTWRIGHT, of Birmingham, took the 1st prize, having S. F. John Wormald, C. B. J. S. Hedderley, C. B. Master Fred, P. F. Gordon Lewis, &c.; 2nd, Mr. A. R. BROWN, his leading blooms being C. B. Lord Salisbury, R. F. Merton, and S. F. Sportsman; 3rd, Messrs. W. FENWERTON & SONS, Walsall. There were fourteen stands in this class.

Self.—In the class for six varieties there were twenty-two exhibitors, Mr. R. C. CARTWRIGHT again taking the 1st prize with *Her Grace*, *Minerva*, Mrs. J. Douglas, *Regina*, Mrs. E. Hambro, and *Endymion*; 2nd, Mr. A. CHATWIN, who had much the same varieties; 3rd, Mr. A. R. BROWN.

Fancies.—There were eighteen stands of six fancies, Mr. S. A. WENT, Thames Ditton, taking the 1st prize, with *Persens*, *Carina*, *Brodrick*, *March*, *Olivia*, and *Dervish*. Mr. A. R. BROWN was 2nd; and Mr. R. C. CARTWRIGHT, 3rd.

Picotees, white-grounds.—Messrs. W. PEMBERTON & SON came 1st with six blooms, having H. ro. E. Little Phil, L. ro. E. Favourite, L. red E. Mrs. Bower, H. P. E. Amy Robert, H. ro. E. Clio, and H. red E. Isabel Lakin.

Yellow-grounds.—With four blooms, Mr. A. R. BROWN took the 1st prize, having *Voltaire*, *May Queen*, *Dervish* and *Lada*; Mr. A. H. BRADLE, Sydenham, was 2nd; and Mr. A. SPURLING, 3rd.

S&S.—With three blooms of one variety, Mr. CARTWRIGHT was 1st with *Regina*, yellow; Mr. A. R. BROWN, 2nd, with *Dick Donovan*, white; and Mr. WENT, 3rd, with Mrs. E. Hambro, white.

Fancies.—The best three of one variety were Brodrick, from Mr. S. A. WENT; Mr. A. R. BROWN came 2nd, with *Eldorado*; and Mr. CARTWRIGHT, 3rd, with the same.

Yellow-grounds.—The best three blooms of a Picotee were those of Mrs. Douglas, from Mr. H. W. SELLEM; Mr. CARTWRIGHT came 2nd with *May Queen*; and Mr. J. J. SHELTON, 3rd, with *Eldorado*, which was also shown in the previous class as a fancy.

Exhibits without Dressing or Cards.—There were eight classes for these, the blooms shown in twelves, sixes, and threes, and mainly in bottles, each flower having a spray of Carnation foliage backing it. Some of the blooms were named, and some not. Those named were mainly repetitions of those shown in previous classes. It was to be noticed that but very little public interest seemed to be aroused over these classes. Those having the dressed blooms are always the most attractive, no doubt because the possibilities of the flowers are brought out to their utmost. There is a great deal of truth in the remark of an old florist, made fifty years ago, that "he who can dress flowers well—that is, fairly—has a better chance of winning prizes, than he who cannot." There was also a class for those who had never won a prize at the exhibitions of the Society.

Plants in Pots.—The best twelve were staged by Mr. BLICK, finely grown and bloomed, the leading varieties, *Hesperus*, *Alecinous*, *Agnes Sorrel*, *Goldylocks* (delicate salmon-buff, heavily edged with bright red), *Lucella*, &c. Mr. JAMES DOUGLAS was 2nd. Mr. BLICK had the best single specimen; and Mr. DOUGLAS the next.

Groups.—In the class for a large group, Mr. BLICK made an effective display, with finely-grown and bloomed plants of fancies and selfs, finishing his group by an edging of Ferns. Mr. T. CARRUTHERS, Reigate, was 2nd; and Mr. C. TURNER 3rd. The latter had decidedly the best plants, but the flowers had suffered from the long, close journey from Slough to Sydenham. With a smaller group, Mr. J. DOUGLAS was 1st, and Mr. E. CHARRINGTON, Chislehurst, 2nd.

Table Decorations.—These consisted of dinner-tables for twelve persons arranged for flowers by Miss and HENRY ANSTEV, Knight's Hill, who had three centre pieces arranged with yellow Carnations and foliage. The MORTON STOVES, LTD., came 2nd, with Miss Jolliffe Carnations and foliage; and Mr. J. DOUGLAS 3rd, with a bright combination.

Mrs. HEDLEY, Reigate, had the best vase of Carnations; Mr. A. C. CHARRINGTON was 2nd; and Mr. H. ROGERS, Woodbridge 3rd. Sprays and button-holes were also shown, some of the former rather uncouth in appearance.

In the way of miscellaneous collections, Messrs. W. OUTBUSH & SON, Highgate, had a large group of Malmesdon and other Carnations. Mr. FORSTER, the manager of the Brockhampton Nurseries, Havant, had a large and imposing collection of Sweet Peas; and Mr. G. W. PIPER, Uckfield, blooms of his fine new Tea Rose, *Sunrise*.

DEVON AND EXETER GARDENERS.

The following notes of two interesting gardens in East Devon were taken on the occasion of the annual outing of this Society that occurred recently:—

STRETTE RALEGH, the seat of Mr. H. M. Imbert-Terry.—The estate at one time belonged to the Buller family, and when, about fifty years ago, Mr. Wentworth Buller owned it, he planted in the parks and woods many rare trees. Before the property came into possession of Mr. Imbert-Terry, the estate was much neglected, and it is only within recent years that many fine and rare specimens of Conifers have been given breathing-space by thinning the rank underwood and surrounding trees.

Among the trees pointed out to us by the owner, who showed an intimate knowledge of them, was *Larix Griffithi*, about 30 feet high, and about thirty years old. It is a stately and picturesque specimen, and is in full vigour from the leader to the ground. There is a specimen of this variety at General Trelawney's, Coldrenick, in Cornwall, but it has not the fine proportions of the tree at *Strette Raleigh*, which is probably the best specimen in the country. Another fine specimen is a *Saxo-Gothæa conspicua*, which is probably the only arborescent specimen in this country. Near by was a handsome spreading *Taxus Brunonioides*, planted about fifty years ago, and now about 40 feet in height. A splendid specimen of *Pinus Monterumæ* was much admired; it was

about 40 feet in height, and was planted in 1850. This year it coned, but a gale blew the cones off prematurely. A fine Fern-leaved Oak was noted; *Pinus australis*, 30 feet; *Cupressus macrocarpa* (C. *Lambertiana*), 60 feet, and at least 35 feet through; *Abies concolor* (A. *lasiocarpa*, A. *Lowiana*, and A. *Parsonii*), a good A. *nobilis*, a very fine *Cedrus atlantica* of the glaucous-leaved variety, with a rare trio of *Araucaria imbricata*, whose long, pendulous branches, healthy, and dark glossy-green, swept the turf. Last year one of them, a female tree, bore a male cone. The trees are in fruit now.

LIDBURY MANOR, the seat of Sir Charles Cave, Bart., the gardener being Mr. J. Reynolds. Although the farm on the estate dates back to early in the seventeenth century, the mansion, the drives, and the glass-houses are all modern, and the buildings have been constructed on the latest principles. On the lawn is a fine clump of *Arundinaria anceps*, 10 feet high, and 12 feet to 15 feet through; a tree of *Eucalyptus Gunnii*, of 85 to 40 feet; *Paulownia Imperialis*, just gone out of flower, and surrounded at the base by a mass of the white Rose *Almée Vibert*; *Cedrus Deodara*, and *Pinus Pinsapo*, not large, but grand in foliage, and very handsome.

On the terraces were nicely-trained standard *Heliotropes*, 4 feet in height, springing out of circular beds of *Marigold Legion of Honour*. The Grapes in the vineries were very good. In the conservatory was a fine bank of *Adiantum*, and over a trellis on the terrace was the *Rosa simplex*, doing well. The vegetable garden was in fine condition, and the place generally had the appearance of being under able and judicious management. There are about a dozen men employed under Mr. Reynolds. When the improvements are completed, *Lidbury Manor* will be a very fine place.

CARDIFF HORTICULTURAL.

JULY 19, 20.—The eleventh annual show was held in the Sophia Gardens, Cardiff, in beautiful weather. As is usual at Cardiff, the groups of miscellaneous plants and the table decorations were the principal attractions of the show, and the table exhibits, which are becoming every year more numerous and interesting. In the cut flower section, *Roses*, which are usually very good at this show, were decidedly inferior—undoubtedly owing to the climatic conditions prevailing during the last two months. Sweet Peas were conspicuously to the fore, the display of these lovely flowers excelling anything ever seen before at Cardiff.

Fruit and vegetables were not more than usually good, and need no special remark.

GROUPS.

In the open class a prize of £12 for the best group of miscellaneous plants arranged for effect within a space of 100 feet was won by Mr. J. CYFRER, Cheltenham. This group, in shape a parallelogram, was arranged in that airy style peculiar to Cypher's exhibits, and which has gained for him all over the country so many premier prizes. In this particular group a light cork bridge-like structure, surmounted by a Palm, which rose gracefully and magnificently, formed the centre piece, while at the four corners were pedestals of rockwork covered with Ferns, *Cattleyas*, &c., upon which were fine specimens of *Humea elegans*. The rockwork forming the base of the entire group was planted with miniature *Cedrus* of excellent colour, small Palms, *Eulalias*, Ferns, &c. Mr. RALPH CROSSING, nurseryman, Penarth, took 2nd place with a nicely arranged group, in which *Lilium auratum*, *Francas*, *Bamboos*, and dwarf large-flowered *Cannas* were conspicuous—the latter being seedlings of his own hybridizing.

For the best group occupying a space of 40 square feet, Mr. W. CARPENTER, gr. to W. BUCKLEY, Esq., Llanelly, was 1st with a very tastefully arranged exhibit composed of well-grown *Humeas*, *Acalypha hispida*, *Liliums*, &c. J. RUTHERFORD, Esq., Llandaff, was 2nd. Mr. REX, gr. to C. WALDRON, Esq., Llandaff, took the 1st prize for the best group occupying the 25 square feet.

STOVE AND GREENHOUSE PLANTS.

For the best six stove or greenhouse plants in bloom, Mr. LOCKYER, gr. to J. C. HANBURY, Esq., Pontypool Park, won 1st prize, with particularly fine specimens of good species.

A. T. ROBINSON, Esq., Whitchurch, took the 1st prize for the best single specimen plant in bloom.

Mr. CARPENTER, Llanelly, carried off 1st prize for the best six stove or greenhouse Ferns, with splendid specimens of *Adiantum gracillimum*, A. *Williamsii*, *Microlepia hirsuta cristata*, *Dicksonia antarctica*, and *Cyathea dealbata*.

In the open class for six *Fuchsias*, Mr. HILLARD, an amateur, won 1st prize.

CUT FLOWERS AND DECORATIVE CLASSES.

In the *Rose* section Mr. RALPH CROSSING took the 1st prize for twelve varieties of H.P. *Roses*, three blooms each. The varieties were *Victor Verdier*, *Ulrich Brunner*, *Victor Hugo*, *Jean Souper*, Mrs. John Laing, *Fisher Holmes*, *Horace Vernet*, A. K. Williams, *Heinrich Schultheiss*, *Alfred Colomb*, *Duchess of Bedford*, and *Duke of Wellington*.

For Tea *Roses*, twelve varieties, three blooms each, Mr. JOHN MATLOCK, of Oxford, beat Mr. PRINCE, also of Oxford. Messrs. TOWNSEND & SONS, Cirencester, were the winners of a class for twenty-four H.P. varieties.

For twelve distinct varieties of Carnations and Picotees, Mr. W. TRESEDER, Cardiff, was 1st, and also for an exhibit of Carnations arranged for effect.

In the competition for a collection of hardy flowers in varieties, Mr. W. TRESEDER was 1st, and Mr. GODFREY, Exmouth, 2nd.

For the decorative and dessert tables the chief award in the open section went to Messrs. CARR BROS., Cardiff, for a beautiful table showing grand fruit, with a lovely floral effect of Iceland Popples in two shades of colour. Mr. A. E. PRICE, Cardiff, was 1st for the hand-bouquets; and was the winner of the Silver Medal of the Royal Horticultural Society offered to the winner of the largest aggregate of prizes in the decorative classes.

TRADE EXHIBITS.

Mr. WILLIAM TRESEDER, Cardiff, made a very pretty exhibit of a collection of plants extending the whole width of the end of the group-tent. The irregularity and informality of its formation was exceedingly pleasing. In the foreground were Carnations, *Lilium speciosum*, *Humeas*, and bunches of Sweet Peas emerging out of the damp rock and Moss which were used as a groundwork, giving in combination an air of coolness to a pretty scenic effect. Mr. TRESEDER very deservedly was awarded a special prize and a medal for this valuable contribution to the show.

Messrs. CURTISH & SONS, Highgate, London, showed a splendid collection of Ivies, forty-five distinct varieties in baskets.

Messrs. ECKFORD of Wem, JONES & SONS of Shrewsbury, and DAVIES of Yeovil, showed very beautiful collections of Sweet Peas, which added much to the attractiveness of the show.

H. A. P.

THE PEOPLE'S PALACE HORTICULTURAL.

JULY 21 to 22.—This exhibition was one of the best the Society has hitherto held, the Queen's Hall was full of exhibits, and a very large number of plants contributed by the children in their section, found a place in the Winter Garden.

On the previous Saturday, the flower gardens in the more crowded districts were judged, and some very pretty and neat ones were seen in unexpected localities. Those who reside in the crowded parts compete in a section apart from those who live in the more open parts of the district.

The improvement in the plants and cut flowers was remarkable. Chief among flowering plants were *Fuchsias*, zonal *Pelargoniums*, *Plumbago capensis*, *Lilium Harrisonii*, and *Begonias*. The leading foliage plants were *Latania*, *Kentia*, *Ficus elastica*, *Aspidistra*, *Dracaena*, &c. One exhibitor in the class for a flowering plant, had an excellent example of *Peacock Fancy Dahlia*, growing in a large pot, carrying some remarkably good blooms. Sweet Peas made a very pleasing feature, being shown as light and elegant bunches, arranged with their own foliage. There were collections of vegetables also, and many good Cucumbers and pretty table decorations.

The President of the Society, the Duke of Fife, furnished a fine group of plants; and a superb collection came from Mr. GRO. REYNOLDS, of Gunnersbury Park. There were also interesting collections of cut flowers, *Cacti*, &c. In the evening, the Duke and Duchess of Sutherland attended and inspected the exhibition, where there was a large concourse of members and their friends, who gave them an enthusiastic welcome. The Saturday's attendance for the show, continued over three days, is always a very large one, the admission being one penny.

MEARNS ROSE.

JULY 21.—The third annual show of this Renfrewshire society turned out a great success.

Roses.—There was a considerable increase in the number of entries, while the quality of the flowers of both *Roses* and *Pansies* was above the average. In the open class for forty-eight blooms of *Roses*, Messrs. CROALL, of Dundee, were 1st. They also led the way with twenty-four Teas and twelve blooms of one variety, the latter being very perfect specimens of Mrs. J. Laing. For twelve blooms Messrs. A. DICKSON & SONS, Newtonards, were 1st, the same firm coming 2nd for forty-eight with a very fresh stand of richly coloured and well-formed flowers. Messrs. HUGH DICKSON were also successful competitors for *Roses*, and were 1st for twelve blooms *Begonias*.

In the gardeners and amateurs class, Mr. MELVILLE, gr. at Hazelden, succeeded in winning 1st for twenty-four blooms, *White Lady*, *La France*, *Caroline Testout*, and A. K. Williams being of remarkable merit. He was closely followed by Mr. PARLANE, of Paisley, with Mr. JOHN RUSSELL, The Mearns, making a good 3rd.

In the *Pansy* and *Viola* section Mr. SMELLIE, of Busby was the leading prize-winner with flowers of great size and substance, and wide range of colour, *Pansy* blooms of seedlings, Mrs. W. J. Cupples and W. J. Cupples, being specially fine. Messrs. BROWN, of Blantyre, and Mr. FAISLEY of East Kilbride, were also in the winning lists with capital stands. Of exhibits not for competition, Mr. CAMPBELL, of High Blantyre, was awarded a Certificate of Merit for a fine display of over 100 blooms of Carnations and Picotees, and sprays of *Pompon* and *Cactus Dahlias*. Mr. MICHAEL CUTHERBERTSON, of Rothessay, was also an extensive exhibitor of herbaceous flowers for which he was awarded a Silver Medal. In this stand was a very handsome spike of *Lilium Martagon damiatum*. Mr. CUTHERBERTSON also exhibited his new seedling herbaceous *Eurothera Cuthbertsonii*.

This society during its brief career has been well managed and liberally supported, and there is every prospect of its annual shows becoming a very important event in the Rose world.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JULY 20.—On the occasion of this meeting, THOS. STATTER, Esq., Stand Hall, Whitefield (gr., Mr. Johnson), exhibited a very handsome form of *Lælio-Cattleya Canhamiana* alba, to which an Award of Merit was made. The sepals and petals are of French white, and the flower is of nice appearance.

G. SHORLAND BALL, Esq., Wilmalaw (gr., Mr. Gibbons), showed a very good *Cypripedium* cross which the Committee decided to be between *C. Rothschildianum* and *C. selligenum*, partaking of the finest points of both parents (Award of Merit).

JOHN LHEMANN, Esq., West Bank, Heaton Mersey (gr., Mr. Edge), exhibited a few plants, including a very fine *Lælia xanthina*, to which an Award of Merit was made; as also to *Lælia* × *Cattleya radiata*, an interesting hybrid between *Lælia purpurata* × *Cattleya nobilior*. A step in the right direction has been made here, as we have the dwarf growth of *C. nobilior* combined with the floriferousness of *Lælia purpurata*.

S. GRATRIX, Esq., Whalley Range (gr., Mr. McLeo), had, without doubt, the best exhibits at the meeting, including a fine form of *Cattleya Gaskelliana* alba, F.C.C.; a plant of *Cypripedium callosum* var. *Sanderi* raised from seed in this country, F.C.C.; and a very interesting crossbred *Cypripedium* Prince Edward of York, having for its parents *C. Rothschildianum* and *C. Sanderianum*, the flower having much resemblance to the latter: A.M. The best plant in the exhibit was *Cypripedium* × *Jansonii*, the parents of which are *C. Rothschildianum* × *C. Morganii*, its flower, a very fine one, in some particulars reminiscent of *C. Strel* var. *platyzelium*, and Mr. GRATRIX preferred the Committee not to vote upon it until he exhibited the plant in a perfect state.

The Venerable Archdeacon RAWFORD sent a form of *Cattleya gigas Sanderiana*, which received an Award of Merit.

JOHN RICHARDSON, Esq., Halecroft, Altrincham, showed cut flowers of a grand form of *Sobralia xantholeuca*, one of the best; it is very fragrant. Messrs. F. SANDER & CO., St. Albans, showed three cross-bred *Cypripediums*, viz., *C. x Premier* = *C. Beechense* × *C. Rothschildianum*, Award of Merit; *C. Garbati* = *C. Lawrenceanum* × *C. Rothschildianum*; and *C. Lord Derby* = *C. Veitchii* × *Rothschildianum*; the latter was not so good a flower as the original possessed by Mr. Statter.

Messrs. HEATH & SON, Cheltenham, staged the pretty and interesting little *Dendrobium Fytchianum*, and a crossbred *Cypripedium* called *C. x pendulum*, having for its parents *C. Haynaldianum* × *C. Argus* Moensii, of no particular merit.

Mr. JOHN ROBSON, Altrincham, exhibited *Cattleya Gaskelliana* var. *palida*; and a plant of *Odontoglossum Pescatorei*, of which the lip, with its pretty white marking, was the chief feature.

Mr. A. J. KEELING, Bingley, Yorks, exhibited a really good form of the rare *Cypripedium* × *Vipini*, a cross between *C. levigatum* × *C. niveum* and one of the oldest of the crosses of *niveum*. It received an Award of Merit. P. W.

NATIONAL DAHLIA.

JULY 25.—A meeting of the committee took place at the Horticultural Club on the above date, Mr. Ed. Mawley, Treasurer, in the chair.

The chairman made a feeling allusion to the death of Mr. T. W. Girdlestone, the President of the Society, and resolutions were passed by acclamation recording the deep sense of the members of the great loss sustained by the Society through his death, and affirming the fact that, as a raiser of Fancy single Dahlias, Mr. Girdlestone had placed the Dahlia-loving community under obligation to him. A suggestion made by Mr. Mawley, that some memorial of Mr. Girdlestone should be established, was referred to the Committee for consideration.

The Sub-Committee appointed to make arrangements for a second show to take place about the middle of September, announced that the same would be held at the Royal Aquarium on September 19 and 20; that a schedule of prizes had been prepared amounting to £22, all of which had been privately subscribed; the directors of the Royal Aquarium providing the necessary staging, &c. It was agreed that the schedule be printed and circulated, and that miscellaneous exhibits be invited so as to enhance the interest of the meeting.

THE EUCALYPTUS.

SOME interesting papers on *Eucalyptus* have recently appeared in the *Gardeners' Chronicle*, viz., one on March 18, by Dr. Bonavia, and another on April 3, by Mr. C. France. With your permission, I would like to make a few observations in regard to a few points touched upon in these letters.

Dr. Bonavia doubtfully quotes from an article in the *National Review* for February last, by H. C. Thomson, in which the writer says:—"Tasmania . . . in which it is difficult to feel ill, with *Eucalyptus* forests, in which fever cannot exist." This is mere drawing upon the imagination. In the *Proceedings of the Linnean Society of N. S. W.*, vii., 336, the late Rev. J. E. Tenison-Woods, one of our best naturalists, makes the following

statement. Speaking of *Eucalyptus crebra*, he says:—

"On the Peat Downs about Clermont and Copperfield it is especially plentiful, and all around the Hodgkinson Diggings. I mention this fact just to show that, whatever febrifuge properties the *Eucalypts* may possess, the mere presence of some species will not be enough to dissipate malarial. In the places I have mentioned fever and ague were common enough, yet the prevailing winds used to blow through hundreds of miles of these Gum-trees ere they reached the infected localities."

This is but one illustration, but it is very widely true. The good effects produced in planting this tree in malarial localities are mainly attributed to the power the rapid-growing species possess of absorbing moisture from the soil. The odour of *Eucalyptus* forests is not so great as many people imagine, and while breathing the pure air of the forest is undoubtedly beneficial to human beings, scientific men here never speak of it as a "fever-destroying tree." That is left to Italian and Californian friends, and we are glad that our national tree effects such cures in its new homes.

As to the suggestion made by Dr. Bonavia's informant, that flies do not alight on *Eucalyptus* leaves, I only wish it were true. We have countless numbers of *Eucalyptus* trees, and I am sorry to say we have far too many flies. These insects have no objection to perch on *Eucalyptus* trees.

Mr. France speaks of the extensive cultivation of *E. viminalis* in the Transvaal, and I know from other sources that he is correct in referring to this species. But it seems extraordinary to us to hear of *E. viminalis* being cultivated, as its timber is one of the most worthless of that of any of the *Eucalypts*. No one in Australia would dream of cultivating it for timber. I can only assume that rapidly-grown timber is required, irrespective of quality, for the Transvaal mines. It seems extraordinary to hear that *E. viminalis* timber is reputed to be tougher and more durable than that of *E. Globulus*. If that be really the case, it shows that the two species must have undergone alteration in their new home.

E. Globulus is a good second-class timber, one of the best produced by Tasmania and Victoria, but coming much lower down in the scale than such timbers as the Tallow-wood (*E. microcorys*), the Iron-barks, the Forest Mahogany (*E. resinifera*) of New South Wales, or the Jarrah of Western Australia. Timbers such as these are worthy of extensive planting; but planters must be content to pay a higher price for the seed than for such rapid-growing rubbish as *E. viminalis*, *E. amygdalina*, *E. piperita*, and some others readily bought by the unsophisticated. *Eucalyptus* seed should only be bought under some guarantee as to correctness of name.

Just another word in regard to Mr. France's observations re *Acacias*. *A. dealbata*, the Silver Wattle, is worthless as a tan-bark. The timber of *A. melanoxylon* (Blackwood) is excellent, but I never heard of the use of that of *A. decurrens* and *A. dealbata*, except for fuel, and the making of small articles which could be fashioned out of almost any other wood. In many treeless places, fuel is in great demand, and hence the value of rapid-growing *Acacias* and *Eucalypts*. J. H. Maiden, Government Botanist, and Director of the Botanic Garden, Sydney.

ENQUIRY.

GAS-MAKING AND PLANTS.—Mr. N. C. Shiach, Superintendent of a nursery, would be glad if information on the following matter could be kindly supplied by readers of the *Gardeners' Chronicle* having experience of the effects of gas-making on plants in the vicinity of the works. Will injury occur to Conifers, Roses, and general nursery stock situate near a gas-house? The Burgh Commissioners here (?) purpose erecting a gas-house, in which they intend to deal with the residual products of

gas. This, he expects will include the distillation of tar, &c. There are eight nurseries or market-gardens within a radius of 300 yards of the works, and the owners are alarmed at the prospect of having the gas-works so near to them, and are anxious to ascertain if damage has resulted to plants from gas-works, or good proof that no evils result from the same.

SEVERE THUNDERSTORM IN SOMERSETSHIRE.

—On the 22nd inst. the district of Bridgwater, in Somersetshire, was visited by a very severe thunderstorm, which was generally welcome after a somewhat prolonged drought. In the parish of Westonzoyleland, however, the storm was most furious, and accompanied by a strong easterly wind, wrought much damage. A contemporary estimates the injury to growing crops as equal to £1500.

MARKETS.

COVENT GARDEN, JULY 27.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms	3 0-4 0	Mignonette, dozen bunches	4 0-6 0
Asparagus "Fern," bunch	2 0-2 6	Orchids, per dozen blooms	2 0-15 0
Carnations, per dozen blooms	1 6-3 0	Pelargoniums, dozen bunches	4 0-6 0
Eucharis, per dozen	4 0-6 0	Roses indoor, per dozen	2 0-3 0
Gardenias, per dozen	1 6-2 6	— Red, per dozen	2 0-4 0
Lilium Harrial, per dozen blooms	3 0-4 0	— Tea, white, per dozen	2 0-3 0
Lilium longiflorum, per dozen	4 0-6 0	— Yellow, Perles, per dozen	2 0-3 0
Lily of the Valley, per dozen sprays	0 6-1 3	— Safrano, per dozen	2 0-2 6
Marguerites, p. dozen bunches	3 0-4 0	Smilax, per bunch	3 0-4 0
Maidenhair "Fern," per dozen bunches	4 0-6 0	Sweet Peas, dozen bunches	3 0-4 0
		Tuberose, 12 blms.	0 8-1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Foliage plants, var., each	1 0-5 0
Arborvitæ, var. doz.	6 0-35 0	Fuchsias, per dozen	4 0-6 0
Aspidistras, p. doz.	18 0-36 0	Heliotropes, per dozen	6 0-8 0
— specimen, each	5 0-10 6	Hydrangeas, p. doz.	6 0-10 0
Crotons, per dozen	18 0-30 0	Lilium Harrial, per dozen	18 0-24 0
Dracenas, var. doz.	12 0-30 0	Lycopodium, doz.	3 0-4 0
— viridis, per dozen	9 0-18 0	Marguerite Daisy, per dozen	6 0-9 0
Erica, var. per dozen	18 0-36 0	Myrtles, per dozen	6 0-9 0
Enonymus, various, per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var., per dozen	4 0-18 0	— specimen, each	21 0-63 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, scarlet, per dozen	4 0-6 0
— small, per 100	4 0-6 0		
Ficus elastica, each	1 6-7 6		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian and Victorian, French Crabs, Pearmaines, Sturmer, &c., per case	6 0-12 0	Grapes, Muscats, lb.	1 0-1 3
— English, Suffolk, sieve	3 6 —	— Denia, barrel	5 0-10 0
— Juneating, sieve	2 6 —	Lemons, Naples, per case of 300	10 0-12 0
— Jullens, bushel	5 0 —	— Murcia, case of 200	8 0 —
Bananas, per bunch	10 0-12 0	Lyches, Chinese, packet, 1 lb.	1 8 —
Cherries, cooking, per sieve	4 0-4 6	Melons, each	2 0-3 0
— white, " "	5 0 —	— Foreign Rock...	3 0-5 0
— Turkey, hearts, per sieve	7 0 —	Nectarines, per doz.	3 0-6 0
— Bigarreau, Napoleon, p. peck	10 0-12 0	Oranges, Murcia, various numbers, from 96 to 300	7 6-10 0
Figs, per dozen	1 0 —	Peaches, per doz.	8 6-12 0
Currants, blk., sieve	5 0-6 0	— Foreign, box, 12	1 6 —
— Red, sieve	5 0-6 0	Pears, Williams, 48, case	4 0 —
— White, gallon	2 6 —	Pines, St. Michaels, each	2 0-5 0
Gooseberries, sieve	2 0-2 6	Plums, Blue, sieve	6 3 —
Grapes, English, Hamburg, lb.	1 0-1 6	— Orleans " "	5 6-6 6
— Alicante, per lb.	1 0-1 6	— Violets " "	6 0-6 3
— Gros Colmar	1 3-1 9	— Gages " "	5 0-6 0
— Muscate, A., per lb.	1 9-2 0	— pads " "	2 0-3 3
— B., per lb.	2 0 —	Raspberries, per cwt.	38 0 —
— Belgian, per lb.	0 9-1 0	— punnets	5 0-6 0
— Channel Islands, Hamburg, lb.	0 10 —	Strawberries, in punnets, dozen	10 0-15 0
		Walnuts, green, jr. bushel	6 0 —
		— per sieve	8 0 —

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. ... 1 6 —	Lettuce, Cos, per dozen ... 3 0-4 0
Aubergines, doz. ... 2 6 —	Marrows, Veg., doz. bunches ... 1 0-2 6
Beans, English, Dwarf, per sieve ... 1 0-3 0	Mint, per dozen ... 3 0-4 0
— Broad Windsor, in bushels ... 1 6 —	Mushrooms, house, per lb. ... 1 3 —
— in bags ... 3 0 —	Onions, Egyptian, cwt. bag ... 3 6-4 0
— Scarlet Runners, per bush. ... 3 0-4 0	— Oporto and Valencia, cases ... 4 0-4 6
— per sieve ... 1 6-2 0	— new, bunches ... 4 0 —
Beetroots, new, doz. bunches ... 4 0-5 0	Parley, new, dozen bunches ... 3 0 —
Cabbage, tally ... 6 0-10 0	Peas, blues, per bushel ... 5 0-6 0
— dozen ... 2 0 —	— bags ... 5 0-6 0
Carrots, new English, per dozen bunches ... 1 3-3 0	Potatoes, various, per ton ... 80 0-100 0
Cauliflowers, dozen ... 3 0-4 0	Radishes, round, breakfast, per dozen bunches ... 1 6-2 0
Celery, new, per bundle ... 1 6 —	Salad, small, punnets, per dozen ... 1 3 —
Cress, per dozen punnets ... 1 6 —	Shallots, new, doz. bunches ... 1 6 —
Cucumbers, per doz. ... 2 0-3 0	Spinach, New Zealand, per peck ... 1 0 —
Endive, new French, per dozen ... 3 0 —	— sieves ... 2 0 —
Garlic, new, per lb. ... 0 3 —	Tomatoes, new English, per lb. ... 0 4 —
Horseradish, English, bundle ... 3 6 —	— Channel Islands, p. lb. ... 0 2-0 2 1/2
— loose per doz. fine ... 1 6 —	— French, crates, p. lb. ... 2 0-2 6
— foreign, per bundle ... 2 6 —	Turnips, new, per dozen ... 3 0-4 0
Leeks, new, per doz. bunches ... 2 6 —	Watercress, p. doz. bunches ... 0 6-0 9
Lettuce, English, Cabbage, dozen ... 2 0 —	

POTATOES.

Hebron, Puritan, Snowdrop, Up-to-Date, &c., 80s. to 100s. John Bath, 32 and 34, Wellington Street, Covent Garden.

REMARKS.—During the past week Runner Beans have been very plentiful, causing prices to drop. Although many gardeners cultivate more than one sort, one grower of high repute has this season 30 acres of Runners, consisting of Scarlet, White Blossom, and Painted Lady (red and white). Good Lettuces are very short in supply. The Denia Grapes in barrels are coming very good. They are packed in cork-dust. The Peas and Plums quoted in above table are foreign.

SEEDS.

LONDON: July 26.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report but little inquiry as yet for Trifolium incarnatum. French quotations are somewhat lower, whilst English samples come forward more freely. New home-grown Rye is now offering; yield and quality alike promise well. There is more business passing in sowing white Mustard. Rape-seed, moreover, keeps very steady. The Canary-seed market is strong, at the recent advance. Liverpool now quotes 39s. 6d. per quarter for Turkish seed. Hemp-seed, owing to its extreme scarcity, tends upwards in value. There is no alteration this week in either Peas or Haricots. The new Spanish Lentils exhibit very choice quality.

FRUIT AND VEGETABLES.

GLASGOW: July 26.—The following are the averages of the prices recorded since our last report:—Cherries, English, 6s. 6d. to 7s. 6d. per half sieve; Gooseberries, 9s. to 10s. per cwt.; do., Sulphur, 5s. per half sieve; do., Crown Bob, 2s. to 2s. 3d. per quarter sieve; Grapes, Guernsey, 6d. to 1s. per lb.; do., English, 1s. 3d. to 1s. 9d. do.; Greengages, 8s. to 3s. 8d. per round; do., Quentin, 8s. to 5s. and 2s. 6d. to 4s. per pad; Plums, 6s. per half sieve; Melons, Valencia, yellow, 24's, 6s. to 7s. per case; 30's, 6s. to 7s. do.; Peaches, home, 4s. to 8s. per dozen; Black Currants, French, £18 to £22 per ton; do., Dutch, £16 to £18, do.; Strawberries, Scotch (hampers), 2½d. to 3½d. per lb.; do., crates, 8s. 6d. to 5s. 6d. per dozen punnets; Tomatoes, Scotch, 5d. to 8d. per lb.; do., English, 4d. to 5d. do.; do., Guernsey, 3d. to 4d. do.; Valencia, 4s. to 5s. per case; Cucumbers, 3s. to 4s. 6d. per dozen; Peas, 3s. 6d. to 4s. per half bag; 8s. 6d. per bag; Cabbages, 1s. 6d. per dozen; Cauliflowers, Edinburgh, 2s. to 2s. 6d. per dozen; Onions, 4s. 6d. to 5s. per cwt.; Parsley, 1s. to 1s. 6d. per stone; Carrots, 9d. to 1s. per bunch; do., Dutch, 4s. to 5s. per hamper; Lettuces, round, 9d. to 1s. 3d. per dozen; do., Cos, 9d. to 1s. 3d. do.; Horseradish, 3s. per bundle; Mushrooms, 1s. to 1s. 3d. per lb.; Beetroots, 6d. to 9d. per dozen; French White Turnips, 8d. to 9d. per bunch; Scotch, 3s. 6d. to 4s. 6d. per dozen bunches; do., Irish, 6s. to 12s. do.; do., English, 1s. 6d. to 2s. per dozen; Marrows, 6d. to 8d. per dozen.

LIVERPOOL: July 26.—Wholesale Vegetable Market.—Potatoes, per cwt., Early Regents, 2s. to 2s. 6d.; Kidneys, 3s. 6d. to 5s.; Turnips, 6d. to 8d. per doz. bunches; do., Swedes, 2s. to 2s. 6d. per cwt.; Carrots, 6d. to 8d. per dozen bunches; Parsley, 6d. to 8d. do.; Onions, foreign, 2s. 6d. to 3s. 6d. per cwt.; Lettuces, 4d. to 6d. per doz.; Cucumbers, 1s. 8d. to 3s. do.; Cauliflowers, 1s. 9d. to 2s. 6d. do.; Cabbages, 8d. to 1s. 6d. do.; Peas, 2s. 4d. to 2s. 10d. per bushel; Beans, 1s. to 1s. 3d. do. St. John's.—Potatoes, 10d. per peck; do., new, 1d. per lb.; Grapes, English, 1s. 6d. to 3s. do.; do., foreign, 6d. do.; Pines, English, 4s. to 6s. each; Currants, red and white, 4d. per lb.; do., black, 5d. do.; Strawberries, 6d. to 8d. per lb.; Gooseberries, 3d. per quart; Peas, 1s. per peck; Cherries,

4d. to 8d. per lb.; Cobnuts, 6d. per lb.; Apricots, 1s. per dozen; Cucumbers, 3d. to 4d. each; Mushrooms, 1s. per pound and basket. Birkenhead.—Potatoes, 1s. 2d. per peck; Peas, 10d. to 1s. 2d. do.; Cucumbers, 2d. to 4d. each; Strawberries, 4d. to 6d. per lb.; Cherries, 6d. to 8d. do.; Currants, black, 4d. to 6d. do.; do., red, 4d. do.; Apricots, 1s. per dozen; Gooseberries, 2d. to 4d. per pound; Peaches, 3d. to 4d. each; Grapes, English, 1s. 6d. to 3s. per pound; Mushrooms, 6d. to 1s. do.

CORN.

AVERAGE PRICES OF BRITISH CORN (per imperial qr.), for the week ending July 22, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	38 1	25 5	- 12 8
Barley	25 0	21 10	- 3 2
Oats	20 10	18 0	- 2 10

ANSWERS TO CORRESPONDENTS.

BOOKS: H. J. C., Hyde. The Amateur Orchid Cultivator's Guide Book, by H. A. Burberry, price 5s. net, Blake and Mackenzie, Liverpool. Our Orchid calendar, which appears in every issue of the Gardeners' Chronicle, contains a quantity of information on current operations.

CARNATIONS: W. P. We cannot undertake to name florists' flowers. Send them to some large grower.

CARNATION SEEDLING: J. E. From the specimens received we should not judge the variety to be of uncommon merit. Compare it with a specialist's collection. Other answer next week.

CHERRY: T. G. R. Black Circassian.

DAHLIA: G. F. Union of two flower-heads is by no means uncommon.

ERRATA: "Hybrid Ferns," Gardeners' Chronicle, p. 62, for "percentage," read "parentage"; "confluent lips and sori infused pairs," and "asporogamic," read "confluent tips and sori in faced pairs," and "apogamic."

HOT-WATER AS A CURE FOR MILDEW AND AS AN INSECTICIDE: D. T. F. In face of the evidence brought under our notice it is impossible to doubt the efficacy of hot water as a cure for mildew. That water at a temperature of 150° will likewise kill scale of all kinds, thrips, aphids, &c., has long been known to gardeners. Water at 150° is not injurious to leaves, flowers, or fruits.

INSECTS: A. C. The specimens are quite dried, and also incomplete. Can you send fresh ones in a small bottle?

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—A. T. Dendrobium superbiens, a very showy and lasting species, and not common.—A. T. C. J. 1, Cheilanthes hirta; 2, send a mature fertile frond. Impossible to name a young frond from spore; 3, Gymnogramma ochracea; 4, G. calomelanos; 5, Nephrolepis cordifolia.—Nodol. 1, Equisetum arvense; 2, Cnothera Lamarckiana; 3, Salix rosmarinifolia; 4, Gleditsia inermis; 5, Cornus mas variegata; 6, Agrostemma coronaria.—J. S. Orchid, perhaps Gymnadenia conopsea.—Philodendrist. Lobed leaves are not uncommon in the Snowberry. The Elm is perhaps the Scamptum, but there are two or three similar.—R. E. Br. The Lily disease is occasioned by a fungus, Sclerotinia sp. 1, Hemerocallis fulva; 2, Helianthus rigidus; 3, Solidago sp.; 1, Fern, Pteris serrulata cristata; 2, Adiantum concinnum latum.—T. G. Cypripedium Parishi.—H. J. E. Cattleya Mendeli, so far as we can judge by the lip, which got discoloured in transit.—J. R. Cattleya superba and Maxillaria nigrescens. The other little species had lost all its flowers.—P. E., Romford. We cannot undertake to name florists' varieties of flowers.—Cambrian. 1, Sonchus oleraceus; 2, Polygonum lapathifolium; 3, Geranium molle; 4, not recognised; 5, Crepis hieracioides, vigorous; 6, Lamium purpureum. Have you been experimenting? The

plants are all out of character.—A. M. 1, Galega officinalis; 2, Veronica Teucrium; 3, Valeriana sp.; 4, Hyoscyamus niger; 5, Chrysanthemum Serotinum; 6, Monarda didyma; 7, Silphium sp.—W. T. Digitalis lutea.—S. J. Origanum dictamnus.—W. G. Davallia canariensis.—C. J. The whole of the names you give are good ones.

PEAR LEAVES: W. W. The injuries to the leaves are caused by the slug-worm, the larvae of the Pear saw-fly (Tenthredo cerasi). Fresh-slaked lime repeatedly dusted on the leaves will destroy the larvae, as will heavy syringings with the garden engine. In the winter, take away the surface-soil for 2 feet distant from the wall, and char or bury it deeply in a remote part of the garden.

PEA PLANTS GOING-OFF AT THE ROOT: W. R. and C., Ochertyre. The probability is that the land, through being constantly cropped with Peas and other legumes, is "Pea-sick," just the same as land becomes Clover-sick from carrying a succession of crops of that plant. Instead of top-dressing it with soot, which is merely a vehicle for conveying ammonia to the plants, afford it nitrate of potash three times during the growth-period, at tri-weekly intervals, and no other manure. The stable-manure you have hitherto afforded the land is useless, or worse, for Peas and Beans, the plants deriving their nitrogen from other sources than the soil.

RASPBERRY SEEDLING: A. C. The fruits are of good size, but does the variety possess merits superior to those of Superlative? You should exhibit fruits and cane before the Fruit Committee of the Royal Horticultural Society. Address, the Secretary, 117, Victoria Street, Westminster.

SECOND CROPS FROM FORCED STRAWBERRY PLANTS: W. R. and Foreman. That forced plants, if well taken care of after forcing, and planted out betimes on a warm border, will crop more or less satisfactorily in the months of September and October is a matter of common knowledge. We know of no variety that will not bear fruit if the cultivation is of a suitable kind.

STINKING FUNGUS: J. H. The fungus is probably the Stinkhorn, Phallus impudicus, which is not easily to be got rid of if the land be not cultivated. Try to extirpate the fungus by removing the soil, or by applying nitrate of soda 2 to 3 oz. per square yard, or even common salt to that amount once or twice in three months; that is, if trees or shrubs grow round about the spot.

VINE LEAVES INJURED: X. Y. Z. Not fungus, but "scalding," the result of faulty ventilation of the vinery. This mishap frequently occurs from not affording air early in the day, or on sudden outbursts of ardent sunshine. Afford air by degrees, beginning at 6.30 or 7 o'clock; and if the day be uniformly warm, let the maximum amount of ventilation be afforded by 11.30. Even where unripe Grapes are hanging, do not close the vinery on hot days before 3.30 P.M.

COMMUNICATIONS RECEIVED.—S. A.—G. M.—J. D. H.—J. C.—J. E. R.—C. B. P.—H. W.—E. V. B.—R. I. L.—F. W. B. G. C.—A. C., Verviers.—D. F. J. D. H.—W. M. W.—C. H. V.—Sander & Co.—M. C. H.—W. J. B.—H. F.—W. Cotterell.—T. E. Henwood.—A. O'N.—R. P. B.—T. M.—R. C. B.—S. H.—J. M. R.—M. H.—R. C. G. (next week). C. K.—M. W.—D. T. F.—J. O'B.—G. B. M.—H. W.—G. H. E. A. W.—R. D.—T. B.

SPECIMENS, PHOTOGRAPHY, &c., RECEIVED WITH THANKS.—N. C.—R. L.—M. G. H.—W. T. H.—Marsh (Henley).

DIED.—At his residence, Whinmoor Villa, Seacroft, suddenly, JAMES FOWLER, aged sixty-nine, for thirty-six years head gardener to the late Earl of Harewood, and for the last seven years in business for himself. Friends please accept this (the only) intimation.

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal libraries.

(For Weather, see p. ix.)



THE Gardeners' Chronicle

No. 658.—SATURDAY, AUG. 5, 1899.

THE TYING UP OF PLANTS.

WHY do we tie up the flowering stems of garden plants to sticks? *Answer:* To prevent them from trailing on the ground and looking untidy. That is one reason; but there is something of more importance still. We must think of our plants as if they were animals, not from any idea of their being injurious, like a savage dog which must be chained, but because their phenomena of growth are so closely akin to that of our own. We go through a course of athletic exercises to strengthen our muscles, and the bones which support them. If our arm is subjected to repeated strains, as is that of a blacksmith, the living power which permeates the arm, responds to the mechanical force exercised upon it, and then builds up tissues to meet it. One who could not lift a certain weight before he began his exercises, soon finds himself able to raise twice the amount. It is precisely similar with plants.

There is ample evidence to prove that the protoplasm of plants so far resembles that of animals, that it responds to the influence of external mechanical forces, and strives to acquire and to sustain an equilibrium with them. The so-called "mechanical" or "supportive" tissues are the results of this effort. It need hardly be observed that plants cannot do this suddenly, like a man using his muscles to prevent himself from falling if he has lost his balance; but the result is no less effective though it be executed by the slow method of growth.

On the contrary, in submerged water-plants, this effort is not required, and consequently the supportive tissues fail to appear; for such plants are of much the same specific gravity as water itself, and therefore miss the external stimulus of any strain to which they can respond. Experiments were made by Herr R. Hegler, in which he found that the stem of a seedling Sunflower, which would have been broken by a weight of 160 grms. (say 5 oz.), bore a weight of 250 grms. (say 8 oz.) after having been subjected for two days to a strain of 150 grms. The weight was subsequently increased to 400 grms. (14 oz.) without injury. Other experiments corroborated these results. Similarly, the weight of the petioles of leaves growing on the underside of a bough of Horse-Chestnut weigh about double as much as those on the upper side, as they have to carry the blade to a greater distance to reach the light, and are subjected to a greater strain at the point of attachment.

If a plant has to expend a certain amount of energy in any one direction, so much energy is deducted from some other. Hence, if the stem and branches be supported, the plant finds itself relieved of the necessity of adding additional mechanical tissues, such as woody-fibre, bast, sclerenchyma, and collenchyma, requisite for overcoming gravity and other strains. It can, therefore, either spend more

energy on its branches, or else in flowering. As an example of the first, it may be pointed out that it is customary to grow *Wistaria sinensis* in the United States as standards, having, of course, a strong upright stem, bearing a large "head" on the top. In this condition the plant has to support itself, and consequently has not sufficient energy at its disposal to make long branches as well. If, however, it be trained on a trellis, it is relieved from the necessity of adding wood to the trunk, sends out annual shoots 20 to 30 feet in length. This is why some climbing Palms, as the Rattancane, extend to a length of 300 feet, but are little thicker than the finger; whereas, the Gum-trees of Australia and the *Sequoia gigantea*, of a similar height, but being self-supported, have enormous trunks.

Applying this principle to garden plants, as Sweet Williams, &c., Nature says, tie up the stems as soon as possible. They grow more vigorously, and end with several large trusses of flowers. Neglect to do so, and the main stem lies on the ground. It makes a great effort to lift up the terminal shoot in opposition to gravity, and a much poorer result follows in the flowering process.

I take it, therefore, to be a wise thing to relieve plants from making superfluous efforts whenever possible. It involves a waste of energy in merely a mechanical strengthening of the stem to resist strains, which would be otherwise better disposed in an additional flowering. *George Henslow.*

NEW OR NOTEWORTHY PLANTS.

OLEARIA NUMMULARIFOLIA.*

MR. R. LINDSAY, Murrayfield, Midlothian, obligingly sends us flowering specimens of this New Zealand shrub, which is quite hardy in this country, growing to a height of a foot, with minute leathery, spoon-shaped leaves, recurved at the margins. The upper surface is green, the lower covered with cream-coloured felted down. The flower-heads are solitary, near the ends of the branches, about half an inch long, linear-oblong, with imbricating oblong, leafy bracts, increasing in size from below upwards. The ray-florets are scanty, white, or yellowish. We append in the footnote a fuller technical description.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUMS. LIST OF.

MR. R. H. MEASURES, with the assistance of Messrs. Sander & Co., has published a complete list of the species and varieties in the collection at the Woodlands, Streatham. The arrangement is alphabetical; in the first column is the name of the plant with its synonyms, if any; then an indication of the name of the authority for the name; the native country; the name of the discoverer or raiser, and the introducer. All this information is compressed into so small a space that the book will easily slip into the waistcoat pocket. We are heartily glad to get such a list,

* *Olearia nummularifolia*, Hook. f.; *Eurybia*, Fl. N. Z., 1, 118.—A rigid, erect shrub, 1 to 10 feet high, more or less viscid. Branches stout, erect, often glutinous. Leaves close-set, erect, spreading or reflexed, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, orbicular oblong or ovate, obtuse, quite entire; margins recurved, very hard and coriaceous, reticulate and shining above, below white or yellow, covered with appressed down. Heads solitary, on peduncles longer or shorter than the leaves, $\frac{1}{2}$ to $\frac{3}{4}$ inch long, $\frac{1}{2}$ broad; involucre turbinate, scales appressed, imbricate, broad, obtuse, nearly glabrous or the outer pubescent; florets eight to ten, frays rather broad; pappus white, unequal. Achene pubescent. Alps of the Northern and Middle Islands, alt. 4000 feet. *Handbook of the New Zealand Flora*, by J. D. Hooker (1867), p. 127.

so much so that we deprecate the idea of being either captious or greedy when we express a wish that the next edition be made too large for the waistcoat, but not too large for the coat pocket. Such a book would be more convenient also on the book-shelf, and it would allow of the addition of a few more details. For instance, we feel sure that many of the present generation of gardeners would not know the significance of the abbreviation "Ait.;" but if the reference were given to Aiton, *Hort. Kew.*, ed. 1, iii., 303, the meaning would be clearer. Incidentally, it may be pointed out that *Acaule* (not "Acaule") is suppressed in the *Index Kewensis* in favour of *C. humile* of Salisbury; and that "North America" is too general, as neither *Acaule* nor *humile* is mentioned in the flora of California, and, so far as we know, neither occurs in Florida, Texas, or Mexico. It is also desirable to know the date of introduction; while reference to an authentic figure would be a great boon. All these particulars could be got into a book a very little if any larger than the present one, and would, at the time of compilation, necessitate the expenditure of but little more time or trouble. No attempt is made in this list, which is purely utilitarian, to classify the species and varieties, or to break up the old genus *Cypripedium* into *Paphiopedium*; and even *Selenipedium* is not recognised. There is thus no indication that *C. Roezli*, to which in this list five synonyms are allotted, is a *Selenipedium*. We cannot help feeling that this sort of comment may be thought ungracious, but we do not mean it to be so. We are merely so appreciative that, like *Oliver Twist*, we venture to ask for more. In this case, at any rate, it is about the highest compliment we could pay.

LINDENIA.—The number of *Lindenia* (April, May, 1899), just issued, contains illustrations of the following plants:—

ZYGOPETALUM BATEMANIANUM X, *Lucien Linden*, t. dclvii.—This is a remarkable hybrid obtained between *Zygopetalum crinitum* and *Batemanianum* Colleyi, by M. Linden. It was shown early in the year at the Royal Horticultural Society, and a figure was given in the *Gardeners' Chronicle*, 1899, vol. 1, pp. 77 and 99.

LÆLIO-CATTLEYA GOTTOLIANA X, t. dclviii.—A natural hybrid supposed to have originated between *Lælia grandis* tenebrosa and *Cattleya labiate* Warneri. The segments are deep rosy-lilac, and the undulate lip rich purple. It flowers in October.

CYPRIPEDIUM VILLOSUM, t. dclix—dclx.—A double plate containing representations of eleven varieties, showing considerable variation in the colouring of the segments and lip, and which will come as a surprise to orchidists.

CATTLEYA TRIANÆI VAR. *LUCIDA*, t. dclxi.—A very elegant form with broad, spreading flowers, light lilac segments, and the front lobe of the lip with a central blotch of purple between a whitish edge on the outside, and a large yellow blotch on the throat.

ODONTOGLOSSUM CRISPUM VAR. *FUNAMBULUM*, L. Lind., t. dclxii.—Flowers stellate flat, segments broad, acute undulate, white, with chocolate-purple blotch.

CATTLEYA SCHILLERIANA, *Hobbs*, f., VAR. *SUPERBA*, *Hort.*, t. dclxiii.—Anterior lobe of lip rounded with a central rosy-purple blotch, surrounded by a narrow white border, throat with a large yellow blotch.

COMPARETTIA MACROPLECTRON, t. dclxiv.—Flowers in loose racemes, segments white, thickly sprinkled with violet dots, lip rounded, two lobed, with a long slender spur. The flower is $\frac{3}{4}$ in. long by $\frac{1}{4}$ in. wide.

THE SEED TRADE.

PROSPECTS OF THE SEED CROPS.—It is at this season of the year that some reliable forecast can be made of the character of the harvest of agricultural and garden seeds. So far the weather has been favourable to the production of good samples, and though the effect of the drought in some cases will help to produce a moderate yield, yet the samples will be generally well ripened and satisfactory in appearance.

TURNIPS.—The Turnip crop is now being harvested, and a short yield will result. Owing to the dry weather of last summer many seed plants were killed, consequently smaller breadths than usual were put out, hence a restricted crop. Of Swede Turnips there were also short breadths

planted for seed, much smaller than in the case of the white-fleshed Turnips, excepting perhaps in Lincolnshire, the same cause as in the case of the white-fleshed Turnips operated to restrict quantities of plants put out for seed. While there will be less than the usual average quantity of seed harvested of all Turnips, the quality of the seed will be good.

Mangel Wurzel.—Breadths of Mangel Wurzel look very promising, the plants are healthy, and a full average crop of seed may be looked for, but as in the case of the Turnips, much smaller breadths than usual were put out.

Peas.—In reference to Peas, the prospects of the various crops are good, and unless the later varieties should suffer from drought or too much moisture, the yield will be an average one, and the samples good. On some light lands shorter crops are probable.

Broad Beans.—The crops of these in Essex and Lincolnshire are looking exceedingly well; indeed, both north and south this appears to be the case. There is an absence of the Bean-weevil, and the black smother-fly is not so troublesome as is sometimes the case. Good bright samples should rule.

French Beans.—Both the climbing and dwarf types are looking well, and promising a good yield. Much will depend upon the character of the weather during August.

Carrot.—It is greatly to be feared that the home-grown seed crop of this popular vegetable will be practically nil. Much smaller breadths than usual were put out for seed, and but very few, and those only small, plantations can be seen in the seed-growing districts.

Onion.—Bedfordshire is the county from which the main supplies of Onion seed are drawn. So far the prospect is encouraging; but a great deal may happen between now and the time of harvest.

Parasnip.—Parasnips are doing well; and it may fairly be said of the present appearance of the crop that it is decidedly favourable.

Cabbage.—This crop at one time promised to be very good, but blight settled upon the plants, and the yield must be small. A great many plants intended for seed were, owing to the drought, not planted out at all; and so there are much smaller breadths than usual from which to secure seed. Brussels Sprouts and Savoy Cabbages will be a short crop from the same reason. Of Broccoli, good quantities were put out in Essex, but they became much blighted, though they improved somewhat under the rains which fell some weeks ago. The crop does not appear to have suffered so much as that of the common white Cabbage.

Radish.—This crop is doing pretty well, though the plants are not so strong as usual.

Beet is looking only indifferently well, as the seed plants are weak. An average crop can scarcely be expected.

Spinach.—This is a Kent crop, and is largely grown for seed in the neighbourhood of Margate. So far there is a promise of a moderate yield.

Potatoes look well generally. Early crops are in some cases ready for lifting; the main and late crops are well furnished with haulm, and an average yield is looked for. *Pisum*.

CORTADERIA JUBATA.

I consider this most graceful and free-blooming grass to be by far the most beautiful of all the handsome group known to me. The plant here illustrated (fig. 42), though by no means a large one, produced forty-six spikes of bloom, averaging 10 ft. in height. It was introduced into European gardens from Chimborazo by the well-known firm of French nurserymen, Messrs. Lemoine, of Nancy, to whom seed of it was sent by the celebrated botanical collector, Benedict Reel. I had it soon after it was sent out, and have bloomed it every year since, though it is unfortunately the least hardy of its family, and is killed, or only saved with great difficulty, when anything more than 15° of frost is experienced. *W. E. Gumbleton*.

THE BULB GARDEN.

TULIPA MACROSPILLA.

THE season for purchasing bulbs being now at hand, I would like to call attention to this grand Tulip, which seems to have fallen into neglect of late years. With the exception of *T. Greigi*, I consider this to be the best of all species of Tulips; the massive crimson flowers, deliciously fragrant at evening, render this plant most desirable for permanent bedding. A bed of this at Isleworth, associated with Bamboos and Lobelias of the

segments each measure $\frac{1}{2}$ inch in width, 7 inches in length, five of which are ascending, recurved, and interlaced, forming a singular mass; the lower segment is quite straight, half enclosing the filaments, which are in three ranks of two each, the longest filaments reaching to the tip of the segment; the style being equally long. The general aspect of the flower is that of *Griffinia*. The flowers are singularly beautiful, and emit a faint perfume in the evening. They collapse on the second day after opening. This plant has not matured seeds. *H. Worsleyi* differs from *H. Gardneriana* in having a two-flowered umbel, a much longer flower, and much wider segments. Hybrids may be distin-



FIG. 42.—CORTADERIA JUBATA.

Ornamental Grass from the Garden of W. E. Gumbleton, Esq.

cardinalis group, made a fine display last season. By reason of its late flowering, it would not be suitable for planting in beds destined to receive summer bedding plants; it is, however, just the thing to plant with the hardy subjects now largely used for bedding purposes. The bulbs will increase tenfold if left undisturbed for two or three years.

HYLINE WORSLEYI.

This new species has recently flowered here, bulbs having been imported from Brazil in a case of miscellaneous *Pancratiums*. The leaves are distichous, 1½ ft. in length and 2 inches in width, glabrous green in colour, with an acute apex. The scape is 15 inches high, bearing an umbel of two white flowers, each 8 inches long. The perianth

guished from *Hymenocallis* (which they much resemble out of flower), by a peculiar crackling sound given out by the leaves when handled. They require the same treatment as that afforded to *Hymenocallis*. *Geo. B. Mallett*.

METROPOLITAN OPEN SPACES.—A movement has been started to purchase part of the old Hampstead Green, on Haverstock Hill. One part of the Green is already public property. The centre portion (nearly an acre in extent), containing some fine trees, has been privately purchased for some £7500, and we believe the movement referred to will be successful at a not distant date.

REPORT ON THE CONDITION OF THE FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

The words "average," "over," or "under," as the case may be, indicate the amount of the crop; and "good," "very good," or "bad," indicate the quality.

The counties are arranged in numbered groups, to correspond with those adopted in the Weather Reports of the Meteorological Department, and followed in our weekly Weather Tables.

*. Fuller comments will be given in the following numbers. See also Leading Article on page 110.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC- TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND—										
0, Scotland, N.										
CAITHNESS	Under; good	Under; bad	.....	Average; good	.....	.....	Average; good	Over; very good	.....	W. F. Mackenzie, Thurso Castle Gardens, Thurso, Caithness
MORAY, or ELGIN-SHIRE	Over; good	Average	Average; good	Average; good	Average; good	Under	Over; good	Over; good	.....	Wm. Ogg, Duffus House Gardens, Elgin
	Under; good	Average	Average	Under	Average	Under	Average	Over	.....	D. Cunningham, Darnaway Castle Gardens, Forres
	Under; good	Average; good	.....	Over; very good	Over; good	.....	Over; very good	Over; very good	.....	Thos. Macdonald, Balfour Castle Gardens, Kirkwall
SUTHERLANDSHIRE	Under; bad	Under; bad	Under; bad	Under; good	.....	.....	Average; good	Average; good	Average	D. Melville, Dunrobin Castle Gardens, Sutherland
1, Scotland, E.										
ABERDEENSHIRE	Under	Under	Under	Under	.....	.....	Under	Average	.....	J. Forrest, Haddo House Gardens, Aberdeen
	Under; bad	Under; bad	Under; good	Average; good	.....	.....	Under; good	Average; good	.....	James Grant, Rothie Norman Gardens, Rothie
	Under; average	Under	Under; bad	.....	.....	.....	Average; good	Average	.....	John Brown, Delgaty Castle Gardens, Turriff
	Under	Under	Under	Under	.....	Under	Over	Over	.....	Simon Campbell, Fyvie Castle Gardens, Fyvie
	Average	Under	Under; bad	Under	.....	.....	Under	Over; good	.....	J. M. Troup, Balmoral Castle Gardens, Ballater
BANFFSHIRE	Under	Under	Under	Under	.....	.....	Average; good	Average; good	.....	W. Jamieson, Ballindalloch Castle Gardens, Cullen
	Average	Under	Under	Over; very good	Under; bad	Under	Over; very good	Over; very good	.....	J. F. Smith, Cullen Gardens, Cullen
BERWICKSHIRE	Under	Under	Under	Average	.....	Under	Average; good	Average	Under	J. Gemmell, Ladykirk Gdns, Norham-on-Tweed
	Under; good	Under; good	Under; good	Under; good	.....	.....	Under; very good	Under; very good	.....	Wm. Cairns, The Hirsell Gardens, Coldstream
	Under; good	Under; bad	Under; good	Average; good	Under; good	Average; very good	Over; very good	Over; very good	.....	J. Ironside, Blackadder Gardens, Edrom
CLACKMANNANSHIRE	Average	Under	Under	.....	Under	Average	Average	Over in some districts	.....	A. Kirk, Norwood Gardens, Alloa
FIFE SHIRE	Under	Under	Under	Under	.....	.....	Over	Average	.....	William Henderson, Balbirnie Gardens, Markinch
	Average; good	Under; good	Under; good	Average; good	Under; good	Average; good	Average; good	Average; good	.....	William Williamson, Tarvit Gardens, Cupar
	Average; good	Under; bad	Under; good	Average; very good	.....	.....	Over	Average; good	.....	John Hill, Wemyss Castle Gardens, West Wemyss
FORFARSHIRE	Average	Under	Under	Average	.....	.....	Under	Average	.....	W. McDowall, Brechin Castle Gardens, Forfarshire
	Under; good	Under; bad	Under; good	Over; very good	Average; very good	Under; good	Average; good	Over; very good	.....	Thomas Wilson, Glamis Castle Gardens, Glamis
	Under	Under	Under	Under	.....	Average	Average; good	Average; very good	.....	William Alison, Seaview Gardens, Monifieth
HADDINGTONSHIRE	Under; good	Under; good	Average; good	.....	Under; bad	Under; good	Average; good	Under; bad	.....	R. P. Brotherton, Tynninghame Castle Gardens, Prestonkirk
	Over; very good	Average; very good	Under; good	Average; very good	Under; good	Average; very good	Over; very good	Over; very good	.....	T. H. Cook, Gosford Gardens, Longniddry
	Under; good	Under; bad	Average; good	Average; good	Under; bad	Average; good	Average; very good	Average; very good	Under; bad	George Taylor, Broxmouth Park Gardens, Dunbar
KINCARDINESHIRE	Average	Under	Under	Under	.....	.....	Average	Average	.....	J. Brown, Blackhall Castle Gardens, Banchory
	Average	Under	Under	Under; good	.....	.....	Over; good	Over; good	.....	W. Knight, Pasque Gardens, Lawrencekirk
KINROSSSHIRE	Under; good	Under; bad	Under; bad	Under; good	.....	.....	Under; bad	Average; good	.....	J. Fortune, Blair Adam Gardens, Kinross
	Average; good	Under; good	Under; good	Average; good	Under; bad	Average; good	Average; good	Average; good	Under	Ed. Joss, Hattonburn Gardens, Milnathort
PERTHSHIRE	Under; good	Under; bad	Under; bad	Under; except Morellos	Average; good	Under	Under; good	Under; good	.....	D. T. Fish, Edinburgh
	Average; good	Under; good	Under	Under; good	.....	Under	Average	Under; bad	.....	D. Kidd, Carberry Tower Gardens, Murselburgh
	Average	Average	Under	Under	Under; good	Under; good	Over	Over	Under	J. Smith, Hopetoun Gardens, Queensferry
PREEBLESHIRE	Under	Under	Under	Average	.....	.....	Under	Average	.....	Wm. McDonald, Cardross, Traquair
	Average; good	Under	Under; good	Average; good	.....	.....	Average; good	Average; good	.....	H. E. H.
	Average	.....	Under	Under	.....	Under	Average; good	Average; good	.....	M. McIntyre, The Glen Gardens, Innerleithen
PERTHSHIRE	Average; very good	Under	Average; good	Under; good	Average; good	Under	Over; very good	Over; good	.....	J. Farquharson, Kinfauns Castle Gardens, Perth
	Under	Under	Under except on Standards	Under	.....	.....	Under	Average	.....	John Robb, Drummond Castle Gardens, Crieff
	Under	Average	Under	Under; bad	.....	.....	Average	Under; bad	.....	Geo. Croucher, Ochertyre Gardens, Crieff
	Average; good	Under	Average; good	Under	.....	Under; bad	Over; good	Average; good	Over	J. Ewing, Castle Menzies Gardens, Aberfeldy
	Average; good	Under; good	Under; good	Average; good	.....	Under; good	Average; good	Under; bad	.....	Thos. Lunt, Keir Gardens, Dunblane
	Average; good	Under; good	Average; good	Under; bad	Average; good	Under; bad	Average; good	Over; good	Under; good	A. Mackinnon, Scone Palace Gardens, Perth
SELKIRKSHIRE	Under	Under	Under	Under	.....	Under	Under	Average	.....	James Hunter, The Gardens, Kings Knowes, Galashiels
	Under	Under	Under	Under	.....	.....	Under	Average	.....	C. Turner, Sunderland Hall Gardens, Selkirk
6, Scotland, W.										
ARGYLLSHIRE	Average	Under	Under	Average	.....	.....	Average	Average	.....	G. Taylor, Castle Gardens, Inverary
	Under; good	Under; good	Average; very good	Average; good	Under; good	.....	Average; good	Average; very good	Under; bad	D. S. Melville, Poltalloch Gardens, Lochgilphead
	Average	Average	Average	Under	.....	.....	Average; good	Average; good	Under	H. Scott, Torloisk Gardens, Aros, Isle of Mull
AYRSHIRE	Under; very good	Average; very good	Average; very good	Under; very good	.....	Average; good	Average; good	Over; good	Average; good	D. Buchanan, Bargany Gardens, Girvan

DATE	TIME	LOCATION	REMARKS
10/10/54	1400	SEA	SEA

[illegible]

CONDITION OF THE FRUIT CROPS—(Continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC. TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
3. England, E.										
LINCOLNSHIRE	Under; good	Average; good	Under; good	Average; good	Average; good	Under; good	Average; good	Under; bad	.....	J. Coward, Haverholme Priory, Sleaford
NORFOLK	Under	Much under; bad	Average	.....	Under	.....	Under	Under	Under	X. Shadwell Court Gardens Thetford
	Under	Under	Under	Average	Average	Under	Average	Over; good	Average	F. Topham, Ormesby Hall Gardens, Great Yarmouth
	Under	Average	Under; bad	Average	Under	Under	Average	Good	Average	William Allan, Gunton Park Gardens, Norwich
	Under	Under	Under	Under	Under	.....	Under	Average; small	.....	H. Batchelor, Catto Park, Norwich
SUFFOLK	Under	Under	Under	Average	.....	Under	Average	Average; good	Average	F. Lee, Lynford Hall Gardens, Brandon
	Under; good	Under; bad	Average; good	Over; good	Under; good	Under; good	Over; very good	Under; good	Average	B. Marks, The Gardens, Hardwicke, Bury St. Edmunds
	Under	Under	Under	Under	Average	.....	Average	Average	.....	Thos. Williams, The Gardens, Falmouth House, Newmarket
	Under	Under	Under	Average	Average	Under	Average	Average	Average	John Wallis, Orwell Park, Ipswich
	Under; good	Under	Under; good	Under	Average	Under	Average; good	Average; good	Average	G. W. Eden, Henham Hall Gardens, Wangford
	Under	Under; good	Under	Average; good	.....	.....	Average; good	Over; good	Average	H. Fisher, Flixton Hall Gardens, Bungay
4. Midland Counties										
BEDFORDSHIRE	Under	Under	Under	Average	Under	Under	Under	Average; very good	Under	C. Turner, Cranfield Court Gardens, Woburn
	Under	Under	Under	Under; good	Under	Under	Under; good	Average	Average	H. W. Nutt, Flitwick, Ampt-hill
	Under; good	Under	Under	Under; bad	Under	.....	Average; good	Average; good	Under	Thos. Hedley, Putteridgebury Gardens, Luton
	Under; good	Average	Average	Under; good	Under; good	Under; good	Average	Average; good	Under	G. Ford, West Park Gardens, Ampt-hill
BUCKINGHAMSHIRE	Under	Under	Under	Average	Under	Under	Average	Average	Average	J. Wood, Hedsor Park Gardens, Bourne End
	Under	Under	Average	Average	Average	.....	Average	Under	Average	W. Walters, Bulstrode Gardens, Gerrard's Cross
	Average; very good	Average; good	Under; good	Average; good	Under; good	Under; good	Average; very good	Under; very good	Under; good	John Fleming, Wexham Park Gardens, Slough
	Average; good	Under; bad	Good on walls only	Over; good	Average; good	Under; bad	Average; good	Under; bad	Average; good	Chas. Herrin, Dropmore Gardens, Maidenhead
	Under; very good	Under; good	Under; good	Over; very good	Under; very good	Under; good	Average; very good	Under; bad	Average; good	Geo. Thos. Miles, Wycombe Abbey Gardens
	Under	Under	Under	.....	.....	.....	Under; very good	Under	Under	W. Hedley Warren, Aston Clinton Gardens, Tring
	Under; bad	Under	Under; bad	Under	Under	Average	Over	Average	Average	J. Smith, Mentmore, Leighton Buzzard
	Average; small	Under	.....	Over; good	.....	Under	Over; good	Under; good	.....	J. Jacques, Waddesdon Gardens, Aylesbury
CHESHIRE	Under	Under; good	Under; bad	Average; good	.....	Under; good	Average; good	Average; good	.....	W. C. Breese, Moreton Hall Gardens, Congleton
	Average	Under	Under	(Only Morellos grown); over	.....	.....	Under	Average	.....	C. Wolley Dod, Edge Hall, Malpas
	Average; good	Average	Under	Under	.....	.....	Over; good	Average; good	Under	W. Kippa, Walton Lea Gardens, Warrington
	Under	Under	Under	Average	Under	Under	Average; good	Average; good	.....	E. Severn, Combermere Abbey Gardens, Whitchurch
	Under; bad	Under; good	Under; bad	Under; good	Average	Over	Average	Over; very good	Average	Charles Flack, Cholmondeley Castle Gardens, Malpas
	Under	Under	.....	Under	.....	.....	Average	Average	.....	Robt. Mackellar, The Gardens, Abney Hall, Cheshire
	Average; good	Under; poor	Under	Average	.....	Average	Average; good	Over; good	.....	N. F. Barnes, Eaton Gardens, Chester
DERBYSHIRE	Under	Under	Under	Average	.....	Under	Average; good	Average; good	.....	W. Chester, Chatsworth Gardens, Chesterfield
	Under; good	Average; good	Under; bad	Under; bad	.....	.....	Average; good	Average; good	Under; good	J. C. Talack, Shipley Hall Gardens, Derby
	Under	Under	Under	Under	.....	Under	Average; very good	Average; very good	Under	Thos. Keetley, Darley Abbey Gardens, Derby
	Average	Average	Under	Average	.....	Average	Average; good	Under	Under	J. H. Goodacre, Elvaston Castle Gardens
	Average; good	Under; good	Under; bad	Under; good	Good average	Under; bad	Over; very good	Over; good	Average; good	F. G. Mills, Glossop Hall Gardens
HERTFORDSHIRE	Under	Under	Under	Under	Average	Under	Average	Average	Average	Chas. Deane, Cassiobury Gardens, Watford
	Under	Under	Under; good	Average; good	Under; bad	Average; good	Average; good	.....	Average; good	T. Nutting, Childwickbury Gardens, St. Albans
	Under; bad	Average; good	Under	Over; good	.....	Under; bad	Average; good	Under; bad	Average; good	W. Garman, Frythesden Gardens, Berkhamsted
	Under	Under	Under; bad	Average; good	.....	Average	Average	Under; bad	Under	Edwin Beckett, Aldenham House Gardens, Elstree
	Under; good	Under; good	Under; good	Average; good	Under; bad	Under; bad	Under	Average; good	Over	J. Turk, Pottfield Gardens, Little Berkhamsted
	Under	Average	Average	Over; very good	Over; good	Under	Average; very good	Average	Over; very good	C. E. Martin, Hoo Gardens, Welwyn
	Under	Under	Under	Average; good	Under	.....	Average	Average	Over	G. Norman, Hatfield House Gardens
	Under; good	Under; good	Under; good	Under; very good	.....	.....	Under; very good	Under; good	Average; very good	Edwin Hill, Tring Park Gardens, Tring
LEICESTERSHIRE	Under	Under	Under	Average	.....	Under	Average	Average	.....	G. Milford, Egerton Lodge Gardens, Melton Mowbray
	Under; very good	Under; good	Under; good	Morellos average; good	Under; very good	Under; good	Under; good	Under; bad	Walnuts under; good	D. Roberts, Prestwold Gardens, Loughborough
	Under; good	Average; good	Under; good	Under; bad	Under; good	Under; good	Average; good	Over; good	Over; good	W. H. Divers, Belvoir Castle Gardens, Grantham
	Under; good	Under; bad	Under; good	Average; very good	Under; good	Under; good	Over; very good	Average; good	Average; bad	W. Wadsworth, Ivy Villas, Essex Road, Gipsy Lane
	Average; good	Under; good	Under	Over; good	Over; good	Under	Over; good	Average; good	Over; good	A. Hamshere, Beaumanor Park Gardens, Loughborough
	Average; good	Under; good	Average; very good	Average; good	Average; good	Under; bad	Over; very good	Under; good	Under; bad	J. E. Parker, Wanlip Hall Gardens
	Under; good	Under; good	Under; good	Average; good	Under; good	Under; good	Under; good	Average; very good	.....	W. Duncan, The Gardens, Boscworth Hall, Rugby
NORTHAMPTON- SHIRE	Under; good	Under; good	Under; very poor	Average; bad	Under; bad	Under; good	Over; good	Average; very good	.....	H. Kempshall, Lamport Hall Gardens, Northampton
	Average; good	Under	Under; good	Average; good	Under; good	Under; good	Under; very good	Under; bad	Average; good	P. McGreadie, Wakefield Lodge, Stony Stratford
	Under; good	Under	Under; bad	Average; good	Under; bad	Under	Over; good	Under; bad	Over good	H. Turner, Fineshade Abbey Gardens, Stamford
	Under	Under	Under	Under	.....	Under	Average	Under	Under	W. S. Miller, Whittebury Lodge Gardens, Towcester

CONDITION OF THE FRUIT CROPS—(Continued).

COUNTY.	APPLES	PEARS	PLUMS.	CHERRIES.	PEACHES AND NEO- TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
4. Midland Counties.										
NOTTINGHAMSHIRE.	Under; good	Under; good	Under; good	Under; bad	Under; good	Under; good	Average; very good	Under; good	Over; very good	Amos Parr, Holme Pierrepont Hall Gardens, Nottingham
	Under	Under	Under	Average	.....	Average	Average	Average	Under	J. Lyon, Home Farm Gardens, Ossington, Newark
	Under	Under	Under	Under	.....	Average	Average	Average	.....	A. Henderson, Thoresby Gar- dens, Ollerton
	Average; good	Under; good	Under; bad	Average; very good	Under; good	Under; good	Average; good	Over; very good	Average; good	J. Roberts, Welbeck Abbey Gardens, Worksop
	Under; good	Under; good	Under; good	Over; very good	Average; very good	Under; good	Over; very good	Average; bad	.....	W. Allsop, Osberton Gardens, Worksop
	Average	Under	Under	Average	.....	Under	Over	Over	.....	A. McCulloch, Newstead Abbey Gardens, Nottingham
OXFORDSHIRE	Average; good	Under; bad	Under; good	Average; very good	Average; very good	Average; good	Over; very good	Under	Average; good	P. O. Knowles, Friar Park Gardens, Henley-on-Thames
	Average; very good	Over; very good	Under; good	Over; very good	Under; good	Average; good	Over; very good	Average; very good	Over; very good	J. A. Hall, Shipplake Court Gardens, Henley-on-Thames
	Average; good	Under	.....	Average; good	Under	Average; very good	Average; good	Under; good	Average	J. Harrison, Swifts House Gar- dens, Bicester
	Under; good	Under; good	Under	Average; bad	.....	.....	Average	Average	Over	J. A. Smith, Saraden Gardens, Chipping Norton
	Under	Under	Under	Over	Under	Average	Average	Under	.....	A. J. Long, The Gardens, Wyfold Court
RUTLANDSHIRE	Under	Under	Under	.....	.....	.....	Average	Average	Under	W. T. Kaines, Cold Overton Gar- dens, Oakham
SHROPSHIRE	Under	Under	Under	Average	Average	Under	Average	Over	Average	J. Loudon, The Quinta Gar- dens, Chirk
	Under; good	Average; small	Under	Average; good	Average; good	Under	Over; good	Average	Average	A. S. Kemp, Broadway, Shifnal
	Under; good	Under; good	Average; good	Average	Average; good	Under	Over; very good	Average; very good	Over; very good	William Weeks, Cheswardine Gardens, Market Drayton
	Under	Under	Average; good	Under	Over; good	Over; good	Average; good	Average; good	Average; good	J. Hopwood, Hawkstone Gar- dens, Shrewsbury
	Over	Under	Under	Over	Average	Under	Average	Under	Under	G. Pearson, Attingham Gar- dens, Shrewsbury
	Under	Under	Under	Average	Average	Under	Under	Under	Average	D. Owles, Apley Castle Gar- dens, Wellington
STAFFORDSHIRE	Average	Average	Under	Over	.....	Average	Over	Over	Average	T. Bannerman, Blithfield Gar- dens, Rugby
	Under	Under; bad	Under	Average	Average	Over	Under	Average	Average	G. H. Green, Enville Gardens, Stourbridge
	Average; good	Average; good	Under; good	Under; good	Under; good	Under; good	Average; very good	Average; very good	Average; good	G. Woodgate, Rolleston Hall Gardens, Burton-on-Trent
	Under; good	Under; poor	Under; good	Average; good	.....	Average; good	Average; good	Average; good	.....	W. Bennett, Rangemore Gar- dens, Burton-on-Trent
	Good	Average	Under	Average	.....	Average	Average	Average	Under	E. T. Gilman, Alton Towers, Cheshire
	Under; good	Average; good	Average; good	Average; very good	Under; good	Under	Over; very good	Average; good	.....	F. Clark, Teddesley Park Gar- dens, Penkridge
WARWICKSHIRE	Average; very good	Under; good	Average; good	Over; good	Under; bad	Average; good	Average; very good	Over; good	Under; good	J. W. Brown, Middleton Hall Gardens, Tamworth
	Under; good	Under; bad	Under; bad	Average; good	Under; good	Under; very good	Average; good	Under; bad	Under	J. Rodger, Chalcote Park Gardens, Stratford-on-Avon
	Average; good	Under; bad	Under; good	Over; very good	Average; good	Under; good	Average; very good	Average; good	Average; good	H. T. Martin, Stoneleigh Abbey Gardens, Kenilworth
	Average; good	Under; good	Under; good	Under; bad	Under; bad	Under; bad	Average; good	Under; bad	Over; good	A. D. Christie, Ragley Gardens, Alcester
	Under; bad	Under	Under; bad	Under	.....	.....	Average; good	Under	.....	W. Masters, Shuckburgh Gar- dens, Daventry
5. Southern Counties.										
BERKSHIRE	Average; good	Average; good	Under; bad	Over; very good	Average; very good	Average; good	Average; very good	Under; bad	Under; good	Owen Thomas, Royal Gardens, Windsor
	Under	Under	Under	Under	Average	Average	Over	Under	Under	Robert Fenn, Sulhampstead, Reading
	Average	Average	Under	Average	Under	.....	Average	Under	Average	James Strachan, Rosehill House Gardens, Henley-on- Thames
	Under	Under	Under	Average	Average; good	Under	Average	Under	Average	J. Howard, Beuham Park Gar- dens, Newbury
	Under	Under	Under	Under	Under	Under	Average; very good	Average; good	Under	W. Fyfe, Lockinge Gardens, Wantage
	Under; good	Under; bad	Under; good	Average; good	Under	Under	Average; good	Under; good	Average; good	Wm. Pope, Highclere Gardens, Newbury
DORSET	Average; good	Under	Under	Under	.....	Under	Over; good	Average	Average	T. Denny, Down House Gar- dens, Blandford
	Over	Average	Under; bad	Under; bad	Average	Under; bad	Over; good	Over; good	Over	C. Sawways, Head Gardener, Onslow, Wimborne
	Average; good	Under	Under	Under; bad	Under	Under; bad	Average	Average	.....	John Powell, Ilington Gar- dens, Dorchester
	Average	Under	Under	Average; good	Under	Under	Under	Average	Average; very good	T. Turton, Castle Gardens, Sherborne
	Under	Average; good	Under	Average; good	Average	Under	Average; good	Average; good	Under	Thos. Wilkins, Inwood Gar- dens, Henstridge, Blandford
HAMPSHIRE	Average; very good	Under; good	Under; good	Under; good	Average; good	Average; very good	Over; very good	Under; good	Under; bad	S. Heaton, Horticultural In- structor, Newport, I.W.
	Average; good	Under	Under	Average; good	Average; very good	Under; bad	Under	Under; bad	.....	Arthur Lee, Palace House Gardens, Brockenhurst
	Under	Under; bad	Under; bad	Under; bad	Under	Under	Average	Under; bad	.....	W. Smythe, Basing Park Gar- dens, Alton
	Over	Under	Under	Average	Average	Under	Average; good	Under	Average	J. W. McHattie, Strathfield- saye, Mortimer, R.S.O.
	Average	Under	Under	Over	Under	Under	Over; very good	Over; good	Over	J. Waleley, Sherfield Manor Gardens, Basingstoke
	Under; small	Under	Average; good	Average	Under; bad	Under	Over; good	Under; very small	Over; good	J. Bowerman, Hackwood Park Gardens, Basingstoke
	Under; good	Under; bad	Under; good	Over; very good	Average; good	.....	Under	Under	Over	J. Selden, Brookwood Park Gardens, Alresford
	Average; good	Under	Under	Average; good	Under	.....	Average; very good	Under	Average	T. Leith, Beaulieu Park Gardens, Basingstoke
	Average; good	Under; bad	Under; bad	.....	Under; bad	Under	Under	Under; bad	.....	N. Kneller, Malshanger Gar- dens, Basingstoke
KENT	Average; good	Under	Under	Over; good	Average; good	Under	Average; good	Average; very good	Average	W. Jarman, Preston Hall Gar- dens, Aylesford, Kent
	Average; good	Under; good	Under; good	Over; good	Average; good	.....	Average; good	Average; good	Average	Geo. Woodward, Barham Court Gardens, Maidstone
	Very good; over	Under; good	Under; good	Over; very good	Under; good	Under; good	Over; very good	Average; good	Average; good	Henry Elliott, Wilderness Park Gardens, Sevenoaks
	Average; bad	Under; bad	.....	Average; good	Under; bad	.....	Average; good	Under; bad	Average	G. Abbey, junr., Avery Hill Gdns., Eltham
	Average; good	Under; bad	Under	Over	Under; good	Under	Average	Under; very good	Under	G. Bunyard, Royal Nurseries, Maidstone

CONDITION OF THE FRUIT CROPS—(Continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC- TARINES	APRICOTS	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
5, Southern Counties.										
KENT	Average	Under	Under	Over; good	Under	Under	Average	Under	Average	Geo. Hutt, Lullington Castle Gardens, Dartford
	Over; good	Average; good	Under; bad	Average	Average; good	Under; bad	Under	Under	.....	Fred. Moore, Blendon Hall Gardens, Bexley
	Under	Under	Under	Average	Under	.....	Average	Average	Under	W. Lewis, East Sutton Park Gardens, Maidstone
	Average	Under	Under	Over; good	Average	.....	Average; good	Under; small	Under	Geo. Fennell, Fairlawn Gardens, Tonbridge
	Average; good	Under; bad	Under; good	Over; very good	.....	.....	Average; good	Under; bad	Under	B. Champion, Mereworth Castle Gardens
	Under; bad	Under; bad	Under; bad	Over; very good	Average; good	Average; good	Average; good	Under	Under; very bad	G. Lockyer, Mereworth, Maidstone
MIDDLESEX	Average; good	Under; bad	Under; bad	Average; good	Under; good	Under; bad	Average; good	Under; bad	Average	Geo. Wythes, Syon House Gardens, Brentford
	Average; good	Under	Under	Over; very good	Under	Under	Average	Under	.....	James Hudson, Gunnersbury House, Acton
	Under	Under	Under; bad	Average	Under; bad	Under; bad	Under	Under	Under	S. T. Wright, R. H. S. Gardens, Chiswick
	Under	Under	Average	Over; good	Under; good	Under	Average; good	Under	Under	H. Markham, Wrotham Park Gardens, Barnet
	Average; good	Average	Average	Average	Average; under	.....	Average	Under	Average	W. Bates, Cross Deep Gardens, Twickenham
	Average; good	Under	Average; good	Over; very good	Under; good	Under; bad	Average; good	Under; bad	.....	A. R. Allan, Hillingdon Court Gardens, Uxbridge
	Average; fair	Under; fair	Under; good	Average; good	Under; fair	Over; good	Over; good	Under; poor	Over; good	W. Watson, Harefield Place, Uxbridge
	Over	Average	Under	Under	Under	Under	Over; good	Under	Over	Robert H. Cronk, Cranford House Gardens, Hounslow
SURREY	Average; good	Under	Much under	Average	Under	Under	Average; good	Under	Walnuts average	Alex. Dean, 62, Richmond Road, Kingston-on-Thames
	Under	Average on walls: standards under	Under	Average; very good	Average	Under	Over	Average; very good	Over	W. King, Gatton Park Gardens, Reigate
	Under; small	Under	Average	Under	Under	Under	Average; good	Average; very good	Under	Thomas Osman, Ottershaw Park Gardens, Chertsey
	Average; good	Under	Under; bad	Average	.....	.....	Under	Under	Under	C. J. Salter, Woodhatch Lodge, Reigate
	Average; good	Over; good	Under	Over; good	Over; very good	Under	Over; good	Over	Under	J. W. Miller, Ruxley Lodge, Esher
	Under	Under	Under	.....	.....	.....	Average	Under	Average	William Bain, Burford Lodge Gardens, Dorking
	Average	Under	Under	Over	Under	Under	Average	Under	Average	George Kent, Norbury Park, Mickleham, Dorking
	Average	Under	.....	.....	.....	Under	Under	Average	Over	W. E. Humphreys, The Grange Gardens, Hackbridge
	Under	Under	Average	Over; good	Under	.....	Over; good	Over; good	Average	G. Halsey, Riddings Court, Caterham
	Under	Under	Under	Average; very good	Under	Under	Average; very good	Average	Under	C. W. Knowles, Bagshot Park
	Average; very good	Average; good	Under	Over; very good	Average; good	Under	Over; very good	Average; good	Over	G. J. Hunt, Ashted Park Gardens, Epsom
	Under	Under	Under	Under	Average	Under	Under	Under	Average	W. C. Leach, Albury Park Gardens, Guildford
	Average; good	Under; good	Under; bad	Average, Morellos good	Under; bad	Under; bad	Average; good	Under; bad	.....	X., Shirley, Croydon
	Over	Under; bad	Under	Under	Under	Under	Average	Under	Average	J. M. Runnacles, Tandridge Court Gardens, Oxted
	Under	Under	Average	.....	.....	.....	Average	.....	.....	James Walker, Ham Common
	Over; very good	Average; good	Under	Over; very good	Average	.....	Average; good	Average; good	.....	J. P. McLeod, Dever House Gardens, Roehampton
SUSSEX	Average; good	Average; good	Under	Average; good	Average	Under	Average; good	Under	Average	F. Geeson, Cowdray Park Gardens, Midhurst
	Average; good	Average	Under; bad	Average; very good	Average	Under	Average; good	Under	Under	Arthur Wilson, Eridge Castle Gardens
	Under	Under	.....	Under	Under	.....	Under; good	Under; good	Under	Alex. Reid, jun., Possingworth Gardens, Cross-in-Hand
	Under	Under	Under	Average	Average	Under	Average	Under	Average	E. Burbury, Arundel Castle Gardens
	Average; good	Average	Under; good	Over; good	Average; good	Under	Average; very good	Under; good	Under	W. H. Smith, West Dean Park Gardens, Chichester
	Under	Under	Under	Over; good	Under	.....	Average	Average; very good	Average; very good	C. Allen, Worth Park Gardens, near Crawley
	Under; bad	Average	Average; good	Over	Average; very good	.....	Over	Under; good	Average	W. Brunsden, Brambletye Gardens, East Grinstead
	Average	Under	Under; bad	Average	Over; very good	Average	Average	Average	Under	R. Parker, Goodwood Gardens, Chichester
	Average	Average	Under	Average	Under	Under	Over; good	Average	Under	Geo. Griggs, The Gardens, Ashburnham Place, Battle
	Under	Under	.....	Under	Under	.....	Average	Under	Under	H. C. Prinsep, Buxted Park Gardens, Uckfield
WILTSHIRE	Under; bad	Average; good	Under; bad	Average; good	Average; good	.....	Average; good	Average; good	.....	Josiah Trollope, Longleat Gardens, Warminster
	Under; bad	Under; bad	Under; bad	Average; good	Over; very good	Under; good	Average; good	Under; bad	Average; good	T. Challis, Wilton House Gardens, near Salisbury
	Under; good	Under	Average; good	Average; good	Under; good	Average; very good	Over; very good	Average; good	.....	George Brown, Bowood Gardens, Calne
	Under	Under	Average	Good	Average	Under	Average	Under	Average	E. F. Hazelton, Longford Castle Gardens, Salisbury
	Under	Under	Average	Average	Average; good	Under	Average	Under; bad	Average	A. Rushant, Savernake Park Gardens, near Marlborough
	Under; very good	Under; bad	Under; very good	.....	Average; very good	Under; bad	Average; good	Under; good	Average; good	W. Eatwell, Burderop Gardens, Swindon
	Under; good	Under	Average	Average	Average; good	Under	Average; very good	Average	Average; good	T. Hall, Charlton Park Gardens, Malmesbury
7, England, N.W.										
CUMBERLAND	Average; good	Average; good	Under; bad	Average, good	Over; very good	Average; good	Over; very good	Average; very good	.....	A. C. Smith, Eden Hall Gardens, Langwathby
LANCASHIRE	Average; good	Average; good	Under	Under; bad	.....	.....	Average; good	Average; good	.....	Wm. P. Roberts, Cusdon Hall Gardens, Preston
	Average	Under	Scarce	Average	.....	.....	Average	Under	.....	X., Gawthorpe Hall Gardens, Burnley
	Average; good	Under; good	Under; bad	Under; good	.....	.....	Average; very good	Average; good	.....	Wm. Ashton, Wrightington Hall Gardens, Wigan
WESTMORELAND	Under	Under	Under	Average	.....	Under	Average	Under	.....	Fredk. Clarke, Louthier Castle Gardens, Penrith
	Average; good	Under; good	Under; good	Average; good	Under; good	.....	Average; good	Over; good	.....	W. Gibson, Levens Hall Gardens, Milnthorpe
	Under; good	Under	Under	Under	.....	.....	Under	Over; very good	Average	W. A. Miller, Underley Gardens, Kirkby Lonsdale

CONDITION OF THE FRUIT CROPS—(Continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC- TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
S. England, S.W.										
CORNWALL	Average	Average	Over	Average	Over	.....	Average; good	Over; good	.....	W. H. Bennett, Menabilly Gar- dens, Par Station
	Under	Under	Under	Morellos under	Over	.....	Over	Over; good	.....	A. Mitchell, Toldy Park Gar- dens, Camborne
	Average; good	Under; good	Under; good	Under; good	Over; very	.....	Average; very	Under	Under	Alfred Road, Port Elliot Gar- dens, St. Germans
	Under; good	Under; good	Under; good	Average	Average	Under; bad	Average; very	Average; very	Average	Chas. Page, Boconnoc Gardens, Lostwithiel
	Over	Over	Average; good	.....	Over; very	.....	Over; good	Over; very	.....	G. H. M. Trewidden, Buayas Bridge Gardens
DEVONSHIRE	Average	Under	Under	Average	Under	Under	Under	Average	Under	James Enstone, 38, Temple Road, Exeter
	Average; good	Under; bad	Average; good	Average; good	Average; good	Average; good	Under; good	Under; bad	Average; good	A. Hope, Prospect Park, Exeter
	Under; good	.....	Under	Over	Under	.....	Over; very	Under	.....	George Baker, Membland Gar- dens, near Plymouth
	Average	Average	Average	Average	Over	Over	Over	Under; good	Average	James Mayne, Bicton Gardens, Budleigh Salterton
	Under	Under	Under	Under	Under	Under	Over; very	Under	Under	John Garland, Killerton, Exeter
	Average; very	Under	Under	Average; good	Under	Average; good	Under	Under	.....	Richard Mairs, Shobrook Park Gardens, Crediton
	good	Under	Under	Under	Over	Over; very	Average; good	Under; good	.....	Geo. Foster, Glendaragh Gar- dens, Teignmouth
	Under	Under	Under	Under	Over	.....	Over; very	Average; very	Under; good	C. W. Bloye, Pinhay Gardens, Lyme Regis
	Average; good	Under	Under	Morellos	Average	Average	Over; good	Average; good	Average	T. H. Slade, Poltimore Gardens, Exeter
GLOUCESTERSHIRE	Average; very	Under; bad	Under; good	Average; bad	Average; good	Under; good	Under; bad	Average; bad	Under	G. W. Marsh, Arle Court Gar- dens, Cheltenham
	good	Under	Under	Average;	Under; good	Average	Average; good	Average; good	Average	William Nash, Badminster Gardens, Chippenham
	Under	Under	Under	Morellos bad	Under; good	Under	Over; good	Average; good	Average; good	Thos. Edington, Tortworth Court Gardens, Falfeld
	Average; good	Under, but	Average; good	Under, but	Over	Under	Over; good	Under	Under	W. Greenaway, Dodington Gar- dens, Chipping Sodbury
	Under	Under	Under	Average	Under	Under	Average; very	Under	Under	W. K., Bowden Hall Gardens, Gloucester
	Average	Under	.....	Average	Under	Under	Average	Average	Under; bad	John Sowray, Highnam Court, Gloucester
	Average; very	Under	Under	Under	Average; good	Under	Under	Under	Walnuts, good	A. James, Woolstone Rectory Gardens, near Cheltenham
	good	Under	Under	Average	Under	Under	Under	Under	Over; good	G. M., Titley Court Gardens, Titley
HEREFORDSHIRE	Average; good	Average; good	Under; good	Over; good	Average; good	Under; good	Over; good	Over; good	Over; good	Thos. Spencer, Goodrich Court Gardens, Ross
	Over; good	Average; very	Average; good	Average; good	.....	Under; good	Average	Under	Over	Thos. Plumb, Shobdon Court Gardens, Leominster
	Over	Under	Under	Average	.....	Under	Over	Average	Over	Geo. Lockyer, Pontypool Gar- dens, Pontypool
MONMOUTHSHIRE	Under	Under	Under	Under;	Average	Average	Average	Average	Average	W. F. Woods, Llanfrehfa Grange Gardens, Caerleon
	Under; good	Average; good	Average; good	Morellos over,	Average	Average; very	Over; very	Over; very	Average	T. Coomber, Hendre Gardens, Monmouth
	Over; very	Under; good	Under; good	Under; good	Under; good	Under; good	Over; very	Under; good	Average	Henry Townsend, Maindiff Court Gardens, Abergavenny
	good	Over	Under	Over; good	Over; good	Average	Over; good	Over; very	Under	S. Kidley, Nynhead Court Gardens, Wellington
SOMERSETSHIRE	Average; good	Under	Under	Under	Over	Over	Under	Under	Over	W. Hallett, Cheyne Cottage, Cossington, Bridgwater
	Over	Under	Under	Under	Average	Average	Average; good	Under; bad	Average	John Crook, Forde Abbey, Chard
WORCESTERSHIRE	Average; good	Under; poor	Under; good	Over; good	.....	Under; good	Over; very	Average; good	Under; good	Jno. Masters, Weston House Gardens, Shipston-on-Stour
	Average	Average	Under	Morellos	Over	Over	Average	Under	.....	Henry Russell, Hindlip Gar- dens, Worcester
	Average; good	Average; very	Over; good	.....	Average; good	Over; good	Over; very	Under; bad	Over; good	J. Justice, The Nash Gardens, Kempsey
	Over; good	Average	Average; good	Over; good	Average; good	Average	Over; good	Under	Average	A. Young, Witley Court Gar- dens, Stourport
	Average; good	Under; good	Average; good	Over; good	Under; good	Under	Over; good	Over; good	Average	F. Jordan, Impney Gardens, Droitwich
	Average; good	Under; good	Under; bad	Under; bad	Under; good	Under; good	Over; very	Under; good	Under; good	William Crump, Madresfield Court Gardens, Malvern
	Average; good	Average; very	Under; good	Over; very	Average; good	Average; good	Average; good	Under; bad	Average; good	
WALES—										
ANGLESEA	Under; good	Under; bad	Average; good	Under; bad	Over; very	.....	Over; very	Average; good	.....	Robert Parry, Llysduias Gar- dens, Amlwch
BRECONSHIRE	Under; very	Under; bad	Under; very	Average; good	Average; good	.....	Average; good	Average; good	Average; good	C. Hibbert, Craig-y-nos Castle Gardens, Swansea Valley
	bad	Under; bad	Under; bad	Under; very	Over; very	Under; good	Average; good	Under; good	.....	Albert Ballard, Glanusk Park Gardens, Crickhowell
CARDIGANSHIRE	Under; bad	Under; bad	Under; bad	Under; bad	Average	.....	Average	Average; good	Average	G. Wright, Bronwydd Gardens, Maeslyn, Llandysul
CARMARTHENSHIRE	Under; bad	Under; bad	Under; bad	Under	Under; bad	Under; bad	Under; bad	Average	.....	Lewis Bowen, Edwinsford Gar- dens, Llandilo
	Under; good	Over; very	Under; bad	Over; very	Under; bad	Under; bad	Over; very	Over; very	Under; bad	W. Parker, Nenaddfaw Gar- dens, Llandoverly
CARNARVONSHIRE	Under	Under	Under	Under	.....	.....	Average; good	Average; good	.....	Allan Calder, Vaynol Park Gardens, Bangor
	Under	Under	Under	Average	.....	.....	Average; very	Average; good	.....	Thomas Evans, Gwydyr Castle Gardens, Llanrwst
DENBIGHSHIRE	Under	Under	Under	Morellos good	.....	Average	Under	Average	.....	W. Speed, Penrhyn Castle Gdns. W. Weir, Acton Park Gardens, Wrexham
	Under	Under	Under	Average	Over; good	Over; very	Average	Over; very	Over; good	J. E. Phillips, Trevor Hall Gardens, Llangollen
FLINTSHIRE	Under	Average	Under	Average	Under	Average	Average	Over; very	Under	J. Forsyth, Hawarden Castle Gardens, Chester
GLAMORGANSHIRE	Good average	Under	Under	Average	Average	Average	Average	Average	.....	A. Pettigrew, Castle Gardens, Cardiff
	Under; good	Under; good	Under	.....	Average	.....	Average; good	Average	Under	A. Blanchett, Dunraven Castle Gardens, Bridgend
	Under; good	Under; good	Average; good	Over; good	Average; good	Under; good	Over; good	Over; good	Average; good	R. Milner, Penrice Castle Gar- dens, Swansea
MERIONETHSHIRE	Under	Under	Under	Average	.....	.....	Average	Average	.....	J. Bennett, Estate Office, Rhug, Corwen
PEMBROKESHIRE	Under	Under	Under; bad	Under	Average	.....	Average	Average	Under	W. B. Fisher, Stackpole Court Gardens, Pembroke
	Over; good	Under; bad	Under	Under	Under	.....	Under	Over; good	Average	Geo. Griffin, Slebeck Park Gar- dens, Haverfordwest

CONDITION OF THE FRUIT CROPS—(Continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NEC- TARINES.	APRICOTS.	SMALL FRUITS.	STRAW- BERRIES.	NUTS.	NAME AND ADDRESS.
IRELAND—										
9, Ireland, N.										
CAVAN.....	Under; bad	Under; bad	Under; good	Under; good	.....	.....	Average; good	Average; good	.....	Edward Reilly, Castle Sanderson Gardens, Belturbet
DUBLIN.....	Under	Under	.....	Under	Average	Average	Under	Average; good	Average	John Christie, Laneborough Lodge Gardens, Belturbet
DERBY.....	Average	Under	Under	Average	..	.....	Average	Average	Under	J. Doran, Clontarf Castle Gardens
GALWAY.....	Average; good	Average; good	Average	Over	.....	..	Over	Under	Over	Jas. Lindsay, Drummond Gardens, Ballykelly
LONGFORD ..	Average; good	Average; good	Under; good	Average; very good	.....	.....	Average; good	Under; good	Average	Thomas Dunne, Lough Cutra Castle Gardens, Gort
LOUTH.....	Average	Average	Under	Average	Average	.....	Average	Average	Under	A. Porter, Woodlawn Gardens
MAYO.....	Under; good	Under; good	Average; very good	Average; good	Average; very good	.....	Over; very good	Average; good	Over; very good	John Rafferty, Castle Forbes Gardens, Newtown Forbes
MEATH.....	Under	Average	Under	Under	Average	.....	Average; good	Average; very good	Over; very good	Charles Pilgrim, Drumcar Gardens, Dunleer
SLIGO.....	Under; good	Under; bad	Under; good	Under; good	.....	.....	Average; good	Over; good	Average; good	Patrick Connolly, Cranmore Gardens, Ballinrobe
TYRONE.....	Average; good	Average; good	Under; bad	Over; very good	Average; good	.....	Over; very good	Over; very good	.....	James Moore, Summerhill House Gardens
WESTMEATH.....	Under; very good	Average; very good	Average; good	Under; bad	Over; good	Average; good	Over; good	Over; average	Average; very good	Cyrus Moore, Markree Castle Gardens, Collooney
WICKLOW.....	Under; good	Under; good	Average; good	Average; good	.....	.....	Average; very good	Over; very good	.....	J. E. Dawson, Lissadell Gdns., Sligo
10, Ireland, S.										
CLARE.....	Under; good	Average; good	Under; good	Under; good	Under	.....	Over; very good	Average; good	Over; good	F. W. Walker, The Gardens, Sion House, co. Tyrone
CORK.....	Under	Average	Under	Average	Under	Average	Over; very good	Average; very good	Over; good	Robert Anderson, The Gardens, Waterstown, Athlone
KILDARE.....	Under	Under	Under	Average; good	Under	Average; good	Average; good	Average; good	.....	S. A. Weeks, Moydrum Castle Gardens, Athlone
KILKENNY.....	Under; bad	Average; good	Over; good	Under; bad	.....	Over; good	Average; good	Average; good	Over	D. Crombie, Powerscourt Gardens, Enniskerry
KING'S COUNTY.....	Under; good	Average; good	Under; good	Under; bad	Average; good	.....	Over; very good	Over; very good	Average	J. Whytock, Coolattin Gardens, Shillelagh
LIMERICK.....	Under; good	Under; bad	Under; bad	Average; good	Average	Under; bad	Over; good	Over; very good	.....	Wm. Clarke, Castle Crine, Six-mile Bridge
ROSCOMMON.....	Average	Average; good	Average	Average; good	Average; good	.....	Average; good	Average; good	.....	C. Price, Mitchelstown Castle Gardens, Mitchelstown
WATERFORD.....	Average; good	Average	Over; good	Average; good	Average; good	.....	Over; very good	Over; very good	.....	F. Bedford, Straffan House Gardens, Straffan Station
WEXFORD.....	Average; very good	Over; very good	Under; good	Average; very good	Average; good	Under	Average; very good	Average; very good	.....	H. Carlton, Kilkenny Castle Gardens
CHANNEL ISLANDS.										
GUERNSEY.....	Under	Average	Average	Average; good	Over	.....	Average	Average; very good	.....	T. J. Hart, Birr Castle Gardens, Parsonstown
JERSEY.....	Average	Average; very good	Average; good	Average; good	Average; good	..	Under; good	Under; good	.....	W. A. Bowles, Adare Manor Gardens
ISLE OF MAN.....	Average; good	Under; good	Under; bad	Average; good	Under; good	Under; bad	Average; good	Under; good	.....	Terence Rogers, Frenchpark House Gardens, Frenchpark
	Average; good	Average; good	Under; good	Under; good	Under; good	Under; good	Average; good	Under; good	.....	Thomas Rogers, Frenchpark House Gardens, Frenchpark
	Under	Under; bad	Under	Average	Under	.....	Average; good	Over; very good	.....	Thomas Dunne, Strancally Castle Gardens, Tallow
	Under	Under; bad	Under	Average	Average	.....	Over; good	Over; good	.....	Angus McLeod, Ramsforth Gardens, Gorey

SUMMARY.

Variation.	Apples.	Pears.	Plums.	Cherries.	Peaches and Nectarines.	Apricots.	Small Fruits.	Strawberries.	Nuts.
SCOTLAND.									
Number of Record ...	(71)	(71)	(68)	(65)	(47)	(88)	(71)	(71)	(15)
Average ...	28	17	21	21	7	10	43	45	4
Over ...	3	—	1	3	2	—	16	19	1
Under ...	40	54	46	41	18	23	12	7	10
ENGLAND AND WALES.									
Number of Records...	(218)	(246)	(238)	(234)	(193)	(198)	(246)	(246)	(176)
Average ...	97	47	37	109	72	50	144	103	82
Over ...	17	5	2	66	22	11	67	37	20
Under ...	134	194	199	60	99	137	35	101	65
IRELAND AND CHANNEL ISLANDS.									
Number of Records...	(32)	(31)	(30)	(32)	(21)	(14)	(32)	(32)	(15)
Average ...	12	18	8	19	13	7	17	15	9
Over ...	—	—	2	2	2	1	13	11	4
Under ...	20	18	20	11	6	6	2	6	2

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	AUG. 7	Bishop's Stortford Horticultural Society's Show. Northamptonshire Horticultural Show at Northampton (3 days). Workshop Floral and Horticultural Society's Exhibition. Atherstone Horticultural Society's Exhibition.
TUESDAY,	AUG. 8	Flower Show and Gala at Abbey Park, Leicester (3 days). Horticultural Show at Weston-super-Mare.
WEDNESDAY,	AUG. 9	York Florist's Exhibition of Carnations, &c.
THURSDAY,	AUG. 10	Royal Botanic Society (Anniversary Meeting). Taunton Deane Horticultural Society's Show.
SATURDAY,	AUG. 12	Coniston Horticultural Society's Show.
FRIDAY,	AUG. 11	SALE. Imported and Established Orchids, at Frotheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period July 23 to July 29, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			LOWEST TEMPERATURE ON GRADE.
JULY 23 TO JULY 29.	AT 9 A.M.				At 1-foot deep.	At 2-foot deep.		At 4-foot deep.			
	Dry Bulb.		Wet Bulb.	Highest.	Lowest.	Day.		Night.			
SUN. 23	N.N.E.	64.5	62.9	67.7	61.9	0.03	68.6	65.5	60.5	61.5	
MON. 24	N.N.W.	64.8	59.6	72.1	55.0	...	66.4	65.1	60.9	56.8	
TUES. 25	N.N.W.	64.7	56.0	78.1	64.5	...	66.2	64.7	60.9	44.9	
WED. 26	W.N.W.	67.4	62.7	73.8	61.0	0.01	67.2	64.7	60.9	55.2	
THU. 27	W.N.W.	63.7	54.1	71.2	57.9	...	68.1	64.9	60.9	51.5	
FRI. 28	N.N.W.	65.0	56.8	75.2	47.4	...	66.8	65.1	60.9	38.1	
SAT. 29	W.	67.7	58.1	60.1	48.5	...	66.9	65.0	61.1	41.2	
MEANS...	...	65.4	58.6	74.7	55.6	0.04	67.2	65.0	60.9	49.9	

Remarks.—The weather has again been hot and dry, with strong winds from the north and west.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—62.9°.

ACTUAL TEMPERATURES:—

LONDON.—August 2: Max. 82°; Min. 54°.

PROVINCES.—August 2 (6 P.M.): Max. 78°, W. Ireland; Min. 54°, Shetland.

Fine, warm; some rain.

UPWARDS of three hundred and fifty of our correspondents, dispersed from John of Groat to Jersey, have favoured us this week with the result of their observations as to the condition and prospects of the fruit crops in their several districts. On the part of our readers we tender them our hearty thanks, for although the labour and expense of condensing and tabulating the details are very considerable, we hope they are not out of proportion to their value. The reports are singularly uniform in their general character, betokening that the climatal conditions must have been similarly equal. Diversities of locality, soil, aspect, elevation,

which must necessarily be considerable, do not seem to have affected the general result. We can only lay the responsibility on the weather for the generally unsatisfactory nature of the crops.

Perhaps, someday, some diligent meteorologist, with more leisure than falls to the lot of a journalist, will endeavour to co-relate the records we have given for a very long series of years with the climatal data for the same period. There is an enormous mass of material now at the disposal of the statistician and meteorologist, and, as year after year we laboriously pile up these details, we can but long for the time when some enthusiast will analyse them, and endeavour to secure results of permanent importance.

Enough for us is the labour of the day. Enough for us to have to chronicle one of the worst fruit crops on record; enough for us, at least as consumers, to remember that we are not dependent on our own resources, and that our fellow-subjects in the colonies can largely piece out deficiencies—a task in which foreign countries will also be glad to participate. As to our home fruit-growers, they may seek consolation for deficient crops in enhanced prices. Strawberries have been retailed at very high prices; and Apples, and especially Plums, will probably command high rates.

The annexed table shows the total number of records for each of the crops mentioned in the several divisions of the kingdom, and the amount as expressed in the terms "average," "over," and "under." These, no doubt, are vague terms, but considering the number of the reports, and the experience of the reporters, most of whom have favoured us in this way for many years, they are surely accurate enough for practical purposes.

The failure in Apples is extraordinary. Pears are worse still, but these have not the same commercial significance as either Apples or Plums. No fewer than one hundred and ninety-nine correspondents in England (out of two hundred and thirty-eight) note the Plum crop as below average, and only two record it as over. Cherries are a little better. Small fruits, including Currants, Gooseberries, and Raspberries, better still, with the respectable average of one hundred and forty-four out of two hundred and forty-six for England. Strawberries show for England a total of averages of one hundred and eight out of two hundred and forty-six, which cannot be considered satisfactory, the less so as no fewer than one hundred and one are recorded as under. Nuts are less than half a crop.

We may leave the table to tell its dismal tale. At the approaching fruit shows at Shrewsbury and at the Crystal Palace, there will, we suspect, be few traces of this deficiency, and the quality will, doubtless, as usual, and in spite of these drawbacks, excite our patriotic complacency.

The History of our Wild Plants.

At this time field botanists are indulging in their holidays, and keenly enjoying the display of floral beauty and interest that the season brings. The botanist has the advantage over the average gardener that his pursuit is less limited in its range. It is not only the beauty of the flower, or the excellence and market value of the product that attracts his attention, but it is also the life-history and the endless problems and subjects for research and investigation which plants offer to the student. Of course, these subjects are as fully, or even more fully,

at the disposal of the gardener as of the botanist and some there are who are happy enough to be able to combine the sensuous love of beauty with the intellectual appreciation of comparative structure and of methods of action, but for most others the daily routine is all-engrossing.

Those who are happy enough to be able to go "herborising" at this season, must surely ask themselves the question as they traverse the fields and woods, lounge along the river's bank, or climb the mountain-side—Where do all these little beauties come from? How is it they are here? Why are they not to be found there? What is the meaning and purpose of this conformation? What the significance of that variation? The questions that may be put are endless; and if direct replies are not immediately forthcoming, the labour involved in seeking them is not lost, but rather affords a healthy stimulus to enquire further, with the certainty that much will be gained in the search, even though the direct response is not readily forthcoming. Mr. CLEMENT REID, of the Geological Survey, is one of those who is not dismayed by the problems connected with the *Origin of the British Flora* (DULAU & Co.). He has long been known as a diligent worker, and a frequent contributor to societies and journals, so that it is highly convenient to have in small compass a summary record of facts, and an exposition of views and opinions derived from the author's long practice in the field.

Mr. REID looks at the question from a geologist's point of view. He shows how, within a geologically speaking, short period—a period which, reckoned in years, is vaster than can be readily conceived, this Britain of ours—this so-called *terra firma*—has been subjected to numerous climatal and physical changes; now to sub-tropical, now to arctic conditions; now to upheaval, now to submergence. Some of these changes have favoured the spread of plants, others must have effected their destruction. Thus, we have not one flora, but a series of different floras to be considered. So comparatively recently as what geologists call the Middle Tertiary epoch, sub-tropical plants grew in Hampshire, and constituted a flora wholly unlike the existing one. The more recent Miocene period affords no evidence that is available, for in this country we have no fossiliferous deposits of that age. More recent still is the Pleiocene period, in which the glacial era first began. Only in the latest deposits belonging to the Pleiocene period can we find, says Mr. REID, a copious land fauna and flora; and so far as the plants now inhabiting Britain are concerned, history begins with the Cromer forest-bed—all before is pre-historic and speculative. At that time, probably the Straits of Dover did not exist, and Britain formed an integral portion of the continent of Europe. At that time also, to judge from the fossil remains, the climate was much the same as it is now; the cold of the glacial epoch had not then swept off the numerous large mammals, nor transformed the character of the vegetation. After that came a succession of intensely cold periods, alternating with milder intervals, sufficiently long in duration for the temperate plants to re-appear.

Mr. REID sketches succinctly the general course of events as they appear to him to have occurred, but he is candid enough to point out that his opinions are not fully shared by other geologists—a fact that in the circumstances is not surprising. These differences in points of detail must be settled by the geologist; they do not affect general principles. The changes in



TROPICAL FERN HOUSE, ROYAL GARDENS, KEW.

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the limits of sea and land have been numerous, but relatively small in amount. The climatic changes, on the other hand, were most thorough and sweeping; inevitably they must have been accompanied by corresponding changes in the flora.

To get at the history of our native plants, we must study such records as are available. These are scanty and discontinuous, and consist of impressions of leaves and seed-vessels or seeds. These occur scattered in various deposits, which Mr. REID classifies according to their supposed age, as pre-glacial, early glacial, interglacial, late glacial, and Neolithic. A full list is given of all the localities wherein plant remains have been found; and then follows a descriptive list of all the species that have been identified, and a sketch of their distribution. That so many species should have been identified is surprising, as our herbaria are often defective in the very elements which are most common in a fossil state. Mr. REID must have spent much labour and pains in comparing the fossil seed-vessels and seeds with their living representatives. The species, of course, at this late geological period, are mostly the same as those which now inhabit our isles; but *Acer monspessulanum*, which once existed here, is now quite extinct, and Mr. REID asks if seedlings come up spontaneously in such numbers in this country as to be likely to re-establish the species as a native? We cannot answer the question, but we should be glad if some reader could do so. We are enabled to say that *Acer insigne*, from the Caucasus, seeds freely and produces a profusion of seedlings—but this is hardly to the point.

Trapa natans occurs at Cromer, but is not now found living in this country, though it occurs wild in South Sweden. *Pinus silvestris* was abundant throughout Britain in the Neolithic period, and while still wild in Scotland, shows signs of re-establishing itself in the South of England. We mention these few points in order to induce collecting botanists to be more particular than they are in collecting seed-vessels and seeds of our native plants, which, as we have said, form most interesting points of comparison with the records of the rocks.

We leave Mr. REID's book with a great respect for his laborious perseverance, and admiration of his sagacity, but at the same time with the conviction that the subject is hardly more than broached, and that there is great need of helpers. Few indeed can hope to do much personal investigation of the various fossil deposits, but all can help in observing and collecting recent forms for comparison with those accumulated by the geologists, and placed in our museums.

TROPICAL FERNERY AT KEW (Supplementary Illustration).—The collection of Ferns cultivated at Kew is by far the most comprehensive ever got together. It forms one of the three principal features of the indoor gardening in that establishment, the other two being Palms and Orchids. But whilst the Palms are rivalled by the collection at Herrenhausen, and the Orchids by that at Glasnevin, the Kew Ferns stand unrivalled. The history of its formation was published in the *Kew Bulletin* in 1895; it also forms the preface of the *Hand List of Ferns and Fern Allies* cultivated in the Royal Gardens (1895). It is there stated that "the collection owes its completeness very largely to the zeal and assiduity with which the veteran pteridologist, Mr. JOHN SMITH, Curator of the Royal Gardens from 1841 to 1863, watched over it for more than forty years." Fifty years ago the

number cultivated was 378. It now comprises about 1200 species and varieties, exclusive of British Ferns, of which over 500 are in cultivation. In addition to these, the Fern allies (*Selaginella*, &c.), number nearly 100. With few exceptions, the whole of the tropical Ferns are grown in the large house here figured. It is 130 feet long, 34 feet broad, and 15 feet high, with a wing on the south side 40 feet by 33 feet, and 19 feet high. The collections of *Adiantums*, *Davallias*, *Acrostichums*, *Polypodiums*, *Gymnogrammas*, *Aspleniums*, and *Selaginellas* are remarkable for their comprehensiveness, and also for the large size of some of the specimens. The collection of Filmy Ferns, most of which are accommodated in an adjoining house, is also remarkable for its extent, and the general good-health of the plants. Tree Ferns, *Angiopteris*, and *Marattias* also find a congenial home in this house. Botanists will find in it good examples of such text-book favourites as *Lycopodiums*, *Psilotums*, *Fadyenia*, *Helminthostachys*, *Ophioglossum*, *Thyrsopteris*, and *Danaea*. The fine collection of *Platyceriums* recently figured in these pages also deserves mention in this connection. Within the last ten years the whole house has undergone reconstruction, and untinted glass has been substituted for the green glass previously used to glaze the Fern-houses at Kew, and a considerable improvement in the health of the plants generally has been remarked.

CONFERENCE ON HYBRIDISATION, CHISWICK, JULY 11.—List of Awards made by the Council of the Royal Horticultural Society on the report of a Committee of Experts:—

Gold Flora Medal.—To Messrs. Jas. Veitch, of Chelsea.

Gold Medal.—To M. Duval, of Versailles; M. Maros, of Brunoy; Sir Trevor Lawrence, Bart., Burford Lodge; Leopold de Rothschild, Esq., Gunnersbury House; Messrs. H. B. May, of Edmonton.

Silver-gilt Flora Medal.—To M. Morel, of Lyons; Messrs. Jackman, of Woking.

Silver-gilt Banksian Medal.—To C. T. Drury, Esq., V.M.H., Acton.

Silver Banksian Medal.—To Professor Macfarlane, of Philadelphia; Herr Van Tubergen, of Haarlem; Dr. Wilson, of St. Andrews; Sir Frederick Wigan, Bart., East Sheen; De Barri Crawshaw, Esq., of Sevenoaks; Messrs. Wallace, of Colchester; Messrs. Paul & Son, of Cheshunt.

Veitch Memorial Medal.—To M. Duval, of Versailles (Class No. 6).

Williams' Memorial Medal.—To Leopold de Rothschild (Class No. 9).

OTHER AWARDS.

First-class Certificate.—To *Kalanchoe flammea*, Royal Gardens, Kew.

Silver-gilt Flora Medal.—To a group of *Kalanchoe flammea*.

BOSTON HORTICULTURAL SHOW. We are informed, will be held on the 24th inst. This is in addition to the fixtures for August, given in our last number.

AN AMERICAN BEDDING PLANT.—A recent *Bulletin* of the State of Indiana deals with the possibilities of making some of the native plants useful for bedding purposes. Mr. J. C. ARTHUR takes up the cudgels for a "white bedding plant," *Cerastium arvense oblongifolium*, or Starry Grass-wort, which has several advantages: it forms a close mat of foliage; is not deciduous; the blossoms may also be used as "cut-flowers." The plant in question has been under observation for several years, and has been found to vary sufficiently to make it a fit subject for selection, with a view to its improvement from a horticultural point of view.

FORESTRY IN INDIA.—Wednesday, July 12 last, was prize day at the Royal Indian Engineering College, Cooper's Hill, when Sir DONALD STEWART presided, awarded the prizes, and addressed the students. The work done in the forestry, as in the other departments, would appear to be of an excellent and progressive character; as to that already done, Sir DONALD said it was wonderful what had been done in thirty odd years—barren places were now covered with fine trees. Briefly, the contrast between "then and now" was notable. Sir DONALD desired for the natives employed in the work the same treatment as would be given to workers in the same field at home; it paid to treat the natives as men like themselves. The operation

of "good-will towards men" was commended to the young foresters about to leave for India, and to those desirous of working in that field.

THE SEIZURES OF FRUIT.—At Southwark Police-court, Monday, the hearing was begun of a number of summonses against LIPTON (Limited) and seven other firms, in connection with the recent seizures of fruit by Mr. H. THOMAS, sanitary inspector to the Bermondsey Vestry. The only case gone into was that of Mr. E. MORGAN, trading as Wix & Co., jam manufacturers, of Bermondsey, who was charged with having in his possession twenty-one tubs of bad Strawberries. Mr. THOMAS gave evidence to the effect that the Fruit was rotten and unwholesome. For the defence it was contended that the Strawberries, though crushed, were quite sound and suitable for jam, and several witnesses gave evidence to this effect. Eventually the defendant was committed for trial at the London County Sessions, and it was arranged that the other cases should be dealt with next week.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—About fifty members of this body of gardeners recently paid a visit to Gunnersbury and Kew, leaving Reading at 8 A.M. The Water-lilies and fruit-houses at Gunnersbury House afforded the visitors matters of great interest, and the floral decorations in the front of Gunnersbury Park were much admired, as were the large, well filled vineries and Peach-houses. Leaving Gunnersbury, the party broke up into groups and proceeded to Kew Gardens, where some hours were spent in inspecting the glass-houses and gardens. The arrangements for the outing were carried out by Mr. WOOLFORD, the Chairman of the Association, and Hon. Secretary *pro tem*.

THE OPEN SPACES OF LONDON.—In his annual address to the members of the London County Council, on the 25th ult., the Chairman (Lord WELBY) made allusion to the work of the Council in approving terms. Since 1889 to 1890, he said, the number of open spaces under the Council's care had increased 100 per cent., and the acreage by 40 per cent.; nearly 70 acres were added during the preceding twelve months. He endeavoured during that term to draw attention to the more important of these additions.

A MEMORIAL TO DR. TRIMEN.—A correspondent writing to the *Ceylon Observer* mentions that the brass tablet in memory of Dr. TRIMEN, and formerly placed in the Thwaites' Memorial summer-arbour, has been removed to the verandah of the Garden Museum. This is a more appropriate position, as Dr. TRIMEN was instrumental in forming and developing this Museum. Further, the Planters' Association, by whom the above-mentioned tablet was contributed, propose to erect a further memorial in the form of an arbour in Peradeniya Gardens "as a recognition of his services to the planting community." There are already arbours made in memory of Drs. THWAITES and GARDNER, and these shelters are very generally appreciated. The correspondent from whose letter we quote suggests, as an alternative, the erection of a fountain dedicated to Dr. TRIMEN's memory, there being at present no such ornamental water in Peradeniya Gardens. The memorial tablet could be permanently fixed on the stone work of the fountain.

MIMICRY.—Prof. TOKUTAKO ITO, who, it will be remembered studied at Cambridge, calls attention in the *Botanisches Central Blatt*, No. 28, 1899, to the close resemblance between *Bischofia javanica*, Blume, an Euphorbiaceous plant, and *Turpinia pomifera*, D.C., a Sapindaceous plant. The resemblances, are of course, superficial, but sufficient to deceive even an experienced botanist when the leaves only are seen. "How may the above resemblances, then, be accounted for? Sir JOHN LUBBOCK, in *Flowers, Leaves and Fruits*, p. 128, believes that the cases of mimicry, which are so commonly met with in animals, might exist

as well in plants. He made an interesting reference to what he calls a case of true mimicry, or, as it is called, homoplasy, to the close general resemblances between the common Stinging-nettle (*Urtica dioica*, L.), and the white Dead-nettle (*Lamium album*, L.), by explaining that the latter is preserved from injury by being mistaken by grazing animals for the former. Sir JOHN may, says Prof. Ito, be pleased to hear that in the far East, viz., in Satsuma, in Southern Japan, *Urtica dioica* is called Ira, or Wo-Ira (Ira means Stinging Plant, and Wo a male, in reference to its stinging habits), whilst *Lamium album* is called Me-Ira, or Female Stinging Plant, alluding to its more tender habits as well as to its flowers. But in the case of the resemblances between *Bischofia javanica*, Bl., and *Turpinia pomifera*, D.C., is it possible that the one plant may derive some benefit by imitating the other? A suggestion might be made with reference to the fact that, as *Bischofia javanica* belongs to Euphorbiaceæ, which is remarkable for the innumerable examples of poisonous plants it contains, that *Turpinia pomifera* would derive some benefit by adopting its habits. But the fact must be proved."

WART ON PINE-TRUNKS.—A huge outgrowth is not unfrequently met with on the trunks of Pines. Prof. M. SUGRAI, at a meeting of the Tokyo Botanical Society, attributes this to the work of a fungus, *Peridermium giganteum*.

BIG SQUASHES.—The *Canadian Horticulturist* for July, 1899, gives a figure of three large Pumpkins, which weighed 388½ lb., 353½ lb., and 344 lb. respectively. The principal details of cultivation seem to be high manuring, abundance of water, and disbudding. Artificial fertilisation is practised.

A COLOUR DICTIONARY.—This publication is prepared by Mr. B. W. WARHURST, and issued by STANLEY GIBBONS, Ltd., 391, Strand, W.C., principally for the use of stamp-collectors. There is in it an account of colour, and an attempt to define and tabulate different tints and shades. The want of some fixed system of colour-terms is felt by botanists, florists, and many other workers, as well as by philatelists; and if the code before us, or some other could be universally adopted, much trouble would be saved by reference to it.

CACTUS HEDGES FOR PINE-FORESTS.—The Pine-forests in the Departments of the Landes and La Gironde having last year suffered much from fires, kindled by accident or mischievous design, M. ROLAND-GOSSELIN proposes, according to the *Revue Horticole*, to surround such tracts with hedges of Cactus (*Opuntia*). He remarks that in Algeria a hedge of *Opuntia Ficus indica* or of some other species of considerable size, and largely cultivated by the Arabs for the sake of the edible fruits, proves a complete barrier to the brushwood fires, which are arrested on contact with the Cacti. M. ROLAND-GOSSELIN has himself seen on the road from Nice to Villefranca the brushwood fires completely checked by the clumps of *Opuntia*. The *Opuntias* do not burn; even the young tips are not destroyed by fire. A week later new shoots are put forth, the flower-buds open, and the mischief is repaired, while everything else around is burnt, leaving no trace of vegetation. If *Opuntias* could be acclimatised in sufficient luxuriance, they would, therefore, make an efficient guard against fire in plantations surrounded by them.

FLORA OF JAPAN.—As a precursor to a more elaborate publication, which it is estimated will take "tens of years" to complete, Prof. MAKINO, of the Botanical Institute, in the University of Tokyo, has commenced the issue of a series of plates representing Japanese plants. The title of the work in Latin is "*Phanerogamæ et Pteridophytæ japonicæ iconibus illustratæ*." The text is in Japanese; but the figures, which are very good,

appeal to botanists of all nationalities. In the number before us are figures of *Rhododendron pentaphyllum*, and of various species of *Poly-podium*. The Cryptogams are illustrated in another similar publication issued by Mr. J. MATSUMURA. Botanists should address their communications to the Botanical Institute, Tokyo; whilst letters on commercial business should be addressed to KEIGYÔSHA & Co., 1, Urazimbôchô, Kanda, Tokyo.

PARAGUAY PALMS.—The Director of the Botanic Garden at Rio de Janeiro has published an account of sundry Palms not previously described in Paraguay, accompanied by lithographic illustrations of *Trithrinax biflabellata*, *Cocos paraguayensis*, *C. sapida*, various species of *Diplothemium*, *Bactris Anizitzi*, and *Scheelia tetrasperma*.

PUBLICATIONS RECEIVED.—Publications of the University of Pennsylvania, *Contributions from the Botanical Laboratory*, vol. ii., No. 1. This includes:—Observations on *Conopholis americana*, by Lucy L. W. Wilson; Recent Observations on *Amphicarpea monoica*, by A. F. Schively; Water Storage and Conduction in *Senecio præcox*, from Mexico, by J. W. Harshberger; Internal Phloem in *Gelsemium sempervirens*, by C. B. Thompson; Roots of some Rosaceous genera, by M. Bunting, &c.—*Boletim do Museu Paraense*, May and October, 1897, and June, 1898.—*Morphologische Studien*, Von Prof. Dr. K. Schumann, heft ii.—*Bullettino della Società Botanica Italiana*, for February and March, and for April.—*Nuovo Giornale Botanico Italiano*, April.—*Svenska Fruktorteri* under redaction of Axel Pihl and Jakob Eriksson (Stockholm).—*Bulletin of the Botanical Department, Jamaica*, June. This contains articles on Methods of Preparing Rubber, R. H. Biffen; Ginseng, Cinchona, Bark, and Quinine, by C. M. & C. Woodhouse; and Importation of Colonial Produce, by E. M. Holmes.—From the Michigan Agricultural College, *Bulletin* 169, 170, and 171. The former contains Fruit Reports, and Notes from the South Haven Sub-Station; the other *Bulletins* chronicle Vegetable Tests for 1898, and Bush Fruits for 1898.—*Agricultural Gazette of New South Wales*, June. This contains the following among many papers: Weeds of New South Wales (first of a series), by J. H. Maiden; a variety of *Panicum* compositum, by the same writer; the Sultana Grape, by W. J. Allen; and Red Gum Forests of New South Wales.

SOPHRO-CATTLEYA "QUEEN EMPRESS."

(SEE FIG. 43, P. 113.)

THIS is a charming bigeneric hybrid Orchid that was shown by Messrs. Jas. Veitch & Sons at the last meeting of the Royal Horticultural Society, when the Orchid Committee recommended the Award of a First-class Certificate. The flowers much resemble *Cattleya Mossiæ* in form, but are smaller. The sepals and petals are bright rosy-crimson in colour, and the petals are veined with a pinkish-reddish-crimson, and they are broad and well displayed. The lip is yellow at the base, with showy dotted purple lines, and the front lobe is reddish-rosy-purple, the margins of the side-lobes possessing the same hue as that of the front lobe, but with a yellow margin.

KEW NOTES.

BRAYOA KEWENSIS ×.—This is a new hybrid raised at Kew from *B. geminiflora* and *B. Bulliana*. The former is a well known summer flowering bulbous plant from the highlands of Mexico, and has been in cultivation fifty years. It has the habit of the *Tuberosa*, its near relation, and slender, erect, elegant racemes of salmon-scarlet, tubular flowers; it is nearly hardy at Kew, where it is now nicely in flower. *B. Bulliana* was imported from Mexico, and flowered by Mr. Bull in 1884, when Mr. Baker named and described it in the *Gardeners' Chronicle*. It flowered in 1894 at Kew, when a figure of it was made for the *Botanical Magazine* (t. 7427), where it is called *Prochynanthus* by Mr. Baker, following the American botanist, S. Watson. It has oblanceolate leaves 1 foot long by 2 inches wide, and a tall, erect spike of brown and green flowers arranged in pairs, and remarkable in having an abrupt bend in the tube, the upper part of which is bell-shaped and nearly an inch across. The hybrid has leaves 2 feet long, 1 inch wide, bright green, tufted and deciduous as in the

Tuberosa. The flower-scape is 4 feet high, leafy and bears at the top about fifteen pairs of tubular flowers, 1 inch long, curved, dilated at the mouth and coloured dull brown-red outside, yellow inside. Whilst the characters of both parents are easily perceived—the hybrid, they are present in the proportions of two to one in favour of the female parent. The plant is not of any horticultural value, but hybridists may be interested in it as a "bigeneric" hybrid. It is self-fertile, and is ripening seeds.

CHILDSIA WERCKLEI, OR "TREASURE VINE."

Mr. J. L. Childs, of Floral Park, New York, has distributed this year a climbing Composite which he has named as above, and which promises to be a useful garden plant. There is little doubt that it is a species of *Hidalgos*, a small genus of climbers, closely related to *Dahlia*, and so far as herbarium specimens show, much larger in flower than any of the species known. At Kew it has grown freely in a greenhouse, and flowered when quite small. The flowers are like those of a single *Dahlia*, bright scarlet in colour, and nearly 3 inches across. The habit of the plant suggests *Vitis tricuspidata*, but the leaves are bipinnate, bright green with brownish margins, and 2 to 3 inches across. A good figure of the plant is given on the cover of Mr. Child's *Catalogue of Rare Flowers, &c.*, for 1899, where it is described as a new discovery made by Mr. Carlo Werckle in the mountains of Costa Rica, which grows in shady situations to a height of 10 feet, blooms profusely, and "is so hardy and vigorous that it will stand any amount of abuse." It is called *Treasure Vine* on account of its great value. A figure of it will shortly be published in the *Botanical Magazine*.

DENDROMECON RIGIDUM.

Two distinct forms of this variable Californian Poppy shrub are now in flower against south walls at Kew, one of which was figured in these pages a few weeks ago, and the other was noted by Mr. Gumbleton as a superior plant. This latter has stout, erect, willow-like shoots, bearing irregularly-lobed glaucous-green leaves, 3 inches long, and flowers 2 inches across. It was at first thought that this was a distinct species; it has also been suggested that it was a hybrid between *D. rigidum* and *Romneya Coulteri*! There are, however, in the Kew Herbarium authenticated specimens of *D. rigidum*, which not only include these two forms now in flower at Kew, but show other forms as well; and Brewer and Watson remark in the *Botany of California* that this species is very variable in leaf characters, and in the size of the flowers. The smaller form is by far the more floriferous at Kew.

PÉLARGONIUM COTYLEDONIS.

Several very fine living examples of this remarkable species have lately been presented to Kew by the Governor of St. Helena, where only it is found, and one of them is now in flower. It has thick, gouty, branched, horizontal, smooth, dark-brown stems, hairy, peltate-ovate, dark-green leaves, and white flowers, not unlike those of *P. zonale* in size and form. There is a figure of it, a poor one, in Melliss's *St. Helena*, where it is described as a very scarce plant (the Kew examples were obtained only by a man descending a precipice by means of a rope). It is known as "Old Father live for ever," from its power of retaining vitality for months without either soil or water. It clings to the barren, exposed, rocky cliffs overhanging the sea-coast on the windward side of the island, where there is least soil and moisture, throwing out its leaves and flowers in May or June after the rains, and shortly afterwards losing them, so that for most part of the year it looks like a knotted mass of old Fir-roots. This is the first time I have seen this species alive.

HAYLOCKIA PUSILLA.

This pretty little *Crocus*-like plant has been flowering freely for the last month or more in a greenhouse at Kew, a quantity of bulbs of it

having been presented by Dr. Cantera, of Montevideo, where it is a native. The bulb is globose, less than an inch in diameter, with a narrow neck an inch long, from which the flowers are pushed in succession before the narrow linear leaves appear; they are similar to those of *Sternbergia*, having a slender basal tube $1\frac{1}{2}$ in. long, the upper portion divided into six sub-equal ovate spreading segments coloured sulphur-yellow, with a few pale purple lines at the base. There is also a variety with milk-white flowers. The genus is monotypic and allied to *Zephyranthes*. It is a pretty garden plant, which may prove hardy in a sheltered corner of the rockery. *W. W.*

and producing seeds, but have never before ripened them until this season. The seed pods are of the size and shape of a walnut, and are yellow when ripe. They each contain about nine seeds of the size of Indian Corn; the seed pods now bursting are from last year's flowers." They add that they have exceptional opportunities for observing the flowers of *Aspidistra*, as they grow from twenty to thirty thousand annually. The fact of this firm having obtained ripe seeds being brought to the notice of Sir W. Thiselton Dyer, the Director of Kew, an application was made to Messrs. Stansfield for a fruit to be forwarded to Kew so that a drawing might be made of it. Is this the first time the *Aspidistra* has been known to mature its seeds in this country? *R. E.*

query has some pertinence in view of its known effects on scale insects and aphides; and might it not be tried on Peaches and Strawberries under glass culture, both of which are subject to attacks of mildew. Perhaps some brother gardeners will kindly give their experiences. *The Old Geyser.*

— The answer to me in the *Gard. Chron.* is the result of a mistake somewhere. For fifty or more years I have used water cold and hot as an insecticide. As to the latter, the temperature of the water must ever be a main factor. I began with 130° , and advanced to about 140° . Your correspondent starts at 212° , and now you have got down to 150° as a safety-point. Surely such differences are not opposition to the water-cure. As to boiling-water for mildew or aught else on plants, it is with our present implements unpractical, as well as dangerous, to most plants. A correspondent in the *Gardeners' Chronicle* also did his best to render the boiling-water-cure ridiculous by asserting that it killed mildew, because it was so small; and did not hurt the Vines, because they were so large! My letter dealt with these points, and was not in opposition to the water-cure, which I have used for a lifetime. *D. T. Fish.*

MORISIA HYPOCÆA.—In your recent issue, p. 88, Mr. W. Earley gives May the month of this pretty alpine plant flowering. My experience of the plant is that it flowers early in February and through March; in fact, I have seen it flowering before the "Winter Aconite," pushing its brilliant yellow flowers through the snow. It has a very pleasing effect when planted in masses, more so, indeed, than when a few *Chionodoxa* bulbs are dotted here and there. It likes the north side of the rockery in sandy, loam soil. It is a plant easily increased by dividing the off-shoots, inserted in some sandy soil in 3-inch pots, and placed in a cool shady spot. I find end of September or beginning of October the best time to plant. *Thos. Harris, Lower Grayswood Gardens, Haslemere.*

EFFECTS OF GAS-MANUFACTURE ON VEGETATION (see p. 99.)—There are extensive gas-works here within 150 yards of my house, and except now and then, though very rarely, when retorts are drawn, objectionable smells are not discerned; neither does vegetation seem to suffer. On the other side, the Canbury Gardens and promenade is about the same distance off, and there is not the least evidence there of harm. I often look at some small gardens close to the gas-works, and lying literally between the railway company's gas-works and those of the gas company occupied by railway employés, and do not find the crops on them in any worse case than are those on remote groups of allotments. Practically, where the process of manufacture is up-to-date, the harm done by gas-manufacture is nil. *A. Dean, Kingston, Surrey.*

FLAVOUR IN MELONS.—In order to obtain good flavour in Melons, the growth must be rapid, and the fruits finished off in a brisk heat, and when this is duly carried out there will be little to complain of with regard to flavour. Four or five fruits to a plant are sufficient, and if these attain to a fair size, say from 3 to 4 lb. apiece, they are large enough for all ordinary purposes. I have for some years been very successful with these fruits, and have invariably found but little difference in flavour with fruits growing on one plant when the last to ripen have been ripened in a similar temperature to those first changing colour. My plan is to sever them from the plants when the first sign of approaching ripeness is noticed, leaving the fruits to hang in the supports for a day or two, and the thin-rind varieties are then wrapped in tissue-paper, and placed in a rather warm, dry room, where the good flavour will be kept intact for a few days. To ventilate very freely as soon as the first fruits begin to colour is, so far as my experience goes, a mistaken practice; instead of improving the flavour, it frequently spoils it. A little air at the top and bottom, with some slight warmth on the pipes, is all very well, and serves to bring up the flavour. Varieties may differ, but the best, if not ripened quickly, will not, as a rule, possess fine flavour. *H. Markham.*

— Judges of fruit at shows will not dispute the fact that there is a great lack of flavour in all—or, at least, most—of the Melons staged nowadays; but why it is so is a question not easily answered by those unacquainted with the conditions under which the fruit was grown. I am inclined to think that this want of



FIG. 43.—SOPHRO-CATTELEYA "QUEEN EMPRESS" (SEE P. 112).

HOME CORRESPONDENCE.

PEA CHAMPION OF ENGLAND.—A few days since at Weybridge I had to determine most unusual competitions in rows of Runner Beans, and the same of Peas, on a large group of allotments. The rows of Runner Beans were very fine, well staked, and ranged to about 7 feet in height. The chief defect was found in rather too thick sowing. That defect was more marked in the Peas; for of the various rows brought into competition, some had double the quantity of seed sown than was desirable—some had three times too much. But the surprise of the examination was the finding the best row (one that just then not a gardener in the kingdom but would have been glad to possess) to be of that very old, and still one of the most delicious of Peas, Champion of England. The pods are not large, but the peas are soft, sweet, and of the best flavour. It is a variety that interbreeders might well employ to furnish quality. *A.*

FRUIT OF ASPIDISTRA LURIDA.—In a communication received from Messrs. F. W. & H. Stansfield, nurserymen, Sale, they say, "We have been experimenting with *Aspidistras* for the last ten years, and have succeeded in setting the flowers

THE HOT WATER REMEDY.—When in doubt, ask a policeman, well no—take a plant of not much value, and dip it in water at a temperature between 145° and 150° . If it is injured thereby discard the remedy, and fall back on insecticides and flowers-of-sulphur. A little experiment of this sort is worth more than columns of theories, and the unending castigation of Mr. Mallett, who has only brought to light an old means of killing insects and mildew for the benefit of the craft. Being always called upon to wage war with foes of both kinds, the gardener should rather rejoice that the virtues of hot water has been again brought to his notice, than endeavour to belittle this remedy. Of course, its use will not benefit the purveyors and inventors of insecticides, who sell for dear money that which costs but a small sum to make, and who are bound to decry this cheap remedy, but that is a matter of no consequence to the gardener. The latter works only in a small way on plants in stoves, green houses, vineries, pineries, orchard houses, and may be on wall trees, and black Currant and Gooseberry bushes; whereas the market grower, working on a scale of greater magnitude, must still rely on manufactured insecticides in large measure, so that the latter will see his profit in that quarter. Has anyone tried the effect of water at 150° on the American blight and the Currant Bud-mite? The

flavour is entirely due to the system of culture adopted, which neither "D. T. F." nor "A. D." touches upon. Does not the want of flavour incline one to think that the fruit was finished off or ripened in a too humid atmosphere, and not sufficient attention given to details in the matter of heat, air, and moisture? I consider heat and air the two principal factors to give flavour. During the latter stage of the fruit, that is, the ripening, I allow a little air to blow over the fruit at night, at the same time keeping a temperature of 68°, and during the day afford air and artificial heat according to external conditions. Assuming that the foliage is in a healthy condition at the time the fruit changes colour, very little moisture will be required at the roots beyond what is derived from light sprinklings of the syringe. My first experience in Melon-culture commenced with the old three-light frame, and I can well remember the turnings and mixings it was considered necessary to give stable-dung and leaves before it was made into a hotbed. At that time, Beechwood, Egyptian, Orion, and Scarlet Gem were considered our best Melons—true types of the green and scarlet-flesh sorts, and good they were too. *H. F.*

PAPAYER SOMNIFERUM.—I was much surprised the other day in driving along a lane just below Purley, to see growing amidst Wheat a great quantity of this French Poppy; the common scarlet Poppy was also plentiful. The French variety seemed to be quite at home, and possibly will now, much to the annoyance of the cultivator, naturalise itself. But one naturally wonders how it came there. Was the corn used to sow the field imported, and included the Poppy-seed? or had there been somewhere in years past grown a crop of the Poppy for commercial purposes? Possibly some years hence enterprising botanists lighting upon other progeny of the Poppy, may conclude that this form is of British origin. In any case, it helps to show how readily some imported plants may be naturalised here. *A. D.* [*Papaver somniferum* grows, or did grow, on the cliffs between Folkestone and Dover. *Ed.*]

LAWN WEEDS.—Of lawn weeds I find Hypochaeris radicans the worst, as a small bit of root left is sure to sprout. The best and easiest remedy I find is to drop sulphuric acid with a dropping implement into the crown. I want to ask whether the effect of the sulphuric acid on the soil is transient, or whether it permanently sterilises (for the growth of grass or of bulbs) the spot on which it is dropped? *C. W. D.*

HYBRIDISING, CROSS-BREEDING, AND RETROGRESSION.—Can it be true as stated by Mr. Henry Cannell, at p. 74 of the *Gardeners' Chronicle*, "that all fruits, flowers, and vegetables, were more perfect, larger, and finer when first created than they are at present?" What are "the numerous instances to support it?" I know that we find fabulous accounts in ancient history of giants and monsters, but is there any evidence to show "that plants have degenerated from what we found them?" The facts stated by Mr. Cannell respecting the improvement of the Strawberry, Tomato, Pea, Gloxinia, Chrysanthemum, &c., and which are obvious to everyone, prove in my opinion that they were created with a latent power capable of being developed, rather than that they are now reverting to their original forms. *S. A.*

SCARCITY OF INSECTS.—I observe in the *Gardeners' Chronicle*, on p. 91, Sir Joseph Hooker remarks on the scarcity of insects this year. Here, in the southern part of Oxfordshire, I observed numbers of the Cabbage-butterfly (*Pieris Brassicae*) flying about, and on Friday last, July 28, I saw eight altogether; there were also a good many of the Brimstone variety seen the other day. Bluebottle and the common house-fly are not so numerous as last year. A few young wasps have been seen, and on July 31 I saw the first butterfly of the Admiral class. I suppose August is the real month for wasps. *A. J. L., Wyfold Court Gardens.*

ERICA CINEREA PURPUREA.—Many are familiar with the beautiful scenery and health-giving qualities of Matlock, which are enhanced at this season of the year by the floriferousness of the Heather. On the adjoining moors, *Erica cinerea purpurea* grows spontaneously, in great beauty, the beautiful clumps of purple flowers forming a pleasing contrast with the surrounding verdure. There are several beautiful varieties of this Heath, the finest of which are

E. cinerea alba minor, and *E. c. a. major*, the flowers of which are of a pure white. Heaths are most attractive plants for cultivation on a peaty soil, and justly may Heather be termed "the flower of solitude and purity." *H. O.*

HERESIES.

BULBS IN GRASS.—How unkempt and inappropriate do those lawns now look in which Daffodils and other plants have been allowed to flower in spring, and which have been allowed to remain unmown till now. Surely this delightful practice should be followed in the so-called wild garden, and similar places only. In the dressed garden it is out of place.

ROSE BEDS.—How very much better Rose-beds look when the surface soil is carpeted with low-growing spring flowers and Violas in their season than when the Roses have the beds all to themselves. A Rose-bush, unless in a hedge, and particularly a Rose standard, is not a beautiful object. We know one Rose-bed which, after yielding a good supply of Roses, is now a grand spectacle, numbers of *Oenothera Lamarckiana* having come up in stately beauty. They smother the Roses, it is true, but they are removed when flowering is past, and liquid manuring and a mulch all the winter seem to provide food enough for the Roses, but then heretics do not exhibit and do not want to.

SINGLE HOLLYHOCKS.—How far more beautiful are the single Hollyhocks than the double monstrosities that were popular till the obliging Puccinia well nigh destroyed them. If it has served to refine and purify our tastes, it will not have lived in vain.

FERNS.—Is it not a mistake to grow hardy Ferns on the flat? They look so much better on a raised or undulating surface.

THE DRILL HALL SHOWS.—Would it not be better to reduce the quantity of exhibits by one half. We do not want to see dozens of the same plant time after time. If, for some special reason, collections are wanted, let them be requisitioned. When not wanted they are a nuisance. *Grouler.*

MARKET GARDENING.

(Continued from p. 68.)

PTERIS CRETICA ALBO-LINEATA.

THIS is another useful variety which has come more in favour during the last few years. I remember the time when it was not considered worth growing; but at the present time it sells well. A few years ago Mr. Thos. Rochford grew a large quantity, and they were about as fine a lot of plants as ever were sent to market; and I think it was the means of bringing it into favour. I find it is one of the best Ferns for growing with any of the taller sorts. When potted together, the basal fronds being short, they furnish well below; and the tall green fronds of the serrulate varieties fill up the centre, and make a nice contrast. I have lately had some grown with *P. Wimsetti*, which have done well together. *P. Wimsetti* is perhaps the most popular of all the created *Pteris* just now—one great recommendation is, that though the fronds are prettily created, they are not too heavy, and do not drop over, as in many varieties. A good selection of *P. serrulata cristata compacta* is still worth growing. This should be grown singly, for when plants are bunched together, they are too dense to be pretty.

This bunching, or potting a number of plants together, has been much overdone by many growers; of course they are fit to come into market sooner, and some buyers like the dense dwarf plants; but grown singly, when well done, almost all Ferns are much more graceful in appearance; and if well cared for from the start, though taking longer, they will naturally furnish well if not

crowded up together. With *Pteris tremula* two or three may be started together, and one will generally take the lead, while the others will make smaller fronds, and form a nice base; but where two or more strong plants are potted together after they are established, they are far from being symmetrical or pretty.

ASPLENIUM NIDUS.

This has now become one of the most popular market Ferns. As a large specimen it is effective, but it is extensively sold of small size, as it makes a compact, symmetrical plant in 3, 4, and 5-inch pots. The variety finds much favour in this way of growing it. Spores do not germinate as readily as those of most market Ferns, and growth is very slow in the younger stages; but after establishment, progress is rapid. The spores should be collected from plants which have been growing in an exposed position. I always fancy those from large plants are more to be relied upon, and they should be collected before they become far advanced, the best spores falling soon after they are mature. Not any of the spores of *Asplenium* germinate very readily, and much watchfulness is required on the part of the cultivator, to avoid being overrun and choked by others, which are almost sure to find their way to the seed-pots and germinate abundantly. This may be avoided to some extent by isolating the plant which is grown as the spore-bearer, or at least taking care that they do not come into contact with such as *Nephrodium molle*, *Polypodium trichoides*, and any of the *Gymnogrammas*, or others which germinate quickly. The young plants will make more progress in warm than in low temperatures, but afterwards a cooler position, with plenty of light, will ensure sturdy plants and broad fronds. A roughish, open compost should be used, and good drainage afforded; and an important item of their cultivation is to look carefully for slugs and small snails, which often find their way into Fern-houses.

ASPLENIUM LUCIDUM.

This has not as yet been grown in very large quantities, still I believe that, with care in selecting spores, it would germinate as freely as *A. nidus*, and prove even more useful for marketing. The fronds are of great substance, and of a bright, fresh green tint, and when grown from spores, the plant takes a very symmetrical form. It should, therefore, be well worth persevering with, as has been done with *A. nidus*; and I am sure that those fortunate enough to raise it in quantity will be well rewarded. I may mention that I have repeatedly sown spores, but the only time when I was successful was when I had an opportunity of collecting spores from large plants grown in a cool conservatory. The cultural requirements of this Fern are similar to those of *A. nidus*, but it succeeds under cooler treatment.

I omitted to add that there are several varieties of *Asplenium nidus*, that known as *musaeifolium* is the best for market work. There is some confusion as to which is *australasicum*; but that which I first knew under the last name had narrower fronds, which spread, and are of a deeper green. I find seedlings, though as a rule they come true from either variety, will sometimes vary; and I know of one with very narrow fronds which is quite distinct from any of the others, and came up in a batch of young plants. I may mention *Asplenium Hilli*, a very distinct variety of the bulbiferum type, with rather finely-out fronds, and a plant of dwarf, compact habit. When I first saw it, I thought it would only be suitable for small pots, but after seeing a large batch in 48-size pots, I altered my opinion, for I certainly never saw a more useful lot of *Asplenium* in that size, the plants well covering the pots with arching fronds, which were densely covered with bulbils. It is an advance on *A. Colensoi*, which at first sight it closely resembles. I understand that it was obtained from an importation. As young stock is produced so freely, it is

likely to soon be well known, and it will probably rank high among market Ferns.

It is rarely that plants of this section of *Aspleniums* are raised from spores, for in the first place these do not germinate freely, and stock is so readily increased from the bulbils. I once saw a large batch of seedlings of the true *Asplenium bulbiferum*, and very fine plants they made. It is remarkable that there are no crested varieties of this section. This may be accounted for from the fact that so few seedlings are raised. If we had to raise seedlings, other interesting varieties might be obtained. I find that seedlings of *A. pteridoides* which is closely allied to the above section (but does not produce bulbils), vary much in character. I have also found the same disposition to vary in seedlings of *A. Baptisti* and *A. novæ-caledoniæ*. These are all very desirable for collections, but are too

An adequate example of this method of utilising sunheat in a practical manner is seen in the common method of cultivating Vines for wine-making in central Europe, and up to the extreme limit of vineyard culture out-of-doors. In this region the Vine-stocks are kept to about 15 inches in height, so that the bunches of Grapes are very close to the soil. By this simple contrivance man is enabled to ripen the Grapes more completely in the average of years than could be done in any other manner. Moreover, the Vine-stocks are protected in winter by the snow against frost.

Our illustration (fig. 44) shows one of twenty Apple-trees trained in the form of a table, a method that is supposed to have been introduced into these gardens in Queen Elizabeth's time by the famous Lord Chancellor Bacon, who, at that time, was owner of Gorhambury, and of whom history speaks

of varied colouring as the various plants come into flower. Those now affording the display being Delphiniums, Roses, including York and Lancaster, and Crimson Rambler, Campanulas, Phloxes, Hemerocallis, Antirrhinums, Pentstemons, Carnations, Sweet Peas, Gaillardias, Godetias, and others. The herbaceous borders extend to the door of a well-cropped kitchen garden and some plant-houses, in which are Pelargoniums, Cannas, Achimenes, Gloxinias, and shrubby Begonias in capital bloom, two of the best Begonias being *B. fuchsoides* and *B. semperflorens*, which are grown in small pots. A great number of Chrysanthemums were noted in fine order; and the remains of a bed of *Calochortus* showed that Mr. Norman, the gardener, cannot only grow ordinary plants well, but that he succeeds with some that are reputedly rather difficult subjects to manage.

The conservatory was bright with showy flowering plants, arranged together with Ferns and Palms. At the end of this house a plant of *Lapageria rosea alba* was coming into flower. In the older range of glass-houses a small selection of Orchids which were thriving was found, and a few in bloom, notably an *Oncidium ornithorhynchum*, abundantly furnished with spikes. Another house contained plants of good tuberous-rooted Begonias in flower. In the same house were Tea Roses, excellent *Streptocarpus*, &c. The grounds of Kennet House are well furnished with fine trees, and the well-kept lawn is not marred by beds of Pelargoniums, &c., which certainly would not harmonise with the surroundings. J. O'B.

THE FERNERY.

ASPLENIUM FRAGRANS VAR. FENICULACEA.

THIS graceful little Fern does not appear to be at all common in gardens. It forms a compact plant about 2 feet across with arching fronds, and the finely cleft pinnæ of a *Gymnogramma schizophylla gloriosa*. The pinnules are extremely slender, measure $\frac{1}{2}$ of an inch in length, and are of the same width throughout. Although I have tried several times I have not been able to raise it from spores, but have succeeded in propagating it by means of viviparous plants which occur occasionally on the extremities of mature fronds. The plant is as easy to grow as is *A. bulbiferum*, and, like that species, it will stand the atmosphere of living apartments without injury for a considerable length of time. It should find a place in any collection of choice Ferns. G. B. M.

A STRAWBERRY BARREL.

DIFFERENT devices have at times been adopted by cultivators in order to keep the fruits of the Strawberry free from grit and dirt. They have been grown on banks of soil overlaid with roofing tiles, and on terraces formed of low stone or brick walls. The use of barrels in which to grow the plant is a very old one. Mr. T. Statter, of Stand Hall, Manchester, in sending a photograph of his Strawberry barrel (fig. 45), wrote as follows:—

"I enclose you a photograph of my Strawberry-barrel. The plants are one year old Royal Sovereign, from which I gathered quite 6 lb.; and it would have been better had the plants been in longer, planted either out of pots—or got well rooted; they were taken out of a bed as they were showing flowers. The decided advantages are as follows: birds do not touch them except to a very slight degree; nor do slugs, which have troubled our beds much this year; the fruit ripens better and is of better flavour; no dirt on the fruit; fewer small fruits, and as a consequence, more good fruit; the flowers are better fertilised. The plants can be grown on waste land, on garden walks, on the wall of a Vine-border, or anywhere where the sun can penetrate. Plenty of water is required. There is a drain-tile running up the centre of the barrel, and the barrel revolves on a ball-bearing, but I do not think the moving round is a necessity."



FIG. 44.—TABLE-TRAINED APPLE TREES AT GORHAMBURY PARK, HERTS.

slow, besides which they are of a dark, sombre hue, which is not a recommendation for market work.

A few years ago, *A. laxum pumilum* was a general favourite, but within the last year or two a variety of *A. biforme*, which has fronds of a lighter shade of green, has superseded it to a great extent. I am still in favour of *A. laxum pumilum*, but it requires to be grown on freely from the start, and when well treated it makes a very handsome plant; the only point against it being that it is of rather a deep shade of green. A. Hemsley, Worthing.

TABLE-TRAINED APPLE-TREES AT GORHAMBURY, HERTS.

VARIOUS are the means taken to accelerate the ripening of fruits in the cooler parts of Europe, and these usually take the form of securing the trees to warm walls and fences, so that they may enjoy the higher degree of heat such positions afford. In the present instance, advantage is taken of the capability of the soil to take up the sun's heat, and disperse it slowly during the night.

as a great gardener. Mr. Newberry, the head gardener, tells us, in a note accompanying the photograph, that each tree is 20 feet in length, 6 feet in breadth, and is trained in table form at a height of 3 feet from the ground. These trees bear good crops of fruit, and they consist of some of the best varieties in cultivation. The fruits come of a large size, and possess high colour, owing to their free exposure to the direct sun's rays.

KENNET HOUSE, HARROW PARK.

Few more naturally beautiful gardens exist in the neighbourhood of London than those of Mrs. J. F. Charles, which occupy the slope of one side of Harrow Hill, known as The Park. From the terrace beside the house, which is bright with summer flowers, the view extends over the green hill-side to the lake in the bottom. The latter is reached by a woodland walk, and is a very pleasant part of the garden, especially in summer. The walk along the brow of the hill is skirted by borders of herbaceous plants and annuals which, for a considerable part of the year, presents a mass

SOCIETIES.

ROYAL HORTICULTURAL
Scientific Committee.

JULY 25.—Present: Dr. M. T. Masters, in the chair; Rev. W. Wilks, Mr. Mawley, and Rev. G. Henslow (Hon. Sec.).

A Monstrous Begonia.—Mrs. G. Soames, of Welton House, Daventry, sent a peculiar blossom, with white petals and a large tuft of stigmas, apparently a male flower, with the stamens stigmatiferous. Dr. Masters undertook to examine it further, and report upon it.

A Proliferous Helianthus autumnale.—Mr. Veitch sent specimens of this peculiarity, in which the heads had given rise to pedicellate smaller ones, the corollas being more or less virescent as well. It is remarkable that this species is peculiarly liable to this malformation.

Grapes with mildew—Cypripediums and Apple-trees diseased.—The three following communications on specimens sent to a previous meeting, were received from Dr. W. G. Smith, of the Yorkshire College, Leeds. A special and unanimous vote of thanks was recorded to him for his valuable reports. *Grapes with mildew*.—"The mildew is undoubtedly caused by the fungus *Oidium Tuckeri*, so well known in this country as the common Grape mildew. On treating the Grapes and leaves sent in various ways, the mildew continued to spread on the fruits, but never appeared on the leaves, which on receipt were very healthy. This supports Mr. Wright's opinion. Most of the authorities state that a dry heat is the chief predisposing cause. In the present case the sender believes that the outbreak was in some way related to the raffia fibre used in tying. A sample sent had a white scurf here and there upon it, but, under favourable conditions, this did not produce any fungoid growth. On examination with the microscope it was found to consist of fragments of plant tissues agreeing with the tissues of the fibre itself, and no doubt the dried remains of parts of the plant partially destroyed in the maceration and drying processes by which the raffia is prepared for market. The dry fibre is an unlikely source of infection, but, if any doubt existed, it could easily be sterilised by boiling, or by steeping for a time in a 2 per cent. solution of corrosive sublimate or otherwise. The universal remedy for mildews of the *Oidium* kind is sulphur. A discussion on a hot-water method of treatment of the Vine-mildew has been going on in recent numbers of the *Gardeners' Chronicle*.

Diseased Cypripediums.—"Some flowers were recently sent which were checked in opening, apparently due to a collapse of the lower part of the flower-stalk. There were distinct signs of the presence of fungi, but it was not easy to say whether a mycelium was present or not. A request was made to the sender for portions of affected plants. These arrived in excellent condition, and at first sight looked as hardy as one might wish. The older leaves were very fine, and showed no weak points. The older roots looked rather more dried up than one might wish, but new roots in various stages were coming on, and quite healthy. The younger leaves, however, seemed weak, with a tendency to become discoloured. Acting on previous experience, the e were allowed to dry up, and, as on some other occasions, they produced groups of tiny points—the "pycnidia" of a fungus. It is from the rosettes of young leaves that the flowers arise, so that there may be a connection. On one of the specimens sent the flower-stalk did not collapse, and the weakly younger leaves were absent from the shoot bearing this flower, though present elsewhere on the same plant. The fungus requires further investigation, but spores obtained were of the *Gloeosporium* or *Colletotrichum* type. *Gloeosporium cinctum* was described by Berkeley and Curtiss from Orchid material. The same species was recently worked through by Miss Stoneman, and placed amongst the Ascomycetes (*Botanical Gazette*, August, 1898). Mr. Massee described another Orchid fungus on the Vanilla (*Kew Bulletin*, 139, 1892). I have received various cases from the *Gardeners' Chronicle* of diseased Orchids, all indicating the presence of some form of fungus nearly related to *Gloeosporium*. The disease is known as an 'Anthracnose,' and seems common enough, but we still lack reliable methods of prevention."

Diseased Apple Trees.—"Twigs of Apple with leaves and flowers were received in June. After being kept for twenty-four hours in a moist chamber, abundant conidia of the fungus *Monilia (Oidium) fructigena* were produced. This fungus is well known, and at present the subject of much investigation, since it causes a wide-spread disease of the fruit (also to a less extent on the leaves and twigs) of Cherry, Plum, and Peach, less commonly of Apple and Pear. All the parts sent were affected. The flowers were checked and withered; the leaves reddish brown, abnormally hairy, and somewhat crumpled. The young twigs were dry and brittle, with occasional patches of brown bark marked with darker bands running round the twig. Internal examination showed the mycelium in every part. In the twigs, the region just under the bark was killed and full of mycelium, which could be traced from old to young shoots, and into the flower-stalks and leaves. In the absence of information we cannot suggest how the fungus gained access to the Apple-trees. The fungus is generally regarded as the same form so common on Cherry and Plum, causing the fruits to shrivel up, and remain hanging to the tree in a mummified condition. Keeping this in view, it would be well to pay attention to the trees already mentioned, to gather any dried-up fruits, and to burn them. Careful pruning and destruction of diseased twigs is also an excellent check. Spraying with Bordeaux Mixture

seems a likely mode of treatment, but the results as yet are not conclusive. A monograph on the fungus and disease is promised by Woronia in a recent note (*Botan. Centralblatt*, lxxvi., p. 145).

Stratiotes aloides.—A large specimen of this rare plant was sent by Mr. J. G. Rudd, of Copgrove Grange, Copgrove, Yorkshire, with the following observation:—"This plant grows in a pond on my farm, and is smothering the Water Lilies. One of my horses has eaten freely of it, and died from its effects, so I shall be glad to know if it is poisonous." It is not known to be at all poisonous, as it is a very rare British plant; but it is possible that the sharp-pointed projections down the edges of the leaf, such as occur on *Aloes*, &c., may have had a mechanically deleterious effect on the intestine.

Campanula, species and hybrids.—Rev. C. Wolley-Dod sent specimens of the flowers of *C. rotundifolia*, *C. rhomboidalis* and their hybrid progeny; as well as of *C. lactiflora*, both the typical flowers, and with an abnormal sub-polypetalous form. The following communication was also received from him:—"The form of corolla with narrow separated lobes, described and illustrated by De Candolle, *Monograph of Campanula*, pp. 11, 12, &c., and figured, plate ii., A, and also described by the late Professor J. S. Henslow (see De C., *Monograph*, p. 12), is commonest in *C. lactiflora* (M. Bieb), in which it is always accompanied by narrow leaves. In *C. rotundifolia* it is commonest in broad-leaved forms, which I take to be hybrid, or are at least intermediate between *C. rotundifolia* and *C. rhomboidalis*. These abnormal forms of *C. rotundifolia* are fertile, and the seedlings come in part true, but always include many of the soldanelloid form—i.e., with a duplex corolla, which are also fertile. A study of *C. rotundifolia* and *C. rhomboidalis* (apparently quite distinct and good species, and their variously named intermediate forms, which Godron in his *Flore de France* calls 'a little chaos of species,' leads me to think that *C. rotundifolia* may be a species gradually crawling into new species which are not yet sufficiently defined. In my garden the two species are united by imperceptible gradations, all of which are fertile. Forms having the characters of all the so-called species intermediate between these two may be picked out of them."

Sweet Peas, Malformed.—A curiously-flowered spray of Sweet Pea was sent by Mr. Pratt, Lion Gate, Richmond, every flower on the plant being similarly affected. An examination showed that the petals had remained crumpled up without having attained the usual subsequent expansion on blossoming. The stamens were twisted, but the anthers polleniferous, so that the stigmas were pollinated by "self-fertilisation," the flowers being, in fact, cleistogamous. The flowers were arrested in growth; but it was impossible to assign a cause for their abnormal condition.

Foliaceous Geranium.—A specimen of (apparently) *G. sanguineum* was received from Mr. Bunyard, in which the petals of the flowers were replaced by green leaves, the segments of which had remained conduplicate.

BECKENHAM HORTICULTURAL.

JULY 26.—A pleasanter spot in which to hold a flower show than the public park of Beckenham can hardly be imagined. It is open, breezy, with a level pitch of turf; it is well kept, and bright with flowers, and readily reached. Evidently the people of Beckenham cheerfully give up their right of entry to their park for a day or two, and as cheerfully pay to see the charming display the Committee and energetic Secretary, Mr. W. T. THORNTON, provides for them.

Two commodious tents were occupied by the plants, cut-flowers, vegetables, &c., and a third contained the table decorations, collections of garden wild-flowers, &c. One tent was filled by Messrs. J. LAING & SONS, Stanstead Nursery, Forest Hill; there was a centre table of pretty floral decorations, and at the back a large collection of cut-flowers; while in another tent was a large collection of Roses, including bunches of garden varieties; while in the open air was a considerable circular group of ornamental foliage plants. The highest award made by the Society—a Silver-gilt Medal—was made to this contribution; a similar award being made to Messrs. J. FRED & SONS, nurserymen, West Norwood, for a large group of well grown Caladiums; and also to Messrs. H. CANNELL & SONS, Swanley, for an unique collection of Cacti. A collection of charming *Petunias* from Messrs. J. CARTER & CO., seedsmen, High Holborn, was awarded a Silver Medal; and the same was made to Mr. J. R. BOX, nurseryman, Croydon, for a collection of Begonias and other plants. The Agricultural and Horticultural Association, Creek Road, Deptford, also had a collection of cut flowers of an attractive character.

The specimen plants were arranged down the centre of the principal stage, and stood on a very low stage covered with baize, while the groups were arranged on one side of it; and there was a table of cut flowers and fruit on the other. Groups were a leading feature; the best came from Mr. F. C. Cogger, gr. to H. POTTER, Esq., Lawn Road; *Humea elegans*, *Gloriosa superba*, and *Campanula pyramidalis* forming the background, with a foreground of bright *Codibeums*, *Cannas*, and *Gloxinias*. In addition, this effective group gained the Silver Medal of the Royal Horticultural Society; and Mr. G. E. Day, gr. to H. F. SYMONDS, Esq., 2nd, Orchids and *Lilium speciosum* being prominent. With a group of smaller size, Mr. E. HAWKINS, gr. to C. A. SMITH, Esq., was 1st; and Mr. W. BESWELL, 2nd. Plants for the decoration of dinner-tables were bright and suitable.

Mr. COOPER had the best three stove or greenhouse plants

in flower, in a good *Crassula coccinea*, a *Bougainvillea*, and a *Statice*; and the same exhibitor was 1st with three foliaged plants, having a handsome *Cocos*, a finely-developed *Caladium*, and a *Codibeum*, all of them with well-coloured foliage. Mr. R. ROBERTSON, gr. to W. COBBETT, Esq., was 2nd. There were classes for two plants and for one plant. Good specimen *Fuchsias* were also shown, and also Ferns in four; and there was a class also for a trio. There were also flowering and Rex Begonias, *Fuchsias* in three classes, some very good *Gloxinias* for the season, especially a half-dozen from Mr. J. GALLEY, Hayes Road; and some capital bushes of *Coleus* from Mr. H. COLE. There were also good zonal and other *Pelargoniums*.

An open class for forty-eight Roses brought two collections, Messrs. D. PRIOR & SON, Colchester, taking the 1st prize with some very good blooms; 2nd, Mr. A. G. GREEN, Rose Nurseries, Colchester. Roses were also shown in other classes; Good Cactus Dahlias for the season of the year were shown, those who depended upon the old decorative varieties were taught a very useful object-lesson.

Fruit was fairly good; and the most interesting were the hardy kinds.

A great many vegetables were shown, generally in round flat baskets, which do not show them off to the best advantage. Some of the best were shown in the class in which Messrs. SUTTON & SONS offered special prizes.

BRISTOL and DISTRICT GARDENERS'
MUTUAL IMPROVEMENT ASSO-
CIATION.

JULY 27.—A large number of members assembled on the above date at St. John's Parish Room, Redlands, to listen to a lecture by Mr. W. Staddon on the "History and Cultivation of the Apple." Mr. W. LOCK, the Chairman of the Society, some time ago offered a prize of 30s. to under gardeners for the best essay on any subject connected with horticulture. The competing essays were judged by Mr. W. W. PETTIGREW, of Cardiff, who gave the premier honours to Mr. Staddon. The subject, which is full of interest to gardeners and others, was dealt with in a manner that showed the writer to be quite conversant with the right kind of treatment required by the Apple. A short discussion followed, and the meeting concluded with a hearty vote of thanks to Mr. Staddon.

NEWPORT AND COUNTY
HORTICULTURAL.

JULY 27.—This society held its annual show in the King's Hill Field, Newport, Monmouth, on the above date, and it proved to be, both in the number and quality of the exhibits, the best the society has yet held. The excellence of the trade exhibits did much to further its success, while the table decorations, groups of plants, and cut flowers, which were numerous and of much merit, were very attractive features. Stove and greenhouse plants, Ferns, *Gloxinias*, *Caladiums*, &c., were splendidly shown, as were also vegetables; Gooseberries were fine in point of size and of flavour, and some of the Peaches, Melons, and Grapes were especially good and fine.

PLANTS (OPEN CLASSES).

The best six stove and greenhouse plants in flower were from Mr. CYPHER, Cheltenham, who had as usual large, fresh, splendidly-flowered specimen *Erica Irbyana*, *E. Austriana*, *Stephanotis floribunda*, *Ixora Williamsii*, *Statice profusa*, and a *Bougainvillea*; 2nd, A. T. ROBINSON, Esq., Whitechurch (gr. Mr. McLew), with a good *Crassula coccinea*, *Allamanda Hendersonii*, &c.

The six exotic Ferns class was a good one, Col. WALLACE (gr. Mr. Powell) being 1st, and he was closely followed by W. J. BUCKLEY, Esq.

Four zonal Geraniums: 1st, J. LINTON, Esq. (gr. Mr. Wheatland), with fresh, well-flowered plants.

The Royal Horticultural Society's Silver Medal was awarded to W. J. BUCKLEY, Esq., for four stove and greenhouse plants in flower.

GROUPS OF PLANTS (OPEN).

These were circular, and of 11 feet in diameter. Here W. H. BUCKLEY, Esq., Lilanely (gr. Mr. Carpenter), was 1st with a lightly arranged, effective group, consisting of *Lilies*, Ferns, *Humea elegans*, &c. Mr. McLew was a good 2nd.

H. J. PILLENGER, Esq., was 1st for a group of tuberous-rooted Begonias, arranged in a space of 25 square feet.

CUT FLOWERS (OPEN).

Roses, Hybrid Perpetuals, twenty-four blooms.—Mr. CROSSLING, nurseryman, Penarth, was 1st with good blooms, taking the season into consideration, A. K. WILLIAMS, Tom Wood, Mrs. J. LAING, Dupuy Jamin, Prince Arthur, and Earl of Dufferin being amongst his best; 2nd, Mr. W. TRESEDER, Cardiff.

Teas, twelve blooms.—Here again Mr. CROSSLING was placed 1st with *Maréchal Niel*, *Edith Gifford*, *Comte de Nadailac*, *Madame Hoste*, *The Bride*, &c.

Carnations and Picotees were well shown by Mr. W. TRESEDER, who took the lead in both classes, and was followed by P. A. WILLIAMS, Esq., Usk (gr. Mr. Greening).

Sweet Peas, shown in bunches of twelve, were in splendid condition, and H. H. WILSON, Esq., of Penarth, secured the 1st place; R. JOHNSON, Esq., Cardiff, being a good 2nd.

In a class for twelve bunches of blooms of herbaceous plants, Mr. W. TRESEDER was 1st with *Achillea* The Pearl, *A. multiflora rubra*, *Montbretia crocosmeiflora*, *Echinops ruthenicus*, *Liatris spicata*, *Monarda didyma*, &c.; and Col. WALLACE was 1st for twelve varieties in bunches of stove and greenhouse blooms.

TRADE EXHIBITS

were welcome contributions to the exhibition, and deservedly merited the notices they received. Mr. BARNHAM, Bassaleg, Newport, filled the central tabling of a large tent with numerous heavily-fruited trees of Apples and bushes of Gooseberries in pots, *Codiceums*, *Dracenas*, zonal *Pelargoniums*, &c., arranged in groups, besides showing a collection of the leading varieties of *Cactus Dahlias*, &c. This fine exhibit was awarded a Gold Medal.

Mr. W. TRESEDER, Cardiff, also secured a Gold Medal for a beautifully-arranged large group of plants and cut flowers, similar to that which he exhibited last week at Cardiff.

The Messrs. HEATH & SON, of Cheltenham, staged a fine group of Orchids, *Cactus Dahlias*, Tea Roses, &c.; and Mr. H. ECKFORD, of Wem, some sixty varieties of Sweet Peas, amongst them being many beautiful new ones.

MIDLAND COUNTIES CARNATION AND PICOTEE.

AUGUST 2, 2.—In delightful weather, the annual exhibition of this Society was held in the Botanical Gardens at Edgbaston, Birmingham. There were several entries from growers, who subsequently were unable to compete owing to the hot, sultry weather.

There was scarcely an exhibitor from the South, but the leading flowers came from the Midland Counties, with the exception of two or three exhibits from further north. The quality generally was very good; and the yellow-ground and fancy flowers called forth from the judges the highest praise. It is perhaps not to be wondered at, that the splendid varieties in this section, together with the superb selfs in both sections, mainly the productions of Mr. MARTIN R. SMITH, should prove so attractive on account of their size and fulness; in fact, they are becoming a serious menace to the smaller bizarres and flakes.

It was an inversion of the usual order of things which placed the self and yellow ground flowers in the fore front of the schedule. Mr. A. W. JONES, an enthusiastic Birmingham amateur, carried off the 1st prize; the most attractive and finest varieties were *Britannia* and *Germania*, yellow; Mrs. Eric Hambro, a really superb flower; and Dick Donovan, white; *Isinglass*, scarlet, very fine; *Sea Gull*, bluish; and *Sadek*, rose.

In the class for six blooms, in which Mr. W. BELLAMY, Penkridge, won the 1st prize, some of the finest blooms were *Endymion*, rose; *Her Grace*, bluish; Mrs. Colby Sharpin, salmon; and Mrs. E. Hambro, white. Mr. R. C. CARTWRIGHT, another Birmingham amateur, took the 2nd prize, with flowers only a little inferior.

YELLOW-GROUND FLOWERS.

We have already alluded to the fineness of the yellow-grounds. Mr. JONES added to his triumphs by taking the 1st prize for twelve blooms; and Messrs. THOMSON & CO., Spark-hill, were a very close 2nd. Looking over the stands in this class the following were noted as very fine: *Voltaire*, *The Gift*, *Golden Eagle*, *Stanley Leighton*, *Eldorado*, the latter edged with red on a pale yellow ground; Mrs. Tremayne, *Dervish*, Mr. Nigel, edged with crimson-maroon on a pale ground; and Mrs. Mills, edged with bright reddish-rose. One of the judges said he had never before seen such a fine stand of six yellow grounds as that which won for Mr. BELLAMY the 1st prize.

FANCY VARIETIES.

It is a little difficult to strictly define a Fancy Carnation, but the section, which includes much diversity of marking, includes some very fine and striking flowers. The twelve blooms which won another 1st prize for Mr. JONES, were grandly developed, and included *Perseus*, bluish, edged and flaked with bluish slate and deep orange, selected as the premier Fancy Carnation; *George Cruickshank*, Miss Mackenzie, pale-primrose edged with pink; *Cardinal Wolsey*, *Monarch*, and *Brodrick*, cream, pencilled with slaty-rose. Messrs. THOMSON & CO. had *Perseus* and Miss Mackenzie, very fine; in fact these two superb varieties were foremost in most of the stands. *Pantalone* should also be mentioned, cream ground, edged and pencilled with pinkish-lilac. In the class for six varieties, in which Mr. G. F. SPITTLE took the 1st prize there were also some grand blooms. In addition to the varieties named, *Cardinal Wolsey*, *The Dey*, and *Zingara* were very good.

PICOTEEES.

The white ground edged Picotees were so fine in character that much surprise was expressed at their quality in the face of such trying weather. Mr. ROBERT SYDENHAM took the 1st prize with twelve blooms, having well developed examples of *H. Rose E. Madame Richter*, *L. P. E. Jessie*, *L. Rose E. Mrs. Payne*, an old but still first-rate variety; *H. Red E. Ganymede*, *L. Rose E. Favourite*, and *L. P. E. Pride of Leyton*. Messrs. THOMSON & CO. had very fine blooms also, chief among them *L. Rose E. Nellie*, *L. P. E. Somerhill*, and *H. P. E. Amy Robart*. In the class for six white ground Picotees, although seven prizes were awarded, stands were left undistinguished because of the general fine quality. It should be recorded that Mr. R. C. CARTWRIGHT took the 1st prize in the face of such a keen competition.

BIZARRE CARNATIONS.

Bizarre and flaked white ground Carnations did not reach the high level of quality of the Picotees, but for the season surprisingly good blooms were staged, Mr. SYDENHAM being 1st with twelve varieties, chief among them *R. F. Rob Roy*, very fine, selected, as the premium flake Carnation; *P. F. Gordon Lewis*, *S. F. J. P. Sharp*, *S. B. Robert Houlgrave*, and *P. P. B. George Rudd*. Mr. T. LORD was a close 2nd. The best six, and they were very good, came from Mr. R. C. CARTWRIGHT.

UNDRESSED BLOOMS.

The best six, and they were very good, came from Mr. R. C. CARTWRIGHT. Eleven classes were devoted to undressed blooms of Carnations and Picotees, shown singly and in threes. These classes, though interesting in their way, never attract the attention from visitors which is given to the more refined blooms shown on stands.

SINGLE FLOWERS AND PREMIER BLOOMS.

There were twenty-six classes for single blooms, in which a very large number were staged. Of Carnations, the best *S. B.* were *Admiral Curzon* and *Robert Houlgrave*; *C. B.*, *J. S. Hedderley* and *Master Fred*; *P. P. B.*, *W. Skirving* and *George Rudd*; *S. F.*, *Sportman* and *Guardsman*; *R. F.*, *Merton* and *Christi Galli*; *P. F.*, *George Melville* and *Gordon Lewis*. Picotees: *H. Red E.*, *Mabel Lakin* and *Brunette*; *L. Red E.*, Mrs. Gorton (a very fine old variety) and *T. Williams*; *H. P. E.*, Mrs. Openshaw and *Muriel*; *L. P. E.*, *Nymph* and *Pride of Leyton*; *H. Rose E.*, *Lady Louisa* and Mrs. Rogers; *H. Scarlet E. Clio*, and Mrs. W. Barrow; *L. Rose E. Nellie*, *Y. G. Fancy Voltaire*, *Y. G. Picotee*, *Empress Eugénie*, and



FIG. 45.—STRAWBERRY PLANTS GROWING IN A BARREL.
(SEE P. 115.)

Mrs. Douglas; *Fancy Carnation*, *Perseus* and *Czarina*; *Fancy W. G. Car. Edith*, white edged and barred with bright reddish rose; and *Duchess of Portland*, edged and barred with pale rose. Selfs, white; Mrs. E. Hambro; *Blush*, *Sea Gull* and *Her Grace*; *Yellow: Germania* and *Britannia*, *Germania* winning four out of five prizes. Buff: Mrs. Colby Sharpin; *Rose* and *Pink*; *Asphodel* and *Exile*; *Scarlet: Endymion*; *Dark Crimson: Topsy* and *Heliotrope*, *Roseleigh Gem*.

The premier bizarre was *S. B. Robert Houlgrave*. Flake: *R. F. Rob Roy*; *H. E. Picotee*; *H. Rose Lady Louisa*; *H. K. Picotee*; *P. E. Mrs. Gorton*; *Y. G. Picotee Mrs. Douglas*. *Fancy Yellow: G. Voltaire*. Self Carnations: *Endymion*, *Scarlet* and *Fancy Carnation: Perseus*.

There were classes for six pots of Carnations; also for shower bouquets, a superb one winning the 1st prize for Messrs. POPE & SON; also for sprays and buttonholes. The best dinner-table was by Miss SYDENHAM, who had dark and salmon Carnations, very tastefully set up with appropriate foliage.

MISCELLANEOUS.

Two classes for bunches of Sweet Peas, one for nine and the other for twelve brought charming exhibits, some of the best varieties being shown in excellent character. Mr. V. B. JOHNSTON, Tettenhall, took the 1st prizes in both classes. A floral arrangement in Sweet Peas for drawing-room, set up on small, round tables, was a delightful feature; also miscellaneous collections. These consisted of superb collections of hardy cut flowers from Mr. W. F. GUNN, Olton (Silver Medal). Silver Medals to Messrs. KELWAY & SON for a very fine collection of *Gladioli*; and to Messrs. HEWITT & CO., for *Floral Decorations*. Small Silver Medals to M. S. MORTIMER for a collection of excellent *Cactus Dahlias*; and Messrs. PERKINS & SON for *Cut Roses*; and Bronze Medals to Mr. W. SYDENHAM, for cut flowers and baskets of *Roses*; Messrs. PRICHARD & SON, and Messrs. CUTBUSH & SON, for Carnations.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUH, Esq., Dropmore, Maidenhead.

Strawberry Plants for Early Fruiting.—The runners having been layered in 60's, or on bits of turf, a month ago, will have become nice strong plants, after removal from the beds a week or longer ago, and will be in a suitable condition for planting in beds to fruit next year. The best method of getting early fruit is to plant strong runners on a warm border which has been heavily manured and deeply dug for some previous crop of vegetables—say Cauliflowers, Lettuce, or Tripoli Onions. Such early-planted Strawberry plants ripen their fruits at the least ten days earlier than older plants. They should not be allowed to occupy the land more than one year, and may therefore be planted 1 foot apart in the lines, planting quincunx fashion. Do not bury the crown below the surface; on the contrary, keep it rather high, and make the soil thoroughly firm by trampling the whole area to be planted, and treading close round each after planting. Before planting, the ground must be cleaned and made level, which is about all that is necessary with land that was well prepared for the previous crop. The young plants should be well moistened before planting, and receive a copious application of water after planting. If planting can take place in cloudy or rainy weather, and the runners are in pots, scarcely any check will be inflicted; the case, however, is less favourable if the rooted runners have to be lifted from the ground. After trying several varieties, I have for the past two seasons depended entirely on *Royal Sovereign* for my first crop. *Vicomtesse H. de Thury* and *Noble* are equally early, but the former, although of excellent flavour, is small.

Budding Fruit-trees and Stocks.—During the next two weeks budding may be carried on. Although not extensively practised in private gardens, it may often be employed as a means of restoring the symmetry of a tree; *Pears*, *Plums*, *Cherries*, *Peaches*, and *Nectarines* being equally amenable to budding. Where unsightly bare spaces exist in the framework of a tree, these may be covered with shoots, and the due balance of the tree restored in a season or two. Where wilding stocks are grown for being grafted or budded, or as a means of inarching, which is seldom the case in private gardens, the method to employ is identical with that used by the *Rose-budders*, the young budded stem being left at full length till pruned back to within 4 inches of the bud at the winter season. By thus allowing an outlet for the sap by growth extension, the inserted fruit-bud remains dormant throughout the season, and does not make a move till the spring. With a view of enabling the bark to "run" freely, water should be copiously afforded the stocks to be budded a day or two before the work is to commence.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Laelia purpurata.—The autumn growths of this plant produce the larger number of flower-sheaths, and it is good practice to retard the growth after the plant has flowered for as long a time as possible, which is done by keeping the plant moderately dry in a cool-house. Often, however, sufficient growth has taken place to warrant repotting and top-dressing being performed as necessity may prompt. The plant being a vigorous grower, a larger pot should be used than is usually afforded other species of *Laelia*, but whilst affording a greater area of peat and sphagnum-moss, it should be shallow, and the drainage materials very abundant. The plant may be grown in the Cattleya-house under the usual kind of treatment afforded the occupants of that house. Just at the present time, and after being disturbed, the materials should be kept rather dry, affording a more liberal supply of water as the new growths advance and begin to emit roots.

Laelia pumila now pushing forth new growths may require repotting during August. For this purpose, pots or pans just about large enough to hold the plants comfortably should be employed, elevating the plants slightly above the rim, and using a large amount of drainage and some peat

and sphagnum-moss to pack about the roots. The plant should be grown with a moderate amount of shade in the intermediate-house, and once root activity has begun, it should be kept well moistened. *L. pumila præstans*, often confounded by gardeners with *L. pumila*, may be afforded like treatment, but *L. pumila Dayana* thrives better under cooler and moister treatment. The first two should be suspended from the rafters.

Lælia Jongheana, a species that has been recently rediscovered, would at first sight appear to belong to the *pumila* section, and it was accordingly treated by most cultivators similarly to *L. pumila*, but from constitutional or other cause the plant did not thrive, and thousands have been lost, and only one or two have flowered. At Clare Lawn, the plant has been tried in a variety of temperatures and positions; the one that gave the best results was to suspend it with *Odontoglossum citreum*, which is a plant that requires a fair amount of sunlight, and a temperature that rises considerably during the day and falls to about 58° at night. As soon as the plant began to make roots, water in quantity was applied; and although flowers have not been produced, pseudo-bulbs of a good size have matured, from which, as the plant becomes accustomed to artificial conditions, we hope to get flower-producing pseudo-bulbs.

The Resting of Dendrobiums.—Various species will have ceased to grow, and to ensure proper maturity and prevent a second growth, the treatment must now be changed. *D. Wardianum*, *D. crassinode*, *D. Findleyanum*, *D. Hildebrandti*, and *D. primulinum*, which were removed on the completion of growth to cooler quarters, and *D. aureum* and *D. superbum*, which remain in the East Indian-house, should be gradually afforded less water. The thyrses-flowering *Dendrobies* should be afforded a drier air and plenty of water at the root when they have finished up their pseudo-bulbs.

General Remarks.—The tropical heat and strong sunshine of the past month have in most cases benefited the warm-house *Dendrobies*, and the shading may remain off the house for a longer period than would have been advisable at an earlier part of the season. This, however, will not apply to *Cypripediums* and other *Orchids* destitute of pseudo-bulbs, though even these may have too much shade during bright weather. The houses have been ventilated pretty constantly day and night, much to the benefit of the inmates. The lower ventilators in the side walls of the Cattleya-houses at Clare Lawn have been wide open since early in the month of June, and latterly the top ones have been opened an inch or two day and night. The cool-houses have been, and are, ventilated to the fullest extent.

FRUITS UNDER GLASS.

By W. STROUGHILL, Gardener to Lieut.-Col. VIVIAN, Rood Ashton, Trowbridge.

Figs in Pots.—These plants, which, having finished up their crops of fruit, have been afforded plenty of air and full exposure to sunshine, may now be stood out-of-doors, the pots being sunk in coal-ashes, or surrounded with straw litter or plunged in the ground. Abundance of water during warm weather will be needed by these plants, in order to prevent injury to the leaves and young fruits. The pots being filled with roots, weak manure-water or dressings of artificial manure or of bone-meal should be afforded. Those *Figs* which have swelling fruits upon them should be kept under glass, and given a similar kind of treatment till the fruits are gathered, when they also may go outside. No more side-shoots should be permitted to grow, but all of them should be pinched back whilst still quite young.

Fig-trees in Borders.—Let the shoots be regularly stopped and secured to the wall or the trellis, taking care to avoid crowding them. Afford water freely before the border gets unduly dry, and manure water in accordance with the needs of the trees. While the fruit is ripening, afford air, in order that no moisture may condense on the fruit, and do not syringe the foliage. If fruits have to be sent to distant parts, let them be gathered before they have become dead ripe. Of course, fruit to be consumed on the place is better left on the trees till fully ripe.

Muscat of Alexandria Vines.—The Grapes on the first-started Vines will be fast taking on their final tint, and air should be afforded by both front upper ventilators so as to assist the colouring, a slight

warmth from the hot-water pipes being afforded as well at night. The amount of air should be reduced when the sun's rays have left the roof of the vinery, and be increased in the morning before the temperature increases much from sun heat. The side growths should be frequently stopped. It may be necessary to pull aside the leaves, which may be shading bunches that are required early for the table, doing this gradually, or the berries may get scalded. The colour of white Grapes is clearer and freer from blemish when the colouring stage is allowed to proceed without undue haste. All shanked, as also the small seedless, berries should be removed as soon as detected. Should red-spider infest the leaves, syringe them carefully with pure rain-water, or wipe them with a sponge dipped in the same. The latter method may cost more time, but it is the more effectual. The floors of the vineries should be damped often during the hottest part of the day.

PLANTS UNDER GLASS.

By O. R. FIELDER, Gardener, St. James's House, Malvern.

Gemera exoniensis.—The flowering-season of this showy winter-flowering plant may be extended into the early spring by starting the tubers in successive batches. It is, however, useless to attempt to start them into growth until they have been thoroughly rested, for the tubers, though repotted and placed in the stove, cannot be induced to start much before their proper season. It is, therefore, only by retarding a portion of the stock that the flowering season may be most readily prolonged, the latest portion being kept dormant until the tubers exhibit signs of voluntarily starting into growth. If any tubers which have rested since last spring are available, a number of them may be introduced into heat at this date, repotting the tubers singly in 3-inch flower-pots, the top of the tuber being sunk half-an-inch below the level of the soil. The latter may consist of loam, leaf-soil, and peat, in equal parts, with as much sharp sand as may be needed to give it porosity. This mixture should be passed through a $\frac{1}{2}$ -inch meshed sieve. Place the potted tubers upon a shelf in the plant-stove, and keep the soil in a slightly moist state until growth has commenced, when a little more water should be afforded, increasing the quantity as time goes on. The plant should be afforded a moist, high temperature, with much moisture in the air during growth. Syringing of the foliage should not be practised, as it spoils the beauty of the leaves. When the roots have reached the sides of the pots, the plants should be shifted into 48's, and subsequently into 32's.

Show Pelargoniums.—The shoots should now be cut back to within a few inches of the old wood, and the plants placed in a cool airy house or pit in order to break. They may be afforded water once, and afterwards be syringed overhead twice a day till the new growth begins. Usually the breaks are very numerous, and disbudding has to be performed, in the first instance the weak and badly placed shoots being removed, leaving those which are about equal in point of strength; and a little later, a less severe thinning of these may be called for. When the shoots are about an inch in length, shake off the whole of the soil from the roots, shorten the latter somewhat, and place the plants in flower-pots of a size just large enough to contain the roots comfortably, with a small quantity of soil. A suitable compost consists of fibry loam $\frac{2}{3}$, and leaf-soil $\frac{1}{3}$, with plenty of coarse silver-sand. Let the plants be potted firmly, and for a few days afterwards afford them light shading during bright sunshine. Water should be sparingly afforded till the plants are well established, much water causing the foliage to assume an unhealthy appearance. Cuttings if inserted at the present time, will make good decorative plants in the spring. Short well-ripened shoots of the current season's growth, a few inches in length, will strike readily if inserted singly in thumb-pots filled with sandy soil, and placed on a greenhouse-shelf, or in a cold frame.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt Tisbury, Gloucester.

If the arrangement of the flower-beds or the plants that fill them do not please, or the borders of herbaceous perennials are unsatisfactory, now that they have all attained perfection for this year, notes should be made of contemplated improve-

ments. The most satisfactory way of setting to work is to make plans of the parterres, beds, or borders, writing in the names and numbers of the plants required to fill them, which become useful references when propagating bedding-plants, and prevent the common occurrence of having too many of one variety and not enough of others. When new plants are planted in the borders of herbaceous perennials, and they are found subsequently to be out of place by reason of unsuitability of height or of habit, it is wise to indicate more suitable spots for the plants, placing labels at these spots bearing the names of the plants, and a mark showing that they have to be removed thither. If this system were adopted generally, much trouble at planting-time would be saved; and it is the only means of making such borders perfect. Continue to remove dead leaves and faded flowers from the beds, and to peg down *Verbenas*, *Ivy-leaf Pelargoniums*, &c., and remove shoots which have grown out of bounds. Place stakes and ties to all plants requiring support, remove weeds, freshen and stir the surface with the Dutch-hoe, raking and making it neat. *Calceolarias* should now be afforded manure-water in order to maintain the flowering, and induce a good growth of shoots. *Lobelias* also suffer if allowed to become dry at the roots, or starved; moreover, the shoots which have flowered should be nipped off, thereby enabling fresh shoots to push up and produce flowers. Afford Stocks, *Zinnias*, *Salpiglossis*, *Marigolds*, and other strong growing annuals weak manure-water twice a week, and damp the foliage of *Asters* every evening in order to check the spread of red-spider and thrips.

Coleus, *Iresines*, *Ageratums*, *Alternantheras*, *Heliotropes*, and other tender bedding-plants, should not be topped, but the shoots left to furnish cuttings, which must be put-in in the earlier half of this month.

Roses.—When the flowers of *Crimson Rambler*, *Aimée Vibert*, *Madame Desprez*, *Fellenberg*, *Félicité Perpétue*, *Polyantha*, and other clustering *Roses* are past their best, the old wood may be removed or cut back to points where new growths have started, tying in the shoots loosely to the stakes or arches. If growth is weakly, apply water, and also manure-water well diluted with water; or sprinkle the earth with Clay's Fertiliser, and apply water afterwards. Side-shoots of last year's growth taken off with a beel and dibbled into sandy soil under handlights, and the soil kept moist, soon form roots. Tea *Roses* require liberal manuring either by means of mulches of rich manure or manure-water, so as to obtain strong growths that will bloom this month and September. Continue to bud *Roses*. *Crimson Rambler* forms excellent heads when budded on the *Dog Rose*, at 5 to 6 feet from the ground.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Cauliflowers.—These plants should be afforded water abundantly, and at fortnightly intervals liquid-manure. Good *Cauliflowers* can only be obtained in such a season as this by abundant applications of water to the land, which must be rich, and have been deeply trenched. In hot weather go over the rows of plants, and turn in or break down a few of the inner leaves over the curd, and run the Dutch-hoe between succession plants; also draw a little soil up to the stems, having previously afforded liquid-manure and water to the soil if it be dry.

Coleworts may be planted out thickly on firm land in good heart, affording the seed or nurse-bed water before lifting and after planting them; and if the soil is loose make it firm about the roots, and plant deeply on all light soils. The compact little *Cabbages* that grow under this kind of treatment will be found very useful in the winter, and of good quality.

Onions.—Keep the beds free from weeds, and if the soil is very dry afford it a copious soaking with clear water. Of such as show signs of ripening, press down the tops with a wooden rake. If large *Onions* are required, and the plants have been well thinned, soak the land with guano-water or some other approved artificial liquid, doing this thoroughly so that it may reach the roots. Do nothing to unduly hasten maturity.

Potatoes.—When the early varieties become ripe, dig up and sort the tubers, picking out the required

number of sets and storing them in a cool place. If tubers are left in the ground after the skin has got firm, they will quickly start into growth in showery weather. Let all the land occupied with Potatoes be freed from weeds, not permitting any to reach the seeding stage.

Rhubarb.—Now is a good time to preserve stalks of Rhubarb, these being now firm and less full of juice than earlier in the summer, and consequently the jam will keep well, and be of finer quality. Mark those roots intended for forcing, for which purpose the roots should be specially prepared.

Chicory, Dandelions, &c.—These plants should be grown to a large size, the hoe being frequently run alongside and between the rows, and water and liquid-manure afforded so as to encourage growth.

Globe Artichokes.—After all the usable heads have been consumed, remove all the stalks for the plants' sake, and for neatness. Copious applications of water and of manure-water, greatly tends to throw strength into next year's shoots and stems.

Lettuce and Endive.—Sow seeds of Lettuce and Endive in good quantity, and plant large breadths, to meet all probable demands. Hick's Hardy White Cos, and some of the hardy Cabbage are varieties that should be sown from now onwards. When sowing, pour water along the drills, and also when planting.

Turnips, Lettuce, Radishes, Spinach, and other kinds of salads and vegetables for summer supply, should, when convenient, be grown in shaded cool borders.



The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Duration.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths In.	In.	No. of Rainy Days since Jan. 1, 1899.	Total Fall since Jan. 1, 1899.
	Above (+) or below (-) the Mean for the week ending July 31.	Above 42° or below 42° the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.				
0	2 +	103	0	+ 178	5	127	25	17
1	2 +	123	0	+ 108	5	119	25	31
2	2 +	132	0	+ 246	5	108	14	28
3	2 +	148	0	+ 251	5	106	12	50
4	1 +	181	0	+ 230	6	98	14	89
5	4 +	156	0	+ 338	5	81	12	59
6	1 +	114	0	+ 182	4	124	28	83
7	1 +	127	0	+ 254	8	110	19	85
8	2 +	137	0	+ 318	8	101	21	68
9	1 +	117	0	+ 151	7	180	20	75
10	1 +	126	0	+ 265	5	111	24	30
11	2 +	153	0	+ 482	7	98	15	64

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Graining, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending July 29, is furnished from the Meteorological Office:—

"The weather, after the 23rd, when thunderstorms and heavy rains occurred in many parts of our eastern and southern counties, the weather over England was mostly fair, warm, and dry. In Ireland and Scotland, showers were rather frequent, but at the close of the week, the fair dry weather was extending also to those countries.

"The temperature was above the mean over the whole Kingdom, the excess amounting in most districts to only 1° or 2°, but in 'England, S.' to as many as 4°. The highest readings were observed at various times in the different districts, but mostly either between the 24th and 26th, or on the 29th. Over the central and south-western parts of England the thermometer touched 80°, and in 'England, S.' it rose to 85°; in the western and northern parts of the Kingdom as a whole, however, it went very little above 75°, and in 'Scotland, W.' only reached 70°. The lowest readings occurred on various dates in the latter half of the week, when the thermometer fell to 41° in 'England, S.' and 'Ireland, N.' and to 44° in the 'Midland Counties.' In 'England, S.' it did not fall below 50°, and in the 'Channel Islands,' only reached 54°.

"The rainfall was considerably less than the mean in all districts excepting 'Scotland, N.' and 'England, E.' In the former district the amount was considerably more than the mean, while in 'England, E.' it was just equal to it, the result in the latter case being due to the heavy thunder rains which occurred on the 23rd.

"The bright sunshine was in excess of the mean over the eastern, central, and southern parts of Great Britain, but was either normal or slightly deficient in other districts. The percentage of the possible duration, ranged from 63 in 'England, S.W.,' 64 in the 'Channel Islands,' and 53 in 'England, S.' to 25 in 'Ireland, N.' and 17 in 'Scotland, N.'"

Obituary.

LADY DE WALDEN.—We regret to announce the death of Lady de Walden on Saturday, July 29, at St. James's House, West Malvern. Lady de Walden was an enthusiastic patron of horticulture, taking a personal interest in her gardens, and apending large sums of money upon her fancies, which embraced among others Orchids. She erected extensive ranges of glass-houses in the gardens of Mote Park, Maidstone, of which estate she was but the tenant; and paid, moreover, a heavy sum of money to be released of the tenancy, when obliged to go to Malvern on account of the illness of her daughter. The glass structures were then removed to Malvern and re-erected.

MRS. RICHARD PARKER.—Many of our readers who may have visited the ducal gardens at Goodwood, Sussex, will learn with regret of the death, recently, of Mrs. Richard Parker, the wife of the head gardener at that place. The funeral took place at Brompton on July 23, on the anniversary of her birthday.

MARKETS.

COVENT GARDEN, AUGUST 3

(We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.)

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Arum Lilies, dozen blooms	3 0-4 0	Mignonette, dozen bunches	4 0-6 0
Asparagus "Fern," bunch	2 0-2 6	Orchids, per dozen blooms	2 0-15 0
Carnations, per dozen blooms	1 6-8 0	Pelargoniums, dos. bunches	4 0-6 0
Eucharis, per dozen	4 0-6 0	Roses indoor, per dozen	2 0-3 0
Gardenias, per dozen	1 6-2 6	— Red, per doz.	2 0-4 0
Lilium Harriol, per dozen blooms	3 0-4 0	— Tea, white, per dozen	2 0-3 0
Lilium longiflorum, per dozen	4 0-6 0	— Yellow, per doz.	2 0-3 0
Lily of the Valley, per dozen sprays	0 6-1 8	— Safrano, per dozen	2 0-2 6
Marguerites, p. doz. bunches	3 0-4 0	Smilax, per bunch	3 0-4 0
Maidenhair "Fern," per doz. bunches	4 0-6 0	Sweet Peas, dozen bunches	3 0-4 0
		Tuberose, 12 blms.	0 8-1 0

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Adiantum, p. doz.	5 0-7 0	Foliage plants, var., each	1 0-5 0
Arborvitae, var. doz.	6 0-36 0	Fuchsias, per dozen	4 0-6 0
Aspidistra, p. doz.	12 0-36 0	Heliotropes, per dozen	6 0-8 0
— specimen, each	5 0-10 6	Hydrangeas, p. doz.	6 0-10 0
Crotons, per doz.	18 0-30 0	Lilium Harriol, per dozen	18 0-24 0
Dracenas, var. doz.	12 0-30 0	Lycopodium, doz.	2 0-4 0
— viridis, per doz.	9 0-18 0	Marguerite Daisy, per dozen	6 0-0 0
Erica, var. per doz.	18 0-36 0	Myrtles, per dozen	6 0-0 0
Eucynymus, various, per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var., per dozen	4 0-18 0	— specimens, ea.	21 0-63 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, scarlet, per dozen	4 0-6 0
— small, per 100.	4 0-6 0		
Ficus elastica, each	1 6-7 6		

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Apples, all home-grown:		Lemons, Naples, per case of 300.	18 0-20 0
— Juneating, bus.	5 0 —	— Murcia, case of 300	12 0 —
— Julien, bushel	4 0-4 6	Lyches, Chinese, packet, 1 lb.	1 8 —
— Keswick, bush.	3 6-4 0	Melons, in cases 24 or 36	9 0 11 0
— Suffolk, bushel	6 0-6 6	— each	1 0-2 0
— Various, bushel	3 0-4 0	— Foreign Rock...	1 6-2 6
Bananas, per bunch	8 0-11 0	Nectarines, A., doz.	7 0-10 0
Cherries, Caroons, per sieve	5 0 —	— B., per doz.	2 0-5 0
— Bigarreau, Napoleon, sieve	12 0-16 0	Oranges, Murcia, case	16 0 —
Figs, per dozen	2 0-2 6	Peaches, A., doz.	7 0-10 0
— Currants, blk., sieve	5 0-6 0	— B., per dozen	2 0-5 0
— Red, sieve	3 0-5 0	Pears, Williams, 48, case	5 6 —
— White, gallon	2 0-2 6	Pines, St. Michael's, each	8 6-6 6
Gooseberries, sieve	1 6-2 6	Plums, Blue, sieve	5 6 —
Grapes, English, Hamburg, lb.	1 6-2 0	— Orleans	5 0-6 6
— Alicante, per lb.	1 0-1 4	— Rivers (English), per sieve	5 0-6 0
— Gros Colmar	1 6-1 9	— Gages, sieve	8 0-11 0
— Muscata, A., per lb.	2 0-2 6	— pecks	5 6 —
— B., per lb.	1 6-1 9	— boxes	1 9-2 8
— Belgian, per lb., new	0 6-1 2	Raspberries, per cwt.	30 0 32 0
— Channel Islands, Hamburg, lb.	0 9-1 0	— punnets	5 0-9 0
— Muscata, lb.	1 3-1 9		
— Denia, barrel	5 0-6 0		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.		s. d. s. d.	
Artichokes, Globe, per doz.	1 6-2 0	Marrows, Veg., doz.	0 9-1 6
Aubergines, per dozen	1 0-1 8	— tally	3 0-4 0
Beans, English, Dwarf, per sieve	1 6-2 6	Mint, per dozen bunches	1 6-3 0
— Broad Windsor, in bushels	1 6 —	Mushrooms, house, per lb.	0 9 —
— in bags	2 0 —	Onions, cwt. bag	3 6-4 0
— Scarlet Runners, per bush.	3 0-5 6	— Dutch, bags	4 6 —
— per sieve	1 6-2 6	— Opoto and Valencia, cases	4 6-5 0
Beetroots, new, doz. bunches	2 0-3 0	— new, bunches	4 0 —
— in pots	4 0 —	Parsley, new, dozen bunches	1 6-3 0
Cabbage, tally	4 0-7 0	— in sieves	1 0 —
— dozen	1 0-1 6	Peas, blues, per bushel	2 6-6 0
Carrots, new English, per dozen bunches	0 9-2 6	— bags	5 0-6 6
Cauliflowers, dozen	2 0 —	Potatoes, Hebron, Snowdrops, &c. per ton	60 0-90 0
Celery, new, per bundle	1 6 —	Radishes, round, breakfast, per dozen bunches	1 6 —
Cress, per dozen punnets	1 4 —	Salad, small, punnets, per dozen	1 8 —
Cucumbers, doz.	1 0-3 0	Shallots, new lb.	0 2 —
— ridge in pots	6 0 —	Spinach, New Zealand, per peck	0 9-1 0
Endive, new French, per dozen	1 0-1 6	— sive	1 6 —
Garlic, new, per lb.	0 2 —	Tomatoes, new English, per lb.	0 3-0 4
Horseradish, Eng. lb. bundle	3 6 —	— Channel Islands, p. lb.	0 24-0 8
— foreign, per bundle	2 6 —	— French, in sieve, 20 lb.	2 3 —
Leeks, new, per doz. bunches	2 0 —	Turnips, new, doz.	4 6-5 0
Lettuce, English, Cabbage, dozen	2 0 —	Watercress, p. doz. bunches	0 6 —
Ltuce, Cos, doz.	2 0-3 0		

POTATOES.

Hebron, Puitan, Snowdrop, Up-to-Date, &c., for to 10s. John Bath, 32 and 34, Wellington Street, Covent Garden.

REMARKS.—The Apples quoted above are all home grown, for there are as now but few from Victoria on sale. Vegetable Marrows are plentiful and cheap. Strawberries had a short season, and are now at an end; of Raspberries, there is still a fair supply. A few English Plums are arriving, and next week a general supply of early varieties may be expected. The white Currants quoted are from the Sandwich district, which generally come in the oval gallon-basket, twelve of which go into a box. Gooseberries are nearly over for the season.

SEEDS.

LONDON: August 2.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to-day's market presented quite a holiday appearance. New English Trifolium has this week been in improved demand, and at a substantial advance in value. For White Mustard there is a steady sowing request. Samples of new English Rapeseed are now appearing. There is some enquiry for new Rye and Tares. The market for Canary-seed exhibits less excitement; holders, however, express confidence as to a further upward movement shortly. Supplies of Hempseed seem nearly exhausted. There is no change in either Peas or Haricots. Linseed keeps firm.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending July 29, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
Wheat	s. d. 36 11	s. d. 25 2	- 11 9
Barley	s. d. 24 2	s. d. 22 5	- 1 9
Oats	s. d. 30 11	s. d. 18 2	- 2 9

FRUIT AND VEGETABLES.

GLASGOW: August 2.—The following are the averages of the prices recorded since our last report:—Gooseberries, 9s. to 10s. per cwt.; do., Sulphur, 5s. per half sieve; do., Crown Boba, 1s. 3d. to 1s. 9d. per quarter sieve; Grapes, Guernsey, 8d. to 1s. per lb.; do., English, 1s. 3d. to 1s. 9d. do.; Greengages, 2s. 9d. to 3s. per round; ditto, 8s. to 9s. per pad, 2s. 6d. to 4s.; do., halves, 6s. to 7s. 6d.; Plums, 6s. to 9s. per half sieve; Melons, Valencia yellows, 24s. 5s. 6d. to 7s. per case; 8s. 6s. to 7s. do.; Peaches, home, 4s. to 8s. per dozen; Currants, Black French, £18 to £22 per ton; do., Butch, £16 to £18, do.; Strawberries, Scotch (hamper), 24d. to 3s. 4d. per lb.; do., crates, 8s. 6d. to 8s. per dozen punnets; Tomatoes, Scotch, 5d. to 8d. per lb.; do., English, 4d. to 5d. do.; do., Guernsey, 3d. to 4d. do.; Valencias, 4s. to 5s. per case; Peas, 3s. 6d. to 4s. per half bag; 8s. 6d. per bag; Carrots, Dutch, 4s. to 5s. per hamper; Cucumbers, 8s. to 4s. 6d. per dozen; Cabbages, 1s. 8d. per dozen; Cauliflowers, Edinburgh, 2s. to 2s. 6d. per dozen; Onions, 4s. 6d. to 5s. per cwt.; Parsley, 1s. to 1s. 6d. per stone; Lettuces, round, 9d. to 1s. 8d. per dozen; do., Cos; Marseillais, 3s. per bundle; Mushrooms, 1s. to 1s. 3d. per lb.; Beetroot, 6d. to 9d. per dozen; Spinach, 2s. to 3s. 6d. per stone; Turnips, French White, 8d. to 9d. per bunch; round new Carrots, 9d. do.; Scotch Turnips, 8s. to 4s. per dozen bunches; do., Irish, 6s. to 12s. do.

LIVERPOOL: August 2.—*Wholesale Vegetable Market*.—Potatoes, per cwt., Early Regents, 1s. 6d. to 2s.; Kidneys, 2s. 6d. to 4s.; Turnips, 6d. to 8d. per doz. bunches; Swedes, 2s. 6d. to 2s. 6d. per cwt.; Carrots, 6d. to 8d. per dozen bunches; Parsley, 6d. to 8d. do.; Onions, foreign, 2s. 6d. to 3s. per cwt.; Lettuces, 4d. to 6d. per doz.; Cucumbers, 1s. 8d. to 3s. do.; Cauliflowers, 1s. to 1s. 6d. do.; Cabbages, 8d. to 1s. 4d. do.; Peas, 2s. to 2s. 6d. per bushel; Beans, 10d. to 1s. 3d. do. *St. John's*.—Potatoes, new, 1d. per lb.; Grapes, English, 1s. 6d. to 3s. do.; do., foreign, 7d. do.; Pines, English, 4s. to 6s. each; Currants, white, 4d. per lb.; do., black, 5d. do.; Gooseberries, 3d. per quart; Peas, 1s. to 1s. 2d. per peck; Cherries, 6d. to 8d. per lb.; Cobnuts, 8d. do.; Cucumbers, 3d. to 4d. each; Mushrooms, 1s. per lb. and basket. *Birkenhead*.—Potatoes, 10d. to 1s. per peck; Peas, 10d. to 1s. 4d. do.; Cucumbers, 3d. to 6d. each; Cherries, 6d. to 8d. per lb.; Currants, black, 5d. do.; do., red, 3d. to 4d. do.; Gooseberries, 3d. to 3d. do.; Peaches, 3d. to 4d. each; Grapes, English, 1s. 6d. to 3s. per lb.; do., foreign, 6d. to 8d. do.; Pines, English, 1s. 6d. to 3s. each; Mushrooms, 6d. to 1s. per lb.

ANSWERS TO CORRESPONDENTS.

AMARYLLIS BELLADONNA: R. E. B. The flowers appear before the leaves, consequently it is not desirable to afford the bulbs water before the flowers have appeared and leaf-growth has begun, and even then the soil should be very sparingly afforded water at first. You seem to have afforded water far too early, and the result is decay of the bulbs, and of the few roots produced. It was right to pot the bulbs in June, but you erred in applying water before there were roots to take it up.

APPLES: G. W. The fruits sent show vividly how great was the damage wrought by the hail.

APPLE-TREES: J. M., and J. M. The insect is *Schizoneura lanigera* (American-blight), and very injurious to the trees. At this season you cannot do more than syringe the trees with petroleum emulsion; but in the winter stronger measures should be taken. At that season the trees should be pruned, then all the rough bark should be shaved off, and burned forthwith, together with the prunings, and the branches and stem cleaned with hot-water, and Gishurst Compound-soap, 4 oz. to the gallon of water. This washing with hot-water and soap may be performed thrice, but not later than the middle of the month of February. Having cleaned the tree in the manner indicated, uncover the roots, but do not otherwise disturb them, and saturate the soil with soap-suds and farm-yard sewage, replacing the soil thrown out with clean soil from the kitchen-garden quarters. It does good to put some smothering coating on the stem and branches consisting of strong clay, cow-dung, lime, and soot, made into a thick paint with water.

BEECH: Thos. Taylor. The insect is *Chermes Fagi*; most difficult to dislodge from large trees. You might syringe the tree with petroleum emulsion made by mixing petroleum at the rate of a wineglassful to 3 gallons of strong soap-suds, preferably made with good soft-soap. It should be kept well agitated whilst being used.

BEGONIA LEAVES SPOTTED: E. G. This is due, we think, in this case, to watery globules acting as burning-glasses under hot sunshine. It might easily occur on plants afforded water on the morning of hot days. No fungus was discovered on the leaves and shoots sent.

BULBS AND SPRING FLOWERING PLANTS: J. H. We must state at once that you cannot hope in this country to cut flowers all the year round. With glass protection it is different. There need then be no break in the supply. Out-of-doors in the winter months there are Winter Aconites, Snowdrops,

single and double flowered; then come Daffodils and Narcissus in long succession; Hellebores in variety; Dutch bulbs, Lily of the Valley, Early Gladiolus, *Doronicum plantagineum*, *Myosotis* in variety; Early Phloxes, Pansies, Violas, Peonies, herbaceous and shrubby, Gaillardias. Of shrubs, we may mention Lilac, *Philadelphus* in several varieties; Weigelas, Magnolias, Rhododendrons, the many forms of Azalea, *Andromeda*, *Kalmias*, &c. The summer flowers are legion, and we advise you to consult a nurseryman growing hardy herbaceous plants in a large way.

CARNATION SEEDLING: J. R. We should judge your variety to be a valuable one for cultivation in the border. The flowers are good, and of a particularly pleasing tint of rose-colour. It is erect, and possesses long stems; whilst its habit, as described by yourself, is exceptionally good. Many of the new Border Carnations have not sufficient constitution to render their cultivation desirable.

CHRYSANTHEMUMS DISEASED: J. E. A strong-growing fungus is present in all brown parts of the leaves, and where it passes over to green parts, discoloration soon follows. All diseased leaves, and any which may fall off, should be collected and burnt; the same treatment may be given to any plants which are badly diseased. We should then isolate the healthy plants from the sickly, and keep the lots as far apart as possible. Give as much air as possible, and do not over-feed or over-water the plants. The remedy you are using is not suitable for this fungus. Try potassium sulphide ($\frac{1}{2}$ oz. to each gallon of water), or Bordeaux Mixture (see recipe, *Gardeners' Chronicle*, May 20, 1899, p. 328). In the same column you will see a reply dealing with a disease of somewhat the same nature as this you send. This disease of *Chrysanthemums* is fairly common; you would benefit growers generally if you carried out a few experiments with the above fungicides, and gave the results in this paper. Too little is known about suitable remedies.

CHRYSANTHEMUM-RUST: F. M. The larvæ of a small insect that you have noticed upon the leaves affected by "rust-fungus" may be instrumental in spreading this pest, but they could never produce it were there no fungus upon or near the plant.

CUCUMBERS: J. D. The roots are badly affected with eel-worm, often figured and described in these columns. Turn out the soil, and get fresh. To avoid mischance, you will do well to soak the new soil in boiling water; or, better still, to bake it before use.—H. V. S. Eel worms, probably; send roots.

DEATH OF FUCHSIA, AGERATUM, &c., IN A WINDOW-BOX: Rose of Castile. The result of excessive moisture in the soil, the great richness of which helping to bring about the decay of the roots of the plants. Probably the drainage of the boxes was imperfect.

EARWIG: J. A. P. An Anglo-Saxon word, signifying ear-beetle. It is erroneous to suppose that these creatures have any special propensity to enter the ear.

GRAPES: B. A. J. The bunches have many shanked berries, due to a variety of causes, of which over-cropping, loss of roots from a wet, unsuitable soil, and a great check arising from the wholesale removal of shoots and leaves. The foliage was infested with red-spider. In reference to measures to rid the Vine of these unwelcome mites, see our "Fruits under Glass" calendar, this week's issue.

HEAD GARDENERS' ALLOWANCES: A. Z. These are taken as worth so much to the gardener in money, and if he do not obtain them, it is usual to pay him a higher wage, or provide a garden in which he may grow enough vegetables and hardy fruits as he may desire. Single men and married childless gardeners, require but little, and no rule can be framed that will meet all cases. Professional pride and self-interest will induce most gardeners so to cultivate the garden, that enough and to spare is produced to supply the master's table in abundance, so that no question of short supplies will arise. In order, however, to avoid friction between master and gardener, it is always better to have a written agreement, in which all such matters as perquisites and allowances are clearly set forth, and such documents should be stamped so as to give them legal value.

INSECTS: A. B. Your *Asparagus* is badly infested with the very injurious beetle, *Crioceris asparagi*. The grubs are matured from the eggs in about a fortnight; they then go into the ground, and return as perfect beetles in about an equal period of time. They multiply very quickly, and generations succeed each other rapidly. In the case of badly-infested beds, the process of hand-picking is slow and unsatisfactory. Miss Ormerod recommends that the *Asparagus* be syringed with water sufficiently hot to dislodge caterpillars and beetles from the *Asparagus* shoots. Another man should follow the sprayer, and tap or shake the plants, in order to remove any that have withstood the syringing. As this is being done, scatter upon the surface of the beds—and therefore upon the pests—a good dressing of soot or lime, or both, and, if necessary, repeat the whole process. Later in the season the plants should be cut over as soon as is practicable, and the growths burned. The surface should be raked from the beds also, and charred.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—P. B. 1, *Asclepias curassavica*; 2, *Pentas carnea*, *Centranthus ruber*, *Elaeagnus reflexus*, shrub, a grass, and a Fern: labels detached and illegible.—Cambrian, 1, *Galium Aparine*; 2, *Polygonum aviculare*; 3, *Stellaria media*.—A. T. B. *Cimicifuga racemosa*.—R. C. B. a, *Eucalyptus Raveretiana*; b, *E. calophylla*; c, *E. microcorys*. Yes, you may prune them back in moderation.—X. Y. Z. 1, *Asplenium bulbiferum*; 2, *Nephrodium molle*; 3, *Athyrium filix-femina*; 4, *Adiantum formosum*; 5, *Polystichum coriaceum*; 6, *Adiantum Waltoni*, a garden form.—Bel. *Datura stramonium*, Thorn-apple—poisonous.—E. T. F. 1, *Enothera bifrons*; 2, *E. grandiflora*; 3, *Ceanothus Gloire de Versailles*.—T. C. K. *Linaria purpurea*.

ONION: W. H. S. Your bulb has made a solid stem in place of a tuft of leaves, and this has produced the second bulb or bulbil, probably after receiving a slight injury.

ONIONS: S. H., Suffolk. The Onions sent are perfectly sound, with no trace of any disease. The withering of the leaves has probably been caused by the intense heat of the sun affecting certain examples. There is no fungus peculiar to the Onion on the leaves; the little specks of brown mould have followed the withering.

PEA: W. Kilgour. The variety is the Purple-podded Pea. The flowers are bluish-violet, not so deeply coloured on the standard as on the wings. The seeds have the defect of changing to brownish colour when boiled, like field Peas. It is more curious than useful.

PEAS DYING: C. K. We would refer you to the remarks made on a case similar to yours in our last issue, p. 100.

PLANTS FOR NAME: Amateur. Owing to lack of suitable packing, and the great heat, the specimens sent were unrecognisable.

ROYAL HORTICULTURAL SOCIETY'S EXAMINATIONS IN HORTICULTURE: T. S. You should apply to the Secretary of the Society, whose office is at 117, Victoria Street, Westminster, S.W.

STRAWBERRIES: J. W. It is quite impossible for us to form an opinion upon the merits of the Strawberry you send, as they have arrived in exceedingly bad condition.

TENWEEK STOCKS FAILING TO GROW: J. M. If you have found maggots at the root, they are probably those of some species of weevil, common in turfy loam that is used in a fresh state. Can you send some for identification? Meanwhile, apply nitrate of soda at the rate of 2 oz. per square yard of ground. Stocks will fail to grow satisfactorily if removed from the seed-pots late, or the tap-root be injured in the removal.

WATER-LILY BLOOMS TO REMAIN OPEN AT NIGHT: W. C. As soon as the bloom expands, smear a little liquid gum upon the stigma.

COMMUNICATIONS RECEIVED.—W. F. C.—W. W.—W. G.—Wm. G. S.—G. H.—Lady M.—M. R. S.—M. Vuylsteke.—E. A. W.—British Columbia.—K. D.—S. W. Africa.—A. & N.—R. L. C.—G. B.—J. Gibbons.—C. R. F.—W. Fromow & Sons.—E. W. G.—E. G. B.—G. W. A.—S. P. H.—O.—W. S.—D. T. F.—A. H. Kew.—C. T. D.—E. A. W.—S. A.—V. M.—R. W. A.—R. D.—E. S.—A. C. F.—A. D.

SPECIMENS, PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—K. D., German S. W. Africa.—W. W.



THE Gardeners' Chronicle

No. 659.—SATURDAY, AUG. 12, 1899.

SPRING IN THE DRY BELT OF BRITISH COLUMBIA.

TO see the Fraser River cañon in the month of March, near Lytton, one would never dream of the wealth of floral beauty squandered there during the next three months. Lytton is in the "dry belt." It is dry—very dry; it is also windy—very windy; so very windy that it passes anything that you have ever fancied in your flights of imagination. Not that the wind is tempestuous, but it is always present, pulling, pushing, tugging at you, and making life miserable. All one can see is dry, stony banks of gravel and sandy benches, and behind them steep, rugged mountains, covered with snow, and a growth of scrubby Pines and Firs. The last place in which anyone would dream of finding quite a carpet of flowers. Yet the land is fertile, as is evident where water has been brought from the creeks, and irrigation employed. The various ranches produce good crops. Even Tomatoes, Melons, and Vines produce an abundant harvest of fruit; for the summer is hot, if somewhat short.

Our first flower is the diminutive *Fritillaria pudica*. At the end of March its nodding bells appear on the dry sandy benches. It is well named "modest," for it usually seeks the protecting shelter of some friendly Sage-bush. The bulb is found 4 or 5 inches deep, and dies down early, and has a long season of summer baking. I would suggest lifting the bulbs (in England) say in July, and placing them in a box of sand, left outside under a south wall, and protected from summer rains. Before this little gem has gone, a little *Dodecatheon* appears, highly coloured, but very dwarf—4 to 6 inches—with narrow lanceolate leaves, and very fine roots; not fleshy like the others. I have been unable to get this species named. It is now (June) in flower at 4000 to 6000 feet, and much larger—6 to 12 inches. Then a host of little flowers spring up everywhere, making the desert into a garden of Eden for the time being. A large *Fritillaria*, with purple-black flowers, and an unclean savour, occurs on the wet ranch meadows. My friend, Carl Purdy, of California, calls it the dark northern form of lanceolata, but at Kew it is named *liliacea*. It also is now in flower at 4000 feet on grassy slopes. *Anemone narcissiflora*, creamy-white, grows in the full sun near every stream or ditch, but not in wet ground. The "Olalli," Service-berry (*Amelanchier canadensis*), a beautiful, white-flowered shrub, grows along all the streams. A lilac *Pentstemon* grows on the driest spots of the driest banks in great gorgeous masses, often 3 feet across. A large, yellow *Helenium* grows on rocky ground, and flowers for many weeks, and can be found all through the summer at high altitudes. A *Delphinium* of a bright, dark blue is very conspicuous, an annual, I think; and a tall blue *Brodiaea*, probably *Douglasii*, is occasionally encountered; and about the last is an annual *Gaillardia* in

full flower now. Flowering shrubs are in evidence everywhere.

By the middle of May the snow has left the mountain sides to the height of 5000 feet, at any rate on the southern exposures, and flowers begin to peep up in the mountain woods and valleys. As soon as one gets out of that dry Fraser cañon, lo! everything changes. Go up any little valley to about 2000 feet, and the Firs and Pines take on a nobler shape, Ferns begin to appear, grass to grow, and the country might be old England again. Indeed, I can see no difficulty in growing anything from here at home. The woodland plants, of course, require shade and leaf-mould, but those that inhabit the open country, seem to grow in any soil or exposure.

Calypso borealis is the first one meets. It occurs from 1000 to 4000 ft. in glades and shady spots, but never in dense thickets or swampy ground and grows in clusters, never more than 1 inch deep in loose humus. Anyone who tries to grow this Orchid in ordinary garden soil, will, I fear, be doomed to disappointment, but it should be quite at home in our native woods, or as a denizen of an unheated shaded green-house.

The most lovely flower is *Erythronium grandiflorum*, as I found it on one trip up into a little valley surrounded with rolling grassy hills. It first occurs in patches about 3000 feet altitude, but about 4000 feet it is everywhere, covering the mountain slopes with a yellow mantle; there must be millions to every acre. I counted over a hundred in a square yard. This is the true golden yellow *Erythronium*, and has usually two to four flowers, but one often finds specimens with five and six, and one had seven. It grows also in glades and the edges of woods, but does best in the open; it is deep in the ground, 6 to 8 inches down. It has the colour of Daffodil Golden Spur. Our old friend, the dark *Fritillaria* is with them; also a fine *Thalictrum*, probably *adiantifolium*, is very abundant. Two *Smilacina*s are here; one of no account, but the other is a darling. I cannot find the "fly in the ointment," but fear there must be one, or this plant would long ago have been as popular for Easter decoration as *L. Harrisii*. It has large, bold foliage, like Solomon's Seal, grows 1 to 3 feet, with a terminal raceme of fragrant white flowers, resembling *Spiraea japonica*. The racemes are often 6 inches long, by as much wide. The roots resemble those of *Cypripedium spectabile*; it should make a handsome pot plant. It seems to grow anywhere—in sun or in shade, but best in shade.* A yellow *Cypripedium* grows lower down the mountains, and is scarce; and a brown-petalled, white-lipped one is plentiful a little higher. Of neither of these can I yet give the name. Some half-dozen kinds of *Viola*, all scentless, are here, and flowering shrubs in abundance. An orange-red Honeysuckle is very conspicuous. Strawberries are everywhere, and Gooseberries, Raspberries, Thimbleberries (*Rubus occidentalis*), Currants, and Chokecherries (*Prunus virginiana*) abound high and low. *Zigadenus venenosus* crops up occasionally. Among all this galaxy of beauty a *Castilleja* stands out prominently. It seems an annual, and has six to twelve stems a foot or so high, with a cluster of glorious vermilion or orange-coloured bracts, and flowers at the top of each. A ridge covered with these blue Larkspurs and yellow *Helenium*s, with a few *Olallis* about to tone it down, is a sight to remember in after years.

Edw. Alex. Wallace.

* Since named at Kew *C. montanum* (Pursh), and *C. occidentale* (Douglas).

NEW OR NOTEWORTHY PLANTS.

ASPLENIUM FAWCETTI, Jenman, n. sp.*

THIS very interesting species, and beautiful addition to the *Trichomanes* group of the genus in Jamaica, was gathered last November by Mr. Wm. Harris, Superintendent of the Cinchona Plantations, and at his request is named after his chief, the Director of Gardens and Plantations. Its distinguishing features are the numerous pinnae (three doz. to five doz. on a side), their dwindling to nearly but not quite nothing at the apex of the frond, the very fragile rachis, and the markedly conspicuous, silver coloured involucres. The rachis, which is occasionally wavy, sometimes bears a bud in the axis of a leaflet an inch or so short of the apex. The plant is widely distinct from *A. monanthemum*, L., as well as the other species of the group.

THE CYCLAMEN AND ITS CULTURE.

DURING a talk with a successful cultivator of *Cyclamens*, he said to me: "The *Cyclamen* is generally one of the first plants a gardener turns his attention to, and invariably proves one of the first to dishearten him."

I am sure it would be no exaggeration to state, that of the establishments known to any individual, those in which *Cyclamens* are really well grown, would not form a large proportion. It may be, as above mentioned, that eventually one becomes disheartened; for the *Cyclamen* if succeeding but indifferently, is certainly far from realising one's "bean ordeal" of a greenhouse plant in flower. The leaves are flabby, and wanting in chlorophyll, the petioles are weak and unable to hold themselves erect, and the flowers appear one by one, as though afraid to show themselves; so that altogether, the plants make an unsatisfactory figure. But when successfully grown, *Cyclamen latifolium* and its varieties are the most useful of winter-flowering greenhouse plants, and with proper treatment may be had in flower from November to April, that is, during the duller part of the year.

August is the month in which to sow the seed if plants are required to flower the following winter twelvemonths; thus, about fifteen months elapses between the time of sowing the seeds, and the season when the plants begin to bloom. Well-drained pans are filled with light sandy soil to within $\frac{1}{2}$ inch of the top, this latter precaution being taken so that the seedlings may be seized the more easily by the thumb and finger when the proper time arrives to prick them out. The seed must be thinly sown, and but slightly covered with soil. Place the pans, which are covered with pieces of glass, in a light position in the propagating pit, affording a temperature of 55° at night, and shade when the sun shines hotly. The seedlings will begin to appear in about six weeks, and when

* *Asplenium Fawcetti*, Jenm., n. sp. — Root-stocks clustered, very small, fibrous, the centre densely clothed with fine, attenuated, castaneous scales; stipes in tufts, semi-erect, slender, wiry but fragile, margined, castaneous or darker, $\frac{1}{2}$ to 2 inches long; fronds spreading, linear, and much narrowed to the apex, but without a naked tail, a span to 1 foot long, 6 to 8 lines wide, narrowed at the base, thin, dark green, naked; rachis very slender, fragile, dark, glossy, channelled with scarious margins; pinnae very numerous, sessile, dwindling mostly to mere pindots in the outer part of the fronds, and reduced to auricles at the base, rhomboidal and subinduplicate, the superior base wide, but hardly auricled, the inferior base absent, 4 to 5 lines long, 2 lines wide, spreading, contiguous, but not touching, broadly rounded, and conspicuously bluntly toothed along the upper and round the outer and inferior margins to where the base is cut away; veins pinnate, at an acute angle, falling short in the teeth, three to a side, all simple, but the inferior one on the superior base, which is once forked from below the middle; sori on both sides of the mid-vein, two or three to a side, lateral on the veins, about one line long, distant from the margin, and usually short of the base; involucres conspicuous, bright silvery.

Blue Mountain Peak, 7800 ft. alt., Jamaica.

the first leaf has reached an inch or so in height, they should be potted off singly in thumb pots, filled with a similar soil to that previously used. At this period, it is a good practice to put up a small staging of boards and cover it with coal ashes, and resting on pots on the ordinary stage of a house for the little plants. The night temperature in this house should range from 50° to 55°. During fine weather, a slight syringing twice daily should be afforded, as it keeps the plants moist, and they grow fast. In order to prevent dryness, at each potting, the corm is kept well down in the soil, leaving rather more than the top visible; the object being to cover the corm sufficiently to keep it moist, but at the same time, so high that the leaves and flowers when pushing forth will not be liable to damp off. Shading will now hardly be necessary, but by the beginning of the month of February, the plants will be ready for a shift into large 60-pots, and a compost of $\frac{1}{2}$ loam, $\frac{1}{2}$ leaf-mould, with plenty of silver-sand, should be afforded at this stage.

The plants may remain in the same house till the month of April, air being admitted whenever desirable without exposing them to draughts or unduly lowering the temperature. Syringe them lightly in fine weather once or twice daily; afford water judiciously, not making the soil too wet so as to cause the leaves to damp off, and, on the other hand, not keeping it too dry so as to cause a check to growth. Towards the end of the above-mentioned month, the final potting should be performed; the best and strongest plants being put into 32-sized pots, and the remainder into 48's. Fibrous loam and leaf-mould in equal quantities, with a good proportion of silver-sand, and a little of Clay's fertiliser added, are found to meet their requirements at this stage. When potted, stand them on a bed of coal-ashes in a cold frame, keep close and syringe, and shade them for a few days. When fairly rooted in the new compost, it will be necessary to shade them only for a short time in the hottest part of the day. Throughout the summer they must have cool treatment; affording plenty of air to the house or pit, and even leaving a little on at night. Cleanliness is much aided by freely using the syringe as opportunities occur. Afford abundance of water when the plants are growing fast, and occasionally apply liquid-manure.

At the commencement of October, those which appear to be the most forward should be removed to a span-roofed pit, having a night temperature of 50° to 55°. These form the first batch, and may be had in flower in the month of November. To have the plants near to the light, and to allow a free circulation of air between them, it is advisable to stand them upon a second stage, or singly on flower-pots. As the weather becomes cold, the remainder of the plants may be brought into a house or pit having the temperature given above. With proper attention—airing when possible, using manures, carefully affording water, and strict attention to cleanliness—a succession of flowers may be secured the whole winter through.

In the opinion of many cultivators, *Cyclamens* are at their best when two years old; they are then stronger than those of one year's growth, and consequently able to produce a better display of flowers, although we find that, after the second year, a straggling growth is developed, and the flowers deteriorate in quality. When the first season's plants have finished flowering, if seed is not required, all the blooms should be removed; the former are then gradually dried off, and finally placed out in the full sun. If shaken out and repotted in July, they may be expected to commence flowering by the month of November.

The fumigating compound XL is proved to be of great service in keeping *Cyclamens* in a clean and healthy condition. I am well aware that the above method of culture may differ considerably from that followed by many experienced growers, and simply give it for what it is worth; adding only that it has proved itself to be a good one. H. H. T.

SOUTH AFRICAN NOTES.

JOHANNESBURG.

THE EUCALYPTUS AS TIMBER TREES. — Last June I cut down a particularly fine specimen of *Eucalyptus viminalis*, planted ten years ago. It was a street tree, one of six in a row, 15 feet apart. It was 135 feet high, and measured 6 feet in girth next the ground; height when planted, about 1 foot. Nearly half the timber was sold for £2 as firewood. Not a leaf even of the young growing tops had been touched by frost, of which we had 8° on the night of May 26. The same cold has nearly bared large trees of *Eucalyptus robusta* of their leaves; *E. citriodora* is killed to the ground. It is proposed to test gum-wood grown near here—mostly *E. Globulus* and *E. viminalis*—for street-paving. The age of the trees from which blocks have been sawn and are now seasoning is from eight to ten years. These trees may be supposed to have produced only unmatured wood; but owing to our elevation of 6000 feet above the sea-level, and severe climate, young timber is very dense and hard in texture. I have often observed many young trees seed more abundantly here than in Natal and such-like moist, warm climates. In other parts of S. Africa, *Acacia melanoxylon*, at the age of from fifteen to twenty years, bears very little seed; but here, trees five years old yield plenty of good seed.

VEGETABLES AND FRUIT.

In spite of the very dry weather—only 12 inches of rain from May 11 to July 9—the market is well supplied with splendid vegetables. Such first-class Cauliflower, Cabbage, Lettuce, Celery, Carrots, Turnips, and Beet, I do not think will be found in any other market in S. Africa. Our growers are mostly clever, hard-working Italians and Portuguese, and their secret is plenty of stable-manure, and adequate irrigation. Large, well-coloured Tomatoes come in from the Rustenberg District, some 60 miles from here, where frost is unknown. From the same locality come first-rate Oranges; but we draw our supplies of Mandarin Oranges, Pine-Apples, and Bananas from Natal—though there is no reason to doubt that the Transvaal is able, when once our political question is settled, to produce first-rate fruit of every possible description. Tasmanian Apples in good condition are being retailed at 3s. per dozen. Comment is needless.

TRADE IN FLOWERS.

The flower market is rather bare, and prices rule high. The beautiful *Acacia dealbata* is a mass of golden bloom in the open; but in town, dust soon settles on the flowers, and spoils them. I saw last week bunches of fine *Clanthus Dampieri*, *Marguerite-Carnations*, Violets, Pansies, single and double *Pelargoniums*, white *Candytuft*, and a very few Tea Rose buds for sale. *Poinsettias* are fairly well grown in pots, but these flowers come up in quantity from Natal very cheap, where *Camellias* are now very plentiful; but experience has taught our florists that they will not endure the journey here. *Cinerarias* are beginning to come in, to be followed later on by *Primulas* and *Calceolarias*. A few belated *Chrysanthemums* are still to be seen. From the Cape we get Heaths in variety, *Richardia aethiopica*, and *Proteas*—all cut blooms.

A BOTANIC GARDEN FOR JOHANNESBURG.

I am meditating the establishment of a botanic garden in this park; but, as Goethe said, "Beginnings are always difficult," and to lay right foundations for the first thing of its kind in the country requires a good deal of thought. Looking at the botanic gardens in S. Africa, there is only one, so far as I know, which combines the scientific and practical, i.e., Durban; the other gardens are really little else than public nurseries, whose aim is to sell as much as possible.

As regards tree culture, and the right choice of flowers and flowering shrubs, we have done a little

to educate Boer and Uitlander; but modern fruit culture and orchard work are almost untouched. I propose to set apart a plot of ground, and plant it with a properly-named selection of the best hardy fruit-trees, climbers, and shrubs which we may expect to succeed on the High Veld, such as Apples, Pears, European and Japanese Plums, Prunes, hybrid American Grapes, Persimmons, Quinces, Spanish Chestnuts, Almonds, Strawberries, Figs, and perhaps *Rubus laciniatus*. Cuttings and grafts to be distributed hereafter. We are much too cold here for tropical fruits; and, on the other hand, too dry, it would seem, for Raspberries, Currants, and Gooseberries, though these last have not had a fair trial, so far as I have seen. I put forward this scheme with some diffidence, and ask the readers of the *Gardeners' Chronicle* for suggestions and advice. R. W. Adlam, Curator, Joubert Park, Johannesburg.

HERESIES.

(Continued from p. 114.)

It is a pity to see good varieties of Strawberries, which in years gone by were thought much of, falling out of cultivation, and their places filled with inferior, if larger-fruited varieties. It scarcely seems the correct thing for the gardener, and still less so for the amateur cultivator, to prefer mere size to good form, colour, and flavour. We seldom find *La Constante* in gardens now, although the plant and the fruit possess notable properties. It is rather late, ripening when the glut of other varieties is over, and has not to compete in public favour with Cherries, Gooseberries, Currants, and foreign Peaches and Apricots, as have the mid-season Strawberries. *La Constante* is a vigorous grower, has a strong, stiff stalk, that carries the fruit well above the soil, and is a great bearer. It is admirably adapted for preserving, and being firm of flesh, the fruit is, as it were, made for travelling without damage.

Peas.—That which has been here written of Strawberries holds good in many instances of culinary Peas. We have discarded very generally such fine old Peas as Champion of England, Veitch's Perfection, and Criterion, for others of less fine flavour and cropping properties. We know of no Pea of as fine a flavour as the first-named; and the second runs it very closely in that respect, and growing less than 3 feet high, is an admirable variety for small gardens. If never allowed to get dry at the root, the plant is not liable to attack from mildew. Criterion is a variety which, whilst having good flavour, a full pod, Peas of nice colour, bears a heavy crop of pods, and if the land is copiously afforded water and a manurial mulch, flowering laterals shoot out from the stems, affording quite a half-crop of pods, of as good a size as the first crop. No other Pea that we know of does this. A good instance of this double-bearing of Criterion was to be seen at Wrotham Park recently.

Lettuces, &c.—Our gardeners, in hot seasons like the present, rely upon north borders for their Lettuces, and Cauliflowers, and Radishes; but north borders are of limited area, and fall short of the requirements of the gardener, and he must needs plant in the open quarters, and in full sunshine. This should help him to procure that which he wants, viz., succulent salad-plants, quick-growing Cauliflowers, and tender, juicy, but not acid-tasting Radishes—but the water fails him, or the labour to apply it.

Now, in level gardens, or those in which dead-levels can be made readily at little or no extra expense, why should not summer quarters be made in full sunshine for these crops when they are required for consumption in July, August, and September? All that are wanted are a main ditch of say, 6 inches deep, along one side, and cross-drains running out of this one at right angles, and at 6 feet apart. Let water be admitted by means of a hose or pipe, filling the drains, and then let a

man or two, furnished with tin-scoops having long handles, throw the water from the drains over the beds. The men might do this bare-footed, or with clogs on their feet. Besides being afforded water in this manner, there is percolation out of the drains into the soil on either hand. The idea is to keep the plants growing without check, and this can only be done in the manner stated. After September is out, there is no further need to let water into the drains. These can be made fairly water-tight by beating the sides and bottom with the spade, or treading the soil whilst in a moist state. "It is not quite English you know;" neither is the present weather, we retort.

Water-meadows are not unknown in this country. Why should irrigated summer quarters in our kitchen-gardens down south be unknown? In the

roots slowly and with difficulty, by means of long, bare surface-roots, which twine and twist in every direction, and anchor the tree to the ground like wire cables. It is an undoubted fact that either growth on comparatively poor soil, or circumstances which induce a slow and irregular growth, seem to have marked the career of most of our very old forest trees, and in not a few cases mutilation in the shape of pollarding or disbranching has been their lot at some time or another. It is supposed by many that pollarding tends to quicken the growth in circumference of a tree, and when pollarded in early life it probably does so. But when we reckon the age of a pollard by centuries, it is evident that any advantage in the way of growth to be attributed to the operation, must be confined to the first century or two, when

the rocky slopes of ravines in hilly districts are probably of great antiquity, although there may be nothing about them to attract the attention of the ordinary observer. We believe the Japanese grow miniature Oaks by systematically pinching back the roots, and these plants are kept alive for many years without adding appreciably to their height.

A circumstance we have frequently noticed in the case of pollards, and which may possibly account for their ability to grow when the boles which carry them are merely thin shells, and scarcely able to bear the weight of the crown, is the sending out of roots from the base of the crown-branches and limbs into the decayed heartwood, and which ultimately reach the ground. In such cases, the limbs become independent of the original root-system to a great extent, and the thin layer of sapwood becomes covered with an internal as well as an external cambium and bark. Many of the old trees in Burnham Beeches are provided with these adventitious sets of roots, and enable the trees to carry crowns which appear little short of miraculous when the extremely thin nature of the shell is considered. To the uninitiated, these roots are frequently a source of astonishment, as they ultimately become covered with bark closely resembling, and practically identical, with that of the exterior of the tree. We remember seeing an old Oak in the Forest of Dean, which exhibited a similar peculiarity, and which had the appearance of a stem growing within a stem. *A. C. Forbes, Bowood, Wilts.*

(To be continued.)

INCARVILLEA DELAVAYI.

IN the numerous communications I have perused relating to this plant it seems to me that though much has been said in its favour, it has not been awarded the praise it deserves. The photograph taken in my garden on June 16 last (fig. 46) shows what *Incarvillea Delavayi* will attain to in a difficult climate close to the east coast, and very different to the sunny south or even to more sheltered spots in Scotland.

My experience extending over about four years may be of some little value. I procured the subject of the photograph from Mr. T. Smith, Newry, in September, 1895, planted it on a border facing south, and partially sheltered at least from north, east and west.

Shortly after planting I placed over the plant a cap-glass with a hole in the top, which I have repeated in the autumn of every succeeding year, removing the glass as soon as growth became visible in the spring. In 1896 the plant produced two flowering spikes with six and four blooms, and year by year it has been more floriferous than in the preceding year, till this season it has fifteen flower-spikes with an average of ten blooms, about three inches diameter, of a rich rose colour on each spike. Notwithstanding this demand on its constitution, I have ripened seed, and hope to bloom many seedlings next year. The seed germinates very freely in a little heat, and after one winter in a cold frame I adopted similar outdoor culture to that of the parent plant. I have seen specimens in pots, but with no good results. The blooms opening as they do successively, keep the *Incarvillea Delavayi* gay for several weeks, provided the weather is not too stormy, as the petals are somewhat thin, and dislike boisterous winds or very heavy rains. *W. T. H., Alnwick.*

THE ROSARY.

SOME OLD SCOTTISH ROSES.

OF all the Roses at present or lately in bloom, none is possessed, historically, of a greater interest than the "Jacobite" or "Prince Charlie" Rose, the buds of which, along with the white cockade, formed the badges worn by the adherents of the young Pretender in 1745. The variety which, in the north of Scotland, is known as the "Jacobite" is a form of *Rosa alba*, with



FIG. 46.—*INCARVILLEA DELAVAYI*.

(From the Garden of W. T. Hindmarsh, Esq., Alnwick.)

old market-gardens, now fast disappearing, of the south-west suburb, Fulham, the Thames-water used to be let in through sluiced drains to flood the land under Celery, Lettuce, and what not. *Growler.*

FORESTRY.

(Continued from p. 66.)

THE DECAY OF TREES.

UNDER ordinary conditions, soil has a great deal to do with the age attained by trees, as well as with their size and health. Rich alluvial or peaty soils rarely carry trees to a great age, although they usually grow rapidly in them for a time. The timber of such trees is of too soft and porous a nature to resist the organic agencies of decay, or the destructive force of strong winds; while the root system of trees growing in such soils is usually less extensive, and confined within a smaller area, than where plant food has to be collected by the

the tree is still in a vigorous condition and able to throw out stout adventitious shoots to replace the removed crown. Such an increase in growth can only be temporary, and gradually becomes reduced as the new crown begins to appropriate the larger share of the elaborated sap formed by the leaves. Such increases in girth, however, render it very difficult to arrive at the approximate age of such trees by calculations based upon the average width of the wood-ring. When pollarded early in life, it is probable that a period of fifty or sixty years is long enough to increase the girth of a pollard to three or four times the size to which it would have attained under ordinary conditions, and size or girth alone is rarely a safe criterion by which to judge of the life of a tree.

In the case of trees which have never been pollarded, but which, like them, are short in bole and wide and low in crown, size is generally a safer indication of age, especially if the soil and situation are not conducive to rapid growth. Those gnarled and stunted Oaks which grow on

flowers composed of two rows of white petals. Like so many single, or all but single Roses, the yet unexpanded buds are exquisite in form, the open flowers, with anthers yellow-brown or black, according to age, being scarcely less beautiful. The plant is vigorous of habit, and forms an upright bush 6 or 7 feet in height. When strongly grown, this very old Rose ranks with the foremost decorative sorts; it is, however, open to question if the above is the variety that supplied blossoms in that eventful summer of the Forty-five. At any rate, the bush (also a form of *R. alba*), which by popular tradition bears the name of the unfortunate Prince, occupies to-day the position where tradition again avers he planted it. This is in a border of the quaint old garden of The Grange, now situated within the precincts of the city of Edinburgh. Fact is, perhaps, even more romantic than tradition in this instance, the truth being that one of the daughters of The Grange household presented the young Prince with buds from the bush, while he on his part unfastened the silver cockade from his bonnet and gave it to the young lady. The cockade is still preserved as a heirloom by the Dick-Lauder family.

This, like other double forms of *Rosa alba*, grows less strongly than the semi-double already referred to. The bud is bluish, and the expanded bloom impure white, and as a decorative subject it is altogether inferior to the other. Both, however, are very old Roses, and are mentioned by Parkinson; while it is not unlikely that the double form was in the mind of Shakespeare when he penned the scene in the Temple Garden. It is a very common Rose in cottage gardens; sixty or seventy years ago quite a number of varieties of *alba* Roses were cultivated. The only variety that is now largely grown is Maiden's Blush, which carries us back into the eighteenth century; and Celestial, with lovely buds of purest pink. There is also a very good double white.

Less effective than the above are the Roses which for centuries have been known as "Velvet." They have been referred to the holosericea of Pliny. Gerard figures a flower having two rows of petals; Parkinson mentions single, double with two rows of petals, and more double with sixteen or more petals; and the single and double are figured in Andrews' *Monograph*. Several distinct Roses are grown as the double, mostly *Gallica*, but also *China*. The one mentioned by "E. V. B." in one of her books is very closely allied to the Tuscan Rose, itself interesting as having been the reputed parent of the earlier varieties of *Rosa gallica* raised in Holland. As a matter of fact, though the Velvet Rose was in general cultivation till the present century was well advanced, it is now difficult to find. The "double" of Gerard I have not yet seen; the single I am a little uncertain about.

We have a very beautiful Rose in Scotland called The Tartan. It grows, so far as I have seen, less strongly than either York and Lancaster or Gloria Mundi, to which it bears a close resemblance. The two latter, it may be noted, though belonging to different sections, seem to have resolved themselves into the Damask variety. Of the latter, a much bewritten variety of the last century, known as Mr. Hart's Rose, seems also to have passed out of cultivation. Though there are numbers of old and interesting Roses now (or lately) in bloom, I shall refer only to one more, the Rose du Roi, known also as Lee's Perpetual and Crimson Perpetual. Though a neat flower, rather rosy-crimson than true crimson in colour, it is difficult at the present day to comprehend the furore it created during the thirty or forty years following its introduction. It cost its raiser his situation as gardener to the French King, who was advised to have it named Rose du Roi, while the gardener insisted it should bear his own name down to an admiring posterity. Lee of Hammersmith is said to have netted a large sum by its sale; and it was so popular even in the thirties, that one grower forced annually more than a thousand plants. *B.*

NOTES FROM A SCOTTISH MANSE.

NATURE has of late been very capricious in her dealings with her floral children. Not seldom she has almost destroyed her fairest treasures with thunder-showers, followed by the desolating blast of north-east winds. And then, when almost too late for atonement or amendment, she would suddenly repent, and smile upon them with an aspect of benignant peace.

"Nature never did betray the heart that loved her," says Wordsworth; but I think the great poet would have known much better if he had been, like myself, an assiduous cultivator of climbing flowers. What would Nature do with our Eckford Sweet Peas, *Tropeolum speciosum* and *canariense*, aspiring Roses, and even *Violas*, not to speak of Oriental and American Lilies, if they were not, in most instances, very strongly secured? Even with every possible barrier against her impetuous atmospheric attacks that human ingenuity can devise, they often suffer much.

The only Lilies in my garden (and I have a sufficiently extensive collection) that by reason of their vigorous growth did not require strong supporting, were *Lilium Henryi* and the great *Lilium giganteum*. Both, however, had been cultivated in strongly-sheltered places, and the Himalayan Lily, which was the grand result of four years' development, reached a height of nearly ten feet. Its portrait has been taken by Mr. Douglas McDonall, of Logan House, in this parish. Mr. Logan has also photographed the noblest specimen of a *La France* Rose I have ever seen in my garden, or anywhere else. Perhaps I may be able to exhibit it—if not at the Crystal Palace, at least in the artistic regions of the *Gardeners' Chronicle*, should the photographic result prove entirely successful.

I have been much gratified by the splendid flowering of my *Ixias* and *Calochorti* during the present season. The former, which are of African origin, have been in bloom for fully five weeks. Of the latter, the first to flower were those pertaining to the extremely interesting *Cyclobothra* section, and bearing the names of *C. alba*, *C. amenus*, and *C. pulchellus*; also *C. Purdyi* (which more properly belongs to the "Star Tulip" department), the most attractive of them all. Of the last-mentioned variety, Dr. Wallace says: "Coming from a cold, wet climate, it is particularly suitable to our own. Starting late into growth, it throws up a flower-stem from 9 to 15 inches in height, carrying from four to nine flowers, large, and fully 1½ inch across, covered with long, white hairs." The latest, and by far the largest and loveliest forms of those supremely fascinating Californian flowers, comprised under the classification of "*Calochortus venustus*," are, just at present, in glorious bloom. Many years ago I tried them with indifferent success; but the reason of their comparative failure was that I did not give them a sufficiently dry, or adequately drained situation during the winter months. Mr. R. Wallace, of Colchester, is unquestionably right in his affirmation, which is the result of extensive experience in their culture—that their nature demands a sunny exposure, and a light, porous soil. Early planting in such positions is also highly advantageous. From eighteen bulbs of the *Calochortus venustus* I had nearly 100 large and richly-coloured flowers. My *Ixias*, with similar treatment, were equally prolific. Not one of them has failed to flower well this year. I find them quite as hardy in their nature as those brilliant autumnal flowers, the *Montbretias*, and that is saying much; for however greatly the foliage of the latter may seem to suffer from the vernal frosts, they invariably recover their characteristic freshness ere they reach their period of exquisite bloom.

Many of my Lilies have flowered luxuriantly during this summer, especially *Lilium giganteum*, to which I have already incidentally referred; *Lilium dauricum*, a native of Siberia, of which the finest form is *D. incomparabile*; *Lilium dal-*

maticum, familiarly known to amateur cultivators as "the Black Martagon," whose colouring, dark purple, and the miniature size of its clustering flowers makes this variety quite unique; *Lilium Washingtonianum*, a Californian Lily of the most refined and delicate fragrance and beauty; and, above all, the noble *Lilium Szovitzianum*, which, in addition to its impressiveness, has this great qualification, that, wherever well established, and not wholly neglected during dry and burning seasons, it grows stronger and grander in aspect year by year. Lilies are undoubtedly great lovers of moisture, in which respect they resemble their fair cousins, the Irises, of which I am also a loving cultivator; and I greatly fear that for lack of attention in this special direction, during my absence from home, several of my finest Madonna Lilies, which were pictures of graceful beauty this time last year, have suffered deterioration. This to me is a matter of deep regret; but *Lilium auratum*, *L. Browni*, *L. odorum japonicum*, and *Lilium speciosum*, whose decorative value can hardly be over-estimated, will make amends. These, at least, have not been neglected, and will undoubtedly ere long amply repay any attention they may have received. The few Madonnas ("rari nantes in gurgite vasto") that have remained healthy, have also flowered well.

The Rose has reached the confines of its intermediate season, and such fine varieties as A. K. Williams, Viscountess Folkestone, L'Idéal, Captain Hayward, and Clara Watson are assiduously preparing, with my assistance, for their second period of beautiful bloom. Meanwhile, my *Violas*, *Phloxes*, and Sweet Peas have attained the climax of their beauty; as also have those richly ornamental *Tropeolums*, *speciosum* and *canariense*. *David R. Williamson, Wigtownshire.*

NURSERY NOTES.

CAMBRIDGE NURSERIES, WORTHING.

WORTHING may be likened to Ghent in the extent of glass-structures devoted to plant culture. They form the salient feature when viewing the town from a distance; and when traversing its roads, one scarcely seems to be clear of one block of glass-structures before another presents itself. But Worthing differs from Ghent in that its industry is chiefly devoted to produce for the table, such as Tomatoes, Cucumbers, Grapes, &c., instead of Palms and other decorative plants which mainly occupy the attention of the grower in and around the Belgian town of Flora.

It was a desire to break the monotony of the existing state of things, and to test whether Worthing could not be induced to produce good and profitable results in a nursery having a large department devoted to a general collection of plants, together with all the novelties procurable, that actuated Mr. W. Goodliffe to embark in the undertaking which he is now bringing to something like a successful issue, the immense amount of work entailed in re-modelling the old part of the establishment, and building a still larger block of new houses having been accomplished, the finishing touch of perfecting the heating by the addition of two large check-end saddle boilers to work in unison, being the last operation, until the proposed further enlargement by the addition of another block of houses is commenced.

FERNS.

In the older part of the nurseries, which occupies one side of the Northcourt Road, as the newer does the other side, Ferns are extensively grown, and in that branch the recently-appointed manager, Mr. Hemsley (late with Mr. H. B. May, of Edmonton), already begins to make a fine show. A good general collection is grown with batches of the rarer things, and quantities of the best kinds useful for market purposes. Of these the market varieties of *Pteris* form the bulk, and the main stock are in

cold, shady frames, the smaller ones, from the little plants just being potted off, being brought on in heat to be ready to take the place of the larger ones when sold.

The different genera are kept together as much as possible, and this arrangement is both effective and instructive, for it reveals the great variation to be found in a single genus, and also in many cases in a species. For example, the gold and silver Ferns form an interesting study, and it is curious to note the variation in *Gymnogramma chrysophylla*, its representatives ranging from the plain old form to the fine, tall-growing, heavily-crested *G. chrysophylla grandiceps superba*—the finest of the crested gold Ferns.

In one long house the coloured-fronded and variegated forms were strongly in evidence, a beautiful contrast being formed by the various delicate tints of the batches of *Pteris rubricaulis*, *P. tricolor*, *P. argyræa*, *P. biaurita argentea*, *Aspidium aristatum variegatum*, &c., contrasting with the ruby-tinted young fronds of the *Adiantums* of the *A. rubellum* class, and others bearing coloured young fronds. *Adiantums* are well-represented, the forms of *A. cuneatum* and its allies, which the skill of the market-grower has evolved, being bewildering. *A. Hemsleyanum* is one of the prettiest and best for general purposes; and *A. ciliatum*, a very effective plant for basket-work, and much freer growing than the type of the section *A. caudatum*.

Davallias are grown in many species, and all are pretty; the forms of *D. fijiensis*, very elegant; and the smaller *D. dissecta Mariesii*, which is here grown into pretty pot-plants, as well as in the quaint forms, such as pagodas, tortoises, and other designs as they are imported from Japan. A stand of rustic cork-work at the end of one of the houses, gives a beautiful example of what may be done in displaying a varied collection in a small space.

The greater part of the older houses is taken up by well-grown Cucumbers, Tomatoes, and Black Grapes, and outdoor Carnations and other hardy flowers appear. On the other side, the large block of houses is connected at the entrance end by a lofty and broad corridor, the back-wall of which is being covered with *Allamandas*, *Gloriosas*, *Bougainvilleas*, and other warm-house climbers, producing showy flowers; the other side having Tea Roses and various decorative plants. In this house a plant of zonal *Pelargonium* exhibits a singular variation. The original plant, which has two strong branches nearest the pot, is a silver variegated kind, bearing several trusses of white flowers; from it comes up a strong branched shoot of the ordinary green leafed zonal *Pelargonium* with scarlet flowers. Apart from their being on one plant, there seems but little resemblance between the original and the sport, except that both the white and the scarlet flowers have a precisely similar purplish veining in the upper segments.

THE ORCHIDS

are in the first house leading out of the corridor, their scope embracing most of the ordinary showy-flowered kinds, together with some of the rarer varieties, and a larger leaven than usual of pretty botanical things. The group in flower at the end of the house, made up of *Lælia tenebrosa*, *L. xanthina*, *Cattleya Loddigesii*, *C. Gaskelliana*, *Coclogyne Massangeana*, *Odontoglossum citreumum*, *Dendrobium longicornu*, two good examples of *Phrysia Loddigesii*, and various *Cypripediums*, including *C. Curtisii*, *C. x superciliosum*, and other hybrids bespeak the kinds of things grown.

The cool Orchids are in a fine house in the course of re-staging in the old block. *Masdevallia bella* and a few others are in bloom. The *Odontoglossums* are the least satisfactory, probably on account of being in too bright and airy a situation. In the second house the plants of *Dendrobium Phalaenopsis Schoderiana* are suspended overhead and throwing vigorously; also *D. aureum*, a quantity of *D. atrovireum*, and other showy

Dendrobiums; the staging of the house being filled with *Dracenas*, *Asparagus*, variegated *Aralias*, *Eucharis*, *Phrynium variegatum*, *Anthuriums*, &c.

The third is a large span-roofed house, containing *Kentias* and other Palms, &c.; the fourth, *Gardenias*, flowering and variegated *Abutilons*, *Asparagus tenuissimus*, *Eulalia variegata*, and *E. zebrina*, &c.

BEGONIAS, ETC.

The next house has a very fine show of Tuberous *Begonias*, raised on the place, both doubles and singles, giving some remarkable variations. The pure white varieties are superb, and the *Picotee*, or coloured-edged class, charming, the most beautiful being *Begonia Rosa Goodliffe*, a grand flower, with fine substance, and well-rounded segments. The ground-colour is white with silvery veining, and a delicate blush tint towards the well-defined coloured margin, which is of a bright crimson-scarlet colour, and displayed as in a *Picotee-Carnation*.

The other houses have good batches of *Bouvardias*, *Fuchsias*, *Browallia speciosa major*, *Liliums*, *Rhododendron Princess Royal*, and a great variety of well-grown decorative plants of all classes.

The garden outdoors is arranged for *Chrysanthemums* in quantity, *Carnations*, and other profitable flowers; and the office, potting-sheds, and other buildings, are well arranged, the whole presenting evidence of a successful venture, and one likely to increase the love of gardening in the surrounding district.

DOVER HOUSE GARDENS, ROEHAMPTON.

A CONSIDERABLE addition has been recently made to these well-known gardens, belonging to Mr. J. Pierpont Morgan, whose son is now residing at Dover House. The plant-houses hitherto existing, though admirable structures for the cultivation of moderate-sized plants, were insufficient in height to accommodate larger specimens. There has now been erected, however, a very elegant Palm-house at the east end of the main fruit range; and the older range opens into the Palm-house. The new house has been built by Messrs. McKenzie & Moncur, the wood-work being of teak; and the rest of the building of the very best materials. Its dimensions are 45 feet long, 33 feet wide, and 28 feet high. It has a very pretty lantern roof, and the height just stated includes this.

Now that Mr. McLeod has completed the furnishing of the interior, this addition to the "glass" impresses one very favourably. In the centre is a magnificent plant of *Kentia Belmoreana* 18 feet high, and two good plants of *K. Fosteriana* about 10 feet high; also a pretty and remarkable plant of *Cocos Bonnetti*, a species seen very much more frequently in continental gardens than in this country; *C. plumosa*, *C. flexuosa*, *Hyophorbe lutescens*, *Phoenix rupicola*, *Livingstonia rotundifolia*, *Raphis flabelliformis*, *Seaforthia elegans*, *Musa Ensete*, &c. All of the above plants, with others, are arranged in a centre bed upon the ground level, and stand upon shingle. The front stage is about 4 feet wide, made of Welsh slab, and runs round one of the sides and one end. This provides accommodation for moderate-sized plants of *Cordylines*, Palms, *Pandanus*, *Codiaeums*, and other foliage plants, which in this garden are always to be seen in the best condition possible.

The character of the conservatory attached to the dwelling-house, and which was used for the housing of Palms, &c., has been modified. The structure has been rebuilt, and the floor entirely relaid with fancy tiles. It is regarded now as a show-house, occasionally for flowering plants, and again for species whose attraction is in their foliage. At the present time, the house contains a very choice group of *Caladiums* and Ferns, the collection of the former plants being an exceedingly up-to-date one. The erection of the new house has made necessary a new entrance from the dwelling-house

into the garden, which is also a great gain in appearance and convenience.

Beside the above addition to the glass structures, a very great improvement has been made in the grounds. Formerly, the boundary immediately in front of the house was screened by a shrubbery, in front of which was a narrow and insufficient border planted with herbaceous plants. The whole of this has been removed, and the site—about 1 acre—has been turfed over. Beds of various and pleasing shapes have been formed at very close distances, there being just sufficient room to walk amongst them. In these have been massed choice varieties of herbaceous plants, generally one variety in a bed; pleasantly interspersed with these are flowering and ornamental-leaved shrubs, also in beds. The effect has been to make this spot by far the prettiest and most pleasant in the grounds; and, moreover, the plants chosen will supply an abundance of choice flowers for cutting purposes.

The work has been done in Mr. McLeod's usual thorough fashion. The ground was deeply trenched, and a large quantity of fresh loam added, which has raised the whole of the beds considerably above the ground level. Though the plants have been in this new situation but a few months, they are looking healthy and vigorous, and despite the drought, very few indeed have failed to survive. *Vitis Coignetia* and many others of the newer decorative hardy plants we noticed amongst the new comers.

A spacious Mushroom-house is now in course of erection.

The fruit crop promises to be extremely good, if we except Plums. Apples are an "over" crop, and Morello Cherries hanging from a north wall upon untied shoots are extremely abundant, and Pears will not be scarce.

Violas, that are also a feature in the summer bedding, and some of the other plants out of doors, have suffered from excessive dryness; but an excellent strain of *Celosias* is making a gorgeous display. Indoor fruits are abundant, and "frame Melons" have given particularly good results, including the variety *Earl's Favourite*.

Carnation layering is nearing completion, and in such a Carnation garden as that at Dover House the task is not a light one. Of the American sensational variety, *Mrs. Thomas W. Lawson*, there is just one small plant that has been rooted from cuttings that were brought over from America along with some flowers. It has fallen a prey to disease, and is very weak, but Mr. McLeod is extremely likely to make a specimen of it.

THE FERNERY.

BRITISH POLYSTICHUMS.

As thoroughly evergreen decorative Ferns, possessing a wide range of varietal form, the species of *Polystichum* indigenous to Great Britain rank second to no Ferns in the world. Of the three species, *P. Lonchitis*, the Holly Fern; *P. aculeatum*, the Hard Shield Fern; and *P. angulare*, the Soft Shield Fern, the last-named has afforded by far the greatest number of varieties, and among these rank beyond all doubt some of the most beautiful Ferns the world possesses. It is therefore a curious fact that practically only one form is popularly used, and that of a comparatively inferior kind. *P. a. proliferum*, thanks to its capacity for bearing bulbils in profusion upon its fronds, and consequent easy propagation, is occasionally seen in florists' windows for sale, but there it ends, and although many far better forms are also bulbil-bearing, they are ignored. With regard to our deciduous species, such as the Lady Ferns, most of the *Lastreas* or Buckler Ferns, it is easy to understand that the dying down of their fronds in the autumn, and their consequent invisibility throughout the winter, is a drawback in many ways to people who merely buy for decoration sake, and

know little or nothing of plant life. In the first place, apparently tenantless pots are eyesores, and even if the owner be wise enough to know that the Fern is still alive, and will rise again in the spring, there are five or six months during which they are put out of sight, are most likely out of mind as well, and drought and neglect give them too often their permanent quietus.

With the Shield Ferns, however, there is nothing of this. The old fronds, under glass, remain quite green until the new ones are rising, hence there is no gap, with its consequent risks, and the marvel is therefore emphasised that a tribe of beautiful plants like these should not hold their proper rank, and be as popular as exotics. In an airy, shady conservatory, a collection of Shield Ferns might be housed, and present within the range of two species only, *P. aculeatum* and *P. angulare*, an almost infinite diversity of cutting and tasselling, as well as of size. *P. aculeatum* pulcherrimum, for instance, with a splendid circlet of 4-feet fronds, forming, as it were, a huge vase of frondage, each frond delicately cut into long, sickle-shaped, glossy divisions, and the terminal ones curved in upon each other in the uniquely beautiful fashion of this variety, has absolutely no parallel in the Fern world. It has not even the demerit of being common, for it is perfectly barren, and is only propagated by offsets. Contrast this superb upright chalice with the best of another section of this multifarious species, the plumose, wherein the broad spreading *Todea superba* itself is mimicked and equalled, if not surpassed, in infinitely delicate cutting. To see the new fronds of these forms rise in itself a delight to the eye, the snow-white scales with which they are clothed, the graceful pendulousness of their side division and tips, curved first inwards, and then falling backwards with their own weight, are all elements of beauty peculiar to the tribe, and in which, again, to our knowledge, no exotic can form a parallel.

Then among the larger growers we have splendid crested or tasselled forms of both species, Abbott's and Talbot's grandiceps of *P. aculeatum*, and a score or so of pretty tasselled types of *P. angulare*, some pendulous, some rigid, some bold in habit, some small, but all beautiful, for we are dealing with the select, and excluding the "rogues."

Then there are the densely-congested forms, *P. a. congesto-crispatum*, *congestum*, and others, ranging down to the diminutive little gem *P. a. Lyelli*, 3 inches high, as a foil to the 4-footer with which we started. In another direction we have the curious revolvens forms, the fronds having their divisions symmetrically rolled backward almost into tubes, but with a spiral twist in each, preventing overlapping, and imparting a singularly graceful look to the plant as a whole. In another direction again we have *P. ang. lineare*, with all the divisions neatly reduced to mere laminated midribs, affording the strongest contrast conceivable with the best of the plumose section, wherein the fronds are elaborated to the utmost, the divisions lying three or four deep upon each other, as in the well-named "densum" *P. ang. plumosum densum* (Jones & Fox). The prolium section, consisting of the ordinary trade form, *P. a. prolif.*, *Allchin*, has other worthier members in *Wollastoni*, *Crawfordianum*, and *Henleyæ*, all of which, from their lax habit of growth, require plenty of room, but are rarely grown to perfection, even if grown at all; though an established plant of any one of these, spread out like a huge star-fish, and with a dense moss-like growth of youngsters down the middle of each frond, is quite as pretty as many a rare and costly plant imported from abroad, and eventually killed with coddling, as these native plants often are with neglect.

As plants for north windows, the Shield-Ferns are particularly well fitted, those of lax habit especially, unless the light is particularly good, and the plants can be placed close to the glass. One point, however, must be insisted upon with window-plants; they are always one-sided, and

incurably so, but it by no means follows that this detracts from their beauty—the point is to recognise the fact that they will grow towards the light, and spread themselves out in such a fashion as to catch the maximum quantity. They are so adjusting themselves every moment as they grow, and if left alone, that is, not interfered with by twisting and turning about, they will adapt themselves to matters to a nicety, and form a fine spreading circlet of radiating fronds, straight-stemmed and graceful; while if, on the other hand, they are turned about to help the process, every turn means a fresh kink in the foliage, and the end result is disastrous.

The Holly Fern (*P. Lonchitis*) does not lend itself kindly to culture, and succeeds best if planted in the open, with a north aspect and in soil which is moist, but well-drained. Its native habitat is on the mountain shoulder, in the region of the clouds, but nevertheless, it can be grown at lower levels if its need of water be not forgotten. This has given us a good crested and even a grandiceps form, both very pretty plants of medium size. With the Shield Ferns, as with other crown-forming species, by far the best effect is obtained with single crowns. Many of the forms produce bulbils rather freely at the base, and these in time reach adult size, and transform the plants into a dense bush of small fronds and confused appearance. Starting with a single crown, these offsets should be persistently removed when young, thus affording at once a means of propagation, and a relief to the parent, which then, not having to struggle for existence with a horde of youngsters, very speedily fattens up and produces fronds of double or treble the size, and consequent enhancement of character, sometimes resulting in quite a transformation, due to greater vigour. The young offsets, if dibbled round the edges of other pots or pans, soon establish themselves, and form acceptable gifts to those who may admire the parent. The Shield Ferns are easily raised from spores in the usual way, but unless aided by warmth in their initial stages, it is a matter of several years before characteristic plants result; whereas a bulbil taken off in the spring will produce a nice plant the succeeding year. *Chas. T. Druery, F.L.S., V.M.H.*

APPLE CULTURE AT BATTLE ABBEY GARDENS.

THE new gardener at Battle Abbey (Mr. Camm) can show this season a very fine crop of nearly every kind of Apple he grows. The form of tree is cup-shaped, dwarf, with six to ten main branches, and these had been stopped so as to produce quantities of fruiting-spurs; but the trees had got very foul with moss, lichen, and in a few cases scale and American-blight. To get rid of this, winter-washing with caustic soda and common potash was used, and when the trees were cleansed they were headed back, and fresh clean growth resulted. This was left; the only pruning consisted of removing superfluous shoots, and those that showed a tendency to grow to the centre of the crown. The result was, that the next season these branches were furnished with numerous short fruiting-spurs, which, where they came thickly, were thinned in number. These natural spurs are now carrying quantities of promising fruit, and they will merely be lightened, leaving in some cases two fruits, or only one, but all look growing and clean, and likely to take a good place on the exhibition-table (Mr. C. was a prize-winner last year in the five counties competition). I enumerate a few of the varieties grown, many of which are classed as shy bearers, but under his treatment were exhibiting a fair crop, proving in part that this particular system suits them:—Old Dutch Codlin, Lord Suffield, Bismarck, Cox's Pomona, Cox's Orange Pippin, Sturmer Pippin, Frogmore Prolific, Emperor Alexander, Reinette du Canada, and Stirling Castle; but it did not seem to answer for Blenheim Orange, Cornish Gillyflower, Boston

Russet, Royal ditto, Adams' Pearmain, Northern Spy, or Dutch Mignonne.

Mr. Camm continues:—"In fact, all varieties I have tried have done well on it, except two trees of Stirling Castle, which are very old and full of canker, and therefore they offered no criterion. I firmly believe that too much pruning has something to do with canker."

The stock used seems in all cases to be the wilding Crab, and the trees are root-pruned every other year, the border being left entirely to the trees, not even annual crops, as Spinach, Radishes, &c., being sown on it. The trees are dressed in mid-winter with the solution of caustic soda, &c., of the strength frequently given in the gardening papers. The method may not lay claim to novelty, but this year, at any rate, is giving such a load of fruit all along the branches, that he likens them when fully grown out, to ropes of Onions, and their weight bends the branches down, thus exposing the fruit to the sun, giving good colour and flavour.

It will be as well to mention the fact that the trees are mostly about twenty-five years old, having been planted by Mr. Burgone, Mr. Camm's predecessor, and were treated on the old plan of short-spurring till Mr. C. had the charge of them. *Thomas Bungard.*

CAMPANULA MAYI ×.

THIS pretty plant (see fig. 47, p. 127), apparently the result of a cross between *C. isophylla* and an unknown species, was shown by Mr. H. B. May, of Dyson's Road Nursery, Upper Edmonton, on the occasion of the meeting of the Committees of the Royal Horticultural Society, on Tuesday, July 25. It is an excellent plant for windows, greenhouses or hanging baskets.

Fuller details of the plant will be found on p. 93 of our issue for July 29.

HYBRIDS AND THEIR RAISERS.

(Continued from p. 80.)

THE PETUNIA.—Time was when the Petunia was a leading florist's flower, when varieties were named, and large and handsome specimens grown for exhibition. But latterly it is a subject which by reason of having to compete with newer introductions, has fallen into a degree of neglect; and yet it is of great service in the summer flower garden, where it can be effectively employed in various ways.

The present race of small-flowered Petunias have been derived from *P. nyctaginiflora*, a white-flowered species introduced from South America in 1823; and *P. violacea*, introduced from the same quarter of the globe about 1831. It was soon found, when these plants came into cultivation, that there was a certain variation in the seedlings, and crosses were made between them and seminal varieties, fine striped and edged forms being produced, allied to compact habits: the florist took notice of them, and the raising of seedlings became general. A person named Walters, of Hilberton, Wilts, some forty years ago, made himself famous for the beauty and variety of his strain; George Smith, a well-known nurseryman at Hornsey, was a noted raiser; Messrs. E. G. Henderson & Son, then of the Wellington Road Nurseries; C. Turner, of Slough; Barnes, of Stowmarket; Watson, of Hadley, and others, were foremost as improvers of the flower. About this time Donald Beaton produced his Shrubland Pet, a rosy-pink variety, with a white throat, which still finds a place in flower-garden arrangements, and which was later in time improved upon by a variety named Countess of Ellesmere.

Messrs. James Carter & Co. have for years made the Petunia a specialty, developing a compact-growing strain of well-formed striped varieties, which are excellent for pot-culture and general decorative purposes, and also of double forms. Mr. J. Burley, Brentwood, and Messrs. Hender & Co., Plymouth, have given their names to strains of like character.

The continental florists have apparently favoured

a strong-growing strain of somewhat loose habit, many of them bearing large, loose blossoms, lacking in shape, and which, when employed in the flower garden, are apt to suffer from the effects of storms. What is needed is a return to the small-flowered English strains, both double and single. If the corollas are less in size, they are of better form, and much more freely produced, and being of more compact growth, recover themselves quicker from the effects of storms.

Petunias as exhibition plants are rarely seen in good character; but there are places in the West of England, such as at Trowbridge, where fine named single varieties are still grown trained to

its pure white form, which has become practically invaluable for floral decorations and for pot-culture. *G. floribundus*, which was a popular species a half century ago, is now rarely seen, but it has been found useful by cross-breeders. A race of early-flowering varieties, grown in Holland under the name of *ramosus*, and its progeny, are of great value for early flowering, and do well in pots; of the actual origin of *G. ramosus* there appears to be no record.

One of the remote parents of the present groups of hybrid Gladioli is no doubt the African *G. psittacinus*. By crossing this with *G. cardinalis*, M. L. Van Houtte, of Ghent, originated *G. ganda-*

perhaps a little of the blood of *G. psittacinus* and *G. ramosus*, a rosy Cape species introduced in 1838." (*The Propagation and Improvement of C. liliated Plants*, by F. W. Burbidge.)

Two English-raised varieties put in an appearance somewhat early, viz., *Bowiensis* and *Brenchleyensis*, raised by Mr. Hooker, nurseryman, Brenchley, bright crimson in colour, and still much grown as a border variety. The introduction of *C. cruentus* from Natal in 1868, and others, afforded the late Mr. John Standish an opportunity to cross it with some of the best of M. Souchet's varieties, and he raised many handsome varieties; and it may be said he anticipated to some extent the brilliant results obtained by Mr. Lemoine, of Nancy, later on. The races known as *Lemoinei*, *Nanceianus*, *Saundersii*, and *Childsii*, are all more or less new developments, and they have added materially to the riches of our home collections. The late Mr. James Kelway, when quite a lad, saw for the first time *G. psittacinus* at a flower show at Glastonbury, and was fired by the sight with an ambition to improve it. From Langport have come hundreds of glorious varieties; and from M. Souchet comes annually, through Messrs. Vilmorin, Andrieux & Co., a constant supply of improved forms. Messrs. J. Burrell & Co., at the Howe End Nurseries, Cambridge, also grow and raise extensively, and have sent forth from time to time many beautiful varieties of high quality. In Scotland and Ireland also, fine forms have been raised, and many amateur cultivators throughout the United Kingdom, grow and exhibit the flower in its best character. R. D.

NORMAN C. COOKSON.

Men engaged in commercial or manufacturing pursuits usually have some hobby or pastime, and Mr. Cookson's hobby is gardening, in which he is all the more successful, seeing that it is heartily joined in by his wife and family.

Oakwood, at the little village of Wylam-on-Tyne, some five miles from Newcastle-on-Tyne, has many natural beauties, which have been enhanced by planting flowering and evergreen shrubs, Roses, hardy herbaceous perennials, Carnations, &c., which harmonise with the surrounding stately Oak, and grassy glades.

Gardening under glass is an important part of Oakwood, and the block of plant-houses erected was filled with such plants as are usually grown for decorative purposes, including a few Orchids, some of the longest cherished, of which their owner can show to-day a proof of the skill and care bestowed upon them by himself and his gardener, Mr. Murray.

Early in his Orchid-growing days, Mr. Cookson, who had made a study of plant-life, turned his attention to cross-breeding Orchids, and the rules which he laid down at the start, which have resulted in many fine and a few indifferent plants, might well be accepted by others similarly engaged. These were, "never to make a cross which does not promise good results." "Always use the best possible types as parents, and if either parent is of an indifferent form, abstain from making the cross until better material can be obtained."

HYBRID ORCHIDS.

Space does not here permit of more than a few of the details of the good work done at Oakwood to be mentioned; suffice it therefore to refer to a few of the principal genera, on which crossing has had good results. Of deciduous *Calanthes* crossed in 1881, we find *C. Alexanderi*, *C. Cooksoni*, and later *C. Clive*, *C. Bryan*, *C. Wm. Murray*, and *C. Oakwood Ruby*, the last named with an almost entirely blood-red flower, and affording a very remarkable instance of the good results following continuity of effort in one strain. This variety was evolved by continually crossing the best form of *C. vestita*, which has white flowers with a blood-red eye, but which in Oakwood Ruby is a blood-red flower, with a scarcely perceptible light eye.



FIG. 47.—CAMPANULA, MAY'S VARIETY: FLOWERS PALE BLUE. (SEE P. 126.)

sloping oval-shaped wire frames, which they cover with a dense mass of bloom, and are really very effective. This strain of Petunias are also of value as summer-flowering plants in the greenhouse. R. D.

THE GLADIOLUS.

"The hybrid Gladioli," says Dean Herbert in his work on Amaryllids, "flower about the same time as the Roses, and contribute quite as much in general effect to embellish the garden by their fine colours and profusion of bloom." It was the early-flowering varieties which the Dean took in hand; he made crosses, to use his own words, "between *G. cardinalis*, *blandus*, *carneus*, *inflatus*, *angustus*, and *tristis*, and they vary with every shade of colour from white to scarlet." *G. Colvillei* is a hybrid said to have been raised between *cardinalis* and *tristis*, but it is completely overshadowed by

venis x, naming it after the city in which he dwelt. This, crossed with others, in due time produced improved varieties, and the work then entered upon is still carried on in our own country and abroad.

"M. Souchet was one of the first continental raisers who set about the improvement of the Gladiolus, and his hybrids were principally obtained by cross fertilising *G. cardinalis*, a red-flowered Cape species, introduced in 1789; *G. pulcherrimus* and *G. blandus*, a flesh or rosy species, introduced as long ago as 1744; *G. natalensis*, a scarlet and yellow-flowered species, introduced in 1830; and *G. floribundus*, a yellow-flowered Cape species, introduced in 1788, have also been employed by hybridisers, and from these five species fused together through these varieties, our races of modern show Gladioli, have been derived, with

Then let us take the genus, *Phaius*. Here we find the beautiful *P. Cooksoni* (Wallichii \times tuberculatus) appearing in 1890, which is still a standard plant. In 1895 came *P. Cooksoniae* (grandifolius \times Humbloti), and quite recently an improvement upon it in *P. Phoebe* (Sanderianus \times Humbloti). In 1897, *P. Norman* and its beautiful varieties came out, and though each of these seem to say that nothing better can be obtained, it is hoped at Oakwood that others will come that will surpass them.

In the genus *Dendrobium* the results have been very satisfying, and despite the many workers in the same field, some species have been crossed and plants raised, where all others have failed. We may mention a few of the most remarkable, viz., *D. Sibyl* (bigibbum \times Linawianum), *D. Bryan* (luteolum \times Wardianum), *D. Murrayi* (nobile \times albo sanguineum), *D. Kenneth* (McCarthyi \times Bensoniae); and among other fine crosses raised are *D. Venus* (Falconeri \times nobile), which perhaps caused more admiration than any previous cross; *D. Owenianum* (Wardianum \times giganteum), *D. Harold*, *D. Doris*, and some others.

Cypripediums have been also skilfully crossed, and in these, even with known crosses, the satisfactory results secured by crossing only the best parents have resulted in gains far surpassing in several cases the works of others in this section. In uncrossed seedlings, too, Mr. Cookson has given a remarkable instance of what may be done in reproducing desirable forms by reproducing from home-raised seeds the coveted *C. Lawrenceanum* var. *Hyeanum*.

We may mention a few other crosses: *Laelio-Cattleya Clive* (*C. Dowiana* \times *L. prestantis*), one of the handsomest and most gorgeously tinted hybrids; *Cattleya Harold* (*Gaskelliana* \times *Warscewiczii*), *C. Wm. Murray* (*Mendeli* \times *Lawrenceana*), and the reproduction of the natural hybrid *Cattleya Hardyana*.

Some of these crosses have been found easy of accomplishment when due care and attention have been given to the work; and others were difficult, as, for instance, *Odontoglossum*, in the crossing of which Mr. Cookson is making headway; his fine *O. crispum*-*Halli* (*Halli leucoglossum* \times *crispum* *Cooksoni*), indicating a beginning which in its direction will not be easy to surpass.

Perhaps the gardening amateur will ask what of hardy plants of *Roses*, *Daffodils*, *Carnations*, and other early favourites? Well, they have never been deposed! When a man is at heart a gardener, he is not to be "cornered" by *Orchids* or any other specialties to the exclusion of other plants which he regards as equally beautiful (see portrait on p. 130).

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Oncidium sphacelatum.—In this plant we have a decorative subject of great beauty, more especially when it is of large size, but like most *Orchids*, it is then difficult to cultivate, the roots having a tendency to decay in a few days when by any chance the materials about them get into a sodden condition. In order to prevent this, a renewal of materials should take place annually, at this season. Large specimens may be broken up, all of the decayed material and dead roots removed, and be re-made up in pots or pans of a suitable size, which should be filled to within an inch or so of the rim with crocks, and the plants so fixed that the centre is raised considerably above the rim of the pot, &c., using peat and sphagnum-moss mixed together in equal parts as a rooting medium. It is an accommodating plant so far as temperature is concerned, growing equally well in the East Indian or the *Cattleya*-house; the chief point to observe being to carefully afford water to suit the needs of the plant.

Epidendrum prismatocarpum.—This species stands unrivalled for exhibition, being attractive

and pretty, for notwithstanding the fact of the flowers being insignificant, they are, when seen in the mass, decidedly effective. When once established, little is necessary beyond the annual renovation of the surface materials; but when the peat and sphagnum-moss have much decayed, and the plant has outgrown its pot, the time has come when it should be afforded a fresh start. Any plant that has got into this state may now be safely repotted, beginning the operation by removing as much of the old material as possible, and then arranging the plant in a clean pot, almost filled with crocks, and packing some lumps of good fibry peat round the base of the rhizomes, and a few patches of living sphagnum-moss; a place should then be found for it at the cooler end of the *Cattleya*-house. Afford the plant water in sufficient quantity to keep the materials moist; but when growth has finished for the season it will seldom require water. *E. Brassavola* being of a similar nature, though not so good from a decorative point of view, succeeds under the same kind of treatment.

Epidendrum macrochilum and *E. Randii* are species which may be grown in shallow, well-drained pans suspended from the roof of the *Cattleya*-house, and as at the present time growth is sufficiently advanced, re-potting may be performed if necessary. The materials should consist chiefly of crocks, consequently the plant may be supplied with water more frequently, as its retention is of short duration. Once the small pyriform pseudo-bulbs have reached their full size, only sufficient water should be applied as will prevent shrivelling.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener, St. James's House, Malvern.

Begonia socotrana.—Prior to the introduction of the newer varieties of winter-flowering *Begonias*, the gardener was always trying to induce *B. socotrana* to flower in the early part of the winter; but the necessity for doing this no longer exists, and he is now content to have it in bloom at its natural season, which is from the middle to the end of the winter. A portion of the stock may be started at the present time, and the remainder in a month's time. Let the clusters of bulbils be divided into smaller clusters of about six or eight, and pot these in loam, leaf-soil, and sand, using well-drained small pots. This species of *Begonia* enjoys a high temperature, and moist atmosphere, and should be grown near the glass in order to prevent the plants becoming unduly drawn. A shelf in the stove, or in a low moist pit where a stove-temperature is maintained, will afford the required conditions perfectly. When the plants are well rooted, re-pot them in 5 or 6 inch pots, in which sizes they may be allowed to flower. The stock of this plant may be readily increased by means of single bulbils inserted in thumb-pots, and also by cuttings. The latter should be taken when the new growth attains a length of 4 inches, inserting them in thumb-pots, and placing them under a handlight in the stove, or in a propagating-frame.

Roman Hyacinths and *Polyanthus Narcissus*.—No time should be lost in potting up these bulbils if it be desired to bloom them at the earliest opportunity. Let the *Hyacinths* be potted to the number of three or four in a 5-inch pot, and the *Narcissus*, three in a 5-inch, or five in a 6-inch pot. A porous moderately-rich soil should be afforded consisting of three parts fibry loam, $\frac{1}{2}$ part leaf-soil, $\frac{1}{4}$ part rotten manure, together with a liberal allowance of coarse sand. The bulbils when potted should be afforded water, and afterwards covered with 4 or 5 inches of finely sifted coal-ashes. At this season it is the practice to stand the pots on the north side of a wall, or in some other cool and shady position, in order to screen the bulbils from the sun, which would cause them to start into growth before the roots were sufficiently formed. Later batches, when the weather has become cooler, may be placed in a more open position.

FRUITS UNDER GLASS.

By W. STRAUNELL, Gardener to Lieut.-Col. RALPH VIVIAN, Wood Ashton, Trowbridge.

The Cucumber-house.—In order to obtain a regular supply of fruits, close attention must be paid to the ventilation of the house or pit, as well as to affording water and syringing the foliage, the

latter being required twice or three times on hot days. Unless this be followed up, the plants soon become over-run with red-spider, which ruins the foliage, and, once established, is difficult to destroy. Green or black aphides can be destroyed by fumigating or vaporising. Let the stopping of the shoots be attended to once or twice a week, according to the amount of growth made, pinching these at one joint beyond a good fruit. If the fruits set too freely or in clusters, a good deal of thinning is called for. The air of the house can scarcely be kept too humid for *Cucumber* plants at this season, and manurial aids to growth should often be applied either in liquid form or otherwise. That the supply of *Cucumbers* shall last till late in the autumn, strong plants should still be planted in pots and houses in the manner described in earlier *Calendars*. Older plants may have their fruitfulness restored by affording light dressings of new soil at fortnightly intervals. In planting for late autumn use, bottom-heat should be provided. Warm water only should be used when moisture is needed by the roots.

Cucumber-plants in Frames need the same cultural treatment as that generally afforded the house-plants, particular attention being paid to closing the frame early—say 3 to 3.30—in the afternoon, in order to utilise the sun's heat. While the hot weather lasts, no coverings are required on the frames at night.

Winter Fruits: Cucumber-plants.—From the middle to the end of August is the usual time for sowing seeds. This early start may, however, be modified when the *Cucumber*-house is very light, and well provided with bottom-heat. In providing for winter, the plants ought to be allowed to become of a considerable size and strength ere they are allowed to carry many fruits. The winter plants should be in readiness to supply daily wants as soon as the summer and autumn plants are exhausted.

The Latest Melons.—Those which do not show much vigour must not be shaded, or they will not fruit satisfactorily, and bottom-heat will be necessary after this date, or the plants may collapse at a time when the fruits are far advanced towards maturity. A lighter rather than a heavier crop of *Melons* should be taken now that the days are shorter, and two, or at the most three fruits form a sufficiently heavy crop.

Pot-Vines.—Let *Vines* that have filled their pots with roots and are intended for early fruit have every encouragement. No waste lateral growth should be permitted; and, on the other hand, they should not be rigid-pinched, for then there is danger of the basal buds bursting into growth. Red-spider must be kept in check by regular syringing morning and afternoon. Where the *Vines* are being prepared for planting, a newly-built vinery, and the borders indoors are ready for their reception, there is a gain in planting at once, rather than deferring it till the spring. Except under special conditions, it is advisable to plant in outside borders where the *Vines* are dormant. There is still time for inarching young *Vines* in mid-season and late-houses, if a young cane has been allowed to extend for this purpose. The union will be more secure if the scion and stock be tongued, and the work is more satisfactory if the wood is in the green state.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt Tisbury, Gloucester.

The Shrubberies.—Any tree to which stakes were placed for support should be examined at this date, in order to see that the ties are not cutting into the bark. Where this is found to be the case, the ties should be removed, and new ones substituted on another part of the tree. Trees of *Cupressus*, *Taxus*, *Thuyas*, *Junipers*, and other *Conifers*, which must be kept in pyramidal form, should have the outer branches fastened to the main or principal stems; and to preserve the specimens of a certain size, the inner shoots should be pruned away, and the outer branches drawn into their places. Laurels and other evergreen shrubs, growing too high for their positions, may have the longer shoots shortened to within three buds. On such as these the knife or scateur rather than the hedging-shears should be employed, clipping spoiling the appearance of the shrub, and the flat surface produced by the latter excludes light and air, causing the

death of the inner parts of the shrub. Deciduous trees that were spring-planted are apt to drop their leaves early; and to prevent the buds starting which should remain dormant, the trees should not suffer lack of moisture at the roots. If time can be afforded, and water is plentiful, the stems and leaves should be damped over-head of an evening.

Lilium candidum.—When the leaves and stems turn brown and wither, it is a sign that they are attacked by the Lily-fungus, and the bulbs should be lifted. If the attack is serious, burn them forthwith, and start with fresh and healthy bulbs. If, however, the bulbs are not much affected, the strongest may be saved, washing them in a weak solution of the Bordeaux Mixture, and when quite dry, placing them in a bag containing flowers-of-sulphur, which should be well shaken so as to work it into the scales of the bulbs. The bulbs should then be planted without delay in a position far removed from the old station. When re-planting, add some heavy loam to the staple, in which plant them not less than 4 inches deep. A partially-shaded position seems to suit the Lily best, but they should not be placed where trees overhang them, and exclude the light.

Anemone fulgens is the hardiest of spring-flowering plants, and it thrives in almost any kind of garden-soil, though a heavily-manured loamy soil suits the plant the best. This variety is equally at home planted in a sunny border in the rock-garden if well drained, or in a position with a northern aspect, and partly shaded by trees. Propagation by seed is not satisfactory, the flowers seldom coming true; and it is much easier to increase than by division. From the middle to the end of the present month will be found the best time to divide and replant the tubers, thus they will be enabled to get well established, and flower early next spring.

Miscellaneous Work.—Preparation should now be made for the propagation of bedding-plants, by making a compost of finely sifted loam and leaf-mould, with river-sand or sharp grit from off the high roads, and mixed in about equal proportions. Cutting boxes should be repaired, or new ones made. Those made of larch-wood, 3 feet long, 1 foot broad, and 4 inches deep, are best for Pelargoniums, reserving those of half the size for the smaller and more tender class of plants. Boxes are preferable to pots, as it takes less time to dibble in the cuttings, and they are less troublesome to move about.

Fritillaria imperialis.—These bulbs, if properly planted at the first in a deep, rich, drained soil, require but little attention afterwards. Where the bulbs have been in the same place for some years, and the stems do not grow strong, and flowers are scarce, these are signs that the bulbs are overcrowded and the soil is exhausted. Now is the season to lift and replant. Take up the bulbs carefully, select the strongest, and if to be planted in the same position add some turfy-loam, a quantity of leaf-mould, some small quantity of wood-ashes or old plaster, mix and place this in the hole, and having made the soil firm, plant the bulbs 4 inches deep, and six inches apart. The bulbs should not remain out of the ground for any length of time, or growth will be poor the following year. Of the varieties grown at Westonbirt, *lutea* and *maxima lutea* are the best yellows; *rubra* and *maxima rubra*, the best reds. The golden and silver variegated-leaved varieties do not succeed out-of-doors, but they are pretty when grown as pot-plants in a cold frame. The dwarf species are numerous, and pretty when grown in borders or in the rock-garden, and succeed in the same soil as *F. imperialis*. Manure-water assists them when growing, but in removing and replanting avoid planting them in soil which has been recently afforded manure.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Strawberries for Main and Late Crops.—Following up the planting of well-rooted runners for the production of the earliest crops, the main and late fruiting plants should be set out, or immediate preparations made for doing this. The quarters where these will be situated should have been by preference prepared long ago, but where this has

not been seen to, a piece of ground should be chosen that requires but little preparation, and if it have carried some light kind of crop since it was trenched, it will suffice to dig it with a fork after affording it a dressing of decayed stable-manure. If the land is dry, apply water in sufficient quantity to moisten it thoroughly, and having waited a day or two for the surface to become dry, let it be trampled evenly all over. Assuming the runners are strong, and they have been layered in 60's, a good crop of fruits may be expected next year, provided proper attention is paid to affording to the plants water in dry weather during this month and the next. Having planted the piece of land, mulch it with Mushroom-bed manure. As the plantations of main-crop and late Strawberries are not destroyed till they have fruited for two or three years, 2 feet apart each way will not be too much to afford them; another foot space being given at every third row to serve as an alley.

Varieties.—Royal Sovereign, besides fruiting early when given a warm position, is a good all-round variety for planting anywhere. The fruits are firm, therefore they travel well. President is another variety of excellent flavour, bearing very abundantly; and Sir Joseph Paxton is an old market favourite, and a good cropper. When looking recently through a large collection at the Royal Nursery, Slough, it was easy to see that Laxton's Leader was a wonderfully heavy fruiter, and the fruit well flavoured. Veitch's Perfection, a highly-flavoured, rather late variety, was also fruiting well. The new perpetual variety, Louis Gauthier, bore an abundant crop of white berries, tinged with pink, and as a perpetual bearer, fruiting well into autumn, it is a desirable variety to plant for home consumption. The runners should be allowed to establish themselves, and these, as with the variety St. Joseph, produce the second crop of fruits. Empress of India, a fine dark fruit, with a slight Pine flavour, is also worthy of a trial, and the two new varieties recently certificated, namely, Lord Kitchener, and Lady Suffield, promise to be useful additions for general planting. Two good late varieties that have been well tried are Elton Pine and Frogmore Late Pine; these should be planted on a north border, or the coolest aspect available, so as to prolong the Strawberry season.

Insect Pests.—The hot, dry weather has caused insect pests of various kinds to increase with rapidity. Wasps are great pests in the fruit-garden, but this year, up to the time of writing, they have not been at all plentiful at Dropmore. As soon as any wasps are noticed, they should be tracked to their nests, and the latter destroyed by pouring gas-tar into them. This may be done at any time of the day, as the absent wasps are sure to trap themselves in the tar on their return. A lump of wadding soaked in a solution of cyanide of potassium and pushed into the entrance of the nest on a pointed stick, is another means of destroying them, but the cyanide being a very deadly poison, must be used with extreme care, and not brought near to the nose or mouth. Earwigs are very troublesome here among wall-fruits; they may be trapped in large numbers in pieces of dry Bean-stalks, about 6 inches in length, stuck behind the shoots, and emptied of the earwigs every morning into a bottle of water.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Tomatos.—The plants which were planted on a sheltered border early in June, and others planted against a south wall, should at this date be ripening their fruits, the hot weather having hastened the process, especially on such of the plants as have had the stems and laterals stopped and the leaves tipped. The plants in all but very rich ground may be afforded liquid-manure twice or thrice a week. Remove the fruits when fully coloured, not waiting till they ripen, and place them in a warm, dry place to ripen thoroughly. Let the side shoots be pinched back, and expose the fruit by removing some of the foliage where this is dense. The leaders should now be stopped in every case, in order to encourage the latest trusses to ripen before we get cold nights. Succession-plants in pots should be kept growing out-of-doors, re-potting them as the state of the roots may demand. When a quantity of fruit has set, place these plants in glass-houses when the nights begin to grow cool.

Some of the dwarf-growing, corrugate-fruited varieties fruit abundantly both out-of-doors and under glass, but there are smooth-skinned varieties which do equally well if the cultivation is of the right sort.

Scarlet Runners.—The ground alongside the rows of Beans should be mulched with rich manure and water copiously applied, repeating the application as the weather and the state of the soil may demand. Do not allow any of the pods to ripen, but set apart a part of a row for seed purposes.

Cabbage.—An ample sowing of Cabbage-seed should now be made; sowing on land that is moist with rain, or which has been afforded water some hours previously. When the seeds are sown broadcast or in drills, let the beds be covered with mats till the young plants appear, then remove them forthwith and put a net over the bed at about 1 foot from the ground. Let the earlier seed-beds be well supplied with water. A small quantity of the red variety may now be sown.

Cauliflower.—Those who winter their Cauliflower-plants in frames and under hand-lights should make two sowings during the present month, earlier in northern counties and later in the south and south-western ones, the difference between the two being from fourteen to twenty-one days. The Walcheren is a useful variety, it being hardy and less subject to "buttoning." The seed may be sown similarly to Cabbage-seed, that is, thinly, so that the growth will be sturdy from the first. There are some good varieties of late Broccoli which, in favourable seasons, fill up the gap between the Broccolis and the spring sown Cauliflower, but as the winter weather cannot be forecasted, it is well to be on the safe side by preparing plants, both autumn and spring sown, in case of a mishap occurring.

THE APIARY.

By EXPERT.

The Temperature of Hives.—How to increase our hives without causing the bees to stop working, is what we all want to know. Somehow, the change very often results in the work being either wholly or partly stopped for a few days. The important point to observe in making any addition to the accommodation of the hives, is to be careful to conserve the heat of the colony. A man cannot keep warm in a cold house; the heat from his body escapes into the air, which surrounds him on every side. This is simply an illustration. My inference is, that if the air surrounding the bees be much colder than their bodies, the insects will lose their intense vitality by degrees, till they are quite benumbed and inert. If the colony, to use a popular expression, catch cold, we are not justified in believing that the baneful influence is removed when some extra coverings have been heaped on. The effect of cold generally on the circulation is to drive the blood from the surface to the interior of the body, and so gorge the vital organs. The temperature of the body itself is much lowered, and the heart contracts slowly with weak pulsation. It must be observed that, if bees are thoroughly benumbed, they may probably suffer permanently. This is particularly the case where the bees are aged and emaciated, and where the vitality is considerably less than is the case with younger insects. The bees are injured in three ways—by cold, by evaporation, by the condition of the air, and by radiation. Where there is a dry coldness, the evaporation is greatest. When the air is filled with moisture, it is at its minimum condition; and is very considerable when the air is moist, so that cooling takes place either when there is a dry, cold air, or a cold, moist air. Our study should be to keep the bees at such a temperature as will permit of a healthy but not an excessive radiation of heat. We have spoken of the effect of excessive cold, but excessive heat is slightly less hurtful in its operations. Heat, when it approximates or exceeds the temperature of the living body, is hurtful. It has an enervating power. Everything animate is listless; and if not incapable of, at least disinclined, to make any considerable exertion were it not that living bodies sweat. When a certain extreme point is reached, it would almost seem certain that creatures would die when the heat equalled or exceeded that of the blood. How shall we protect our bees from the cold without interfering with the proper ventilation of the hive? Can any one tell us?

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

MONDAY, Aug. 14—“One-and-All” Flower Show.
THURSDAY, Aug. 17 { Royal Horticultural Society of
Aberdeen (3 days).
FRIDAY, Aug. 18 { Devon and Exeter Horticultural
Society.

MEETINGS.

MONDAY, Aug. 14 { United Horticultural Benefit and
Provincial Societies.
TUESDAY, Aug. 15 { Royal Horticultural Society's Com-
mittees at the Drill Hall, James
Street, Westminster.

SALE.

FRIDAY, Aug. 18 { Imported and Established Orchids,
at Frotheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period July 30 to August 5, 1899. Height above sea-level 24 feet.

1899.	JULY 30 TO AUGUST 5.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			AT 9 A.M.		DAY.	NIGHT.	RAINFALL.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.
			Dry Bulb.	Wet Bulb.						
			deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.
SUN.	30	W.N.W.	69.9	62.2	81.5	59.5	...	68.3	65.1	61.2
MON.	31	N.E.	68.2	60.0	75.4	51.5	...	69.1	65.5	61.2
TUES.	1	S.E.	88.8	62.1	79.5	54.2	...	68.2	65.7	61.5
WED.	2	E.S.E.	71.5	62.1	77.7	49.5	...	68.2	65.7	61.5
THU.	3	E.S.E.	71.5	64.8	80.1	60.0	...	67.7	65.5	61.5
FRI.	4	S.E.	69.9	64.5	77.1	61.5	...	68.5	65.5	61.6
SAT.	5	E.	70.5	64.2	80.6	59.2	0.04	68.3	65.5	61.7
MEANS...			69.8	62.8	78.8	56.5	0.04	68.3	65.5	61.4

Remarks.—The weather during the week has been very hot, with rather high, drying winds. A small quantity of rain fell on the 5th inst.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—62.3°.

ACTUAL TEMPERATURES:—
LONDON.—August 9 (6 P.M.): Max. 76°; Min. 57°.
PROVINCES.—August 9 (6 P.M.): Max. 70°, East Counties; Min. 54°, Shetlands.
Fine, warm.

SOME months since we published the judgment of the MASTER OF THE ROLLS, in the Appeal Court (see *Gardeners' Chronicle*, p. 168, March 19, 1898). That judgment was favourable to the Surveyor of Taxes, but as some differences of opinion were manifest on the part of the judges, it was resolved to appeal finally to the House of Lords. The culture under glass of plants, fruits, and vegetables for market purposes has enormously

increased during the last quarter of a century, so much so that it may almost be said that a new industry has sprung up. The prosperity of this undertaking naturally depends upon cheapness of glass and fuel, moderation in the matter of wages, railway carriage, and rates and taxes. So great is now the competition, and so narrow the margin of profit, that if any one of the items we have mentioned becomes excessive or disproportionate, the success of the enterprise becomes seriously menaced.

According to the provisions of the Agricultural Rates Act (1896), land used for agricultural purposes is rated to only half the amount demanded from land with “buildings” on it. Glass-houses, though not utilised for residential purposes, are none the less “buildings.” “Agricultural land,” as now decided, must have no buildings upon it. This seems a very clear distinction, but when it is remembered that according to the terms of the act “market-gardens, nursery-grounds, orchards and allot-

Probably the framers of the original Act had not in view market-gardens of the character above described. They were more concerned with agriculture proper, and the object was to relieve the farmer. As things are, we must take the law as it is for the time being. The manifest injustice to the market-gardener, however, seems to render it essential that the Act should be modified or a new one passed, so as to exempt the market-gardener from this serious impost. Agriculture is in a distressful condition; market-gardening and commercial gardening generally, are prosperous, and many agriculturists have very wisely turned their attention to more profitable undertakings. That they should now be checked by the law is a great misfortune, particularly as the agriculturist is not specially benefited by the increased toll taken from the market-gardener.

The One-and-All Flower Show.

We hope to give our impressions of this great annual event a week later; but this will necessarily be after the event. This week we wish to take time by the forelock to induce our readers to go and see for themselves, and to chronicle some of the novel features in this year's show, which promises to be the largest of the series. The Co-operative flower-show has advanced until it has taken a distinguished place among the notable events of the year. At the start, a single table was sufficient, and a few hours began and ended the whole affair. Now, not only the working masses but the cultured classes are deeply interested. Society and the peers are moved, and the Palace is crowded for a week. The festival and shows crowd the entire week, from Monday, August 14, to Saturday, August 19.

Dr. LORRIMER, the great American orator, is the festival President of the year, and his eloquence and oratory are expected to give attraction to the meetings; but the merest summary of the proceedings would unduly encroach on our space. It will be best, therefore, in our first notice to confine ourselves chiefly to the more notable horticultural features of the great gathering.

During the winter, the question of how to make these great gatherings more useful for the extension of the knowledge and love of horticulture among the masses has been discussed in the pages of the *Agricultural Economist*. The first fruits of this appeared in the announcement of a series of educational lectures during the festival and show week. They will begin on Monday, 14th, at 2.30 in the Palace by the judges. The first by F. W. SANDERS, Esq., on “Worker's Gardens”; the second, on Tuesday, 15th, by Mr. GEORGE GORDON, V.M.H., subject, “Vegetables for Small Gardens”; the third, on Wednesday, Aug. 16, “Fruits for Cottagers,” by D. T. FISH; the fourth, by RICHARD DEAN, V.M.H., on “Flowers for Workmen.” The last and concluding lecture of the series will be given by Mr. JOHN WRIGHT, on “Allotment Cultivation.”

There is also a new educational class for collections of fruit, flowers, and vegetables; judged by points—the absolute possible number and the actual points taken by the different exhibits being noted, so that every exhibitor may read as he runs the reasons of his success or failure. The prizes in the point-judged classes are liberal, including a first prize of a water-colour drawing by Miss MARIE LOWE (Mrs. HEMSLEY), and five guineas in cash; second of three guineas; and a third of one guinea.



N. C. COOKSON, Esq.,
OF OAKWOOD, WYLAM-ON-TYNE.
(See p. 127.)

ments,” are to be considered as agricultural land, the difficulty of distinction becomes more apparent, for most nursery-grounds, even if they have no greenhouses, contain an office, toolshed, frames for sheltering plants, and other “buildings” used for purposes of business only.

The question raised, therefore, was, whether land covered with glass-houses was or was not entitled to exemption as agricultural land. The Court of Quarter Sessions said one thing, the judges in the Divisional Court were divided in opinion; the Appeal Court, presided over by the Master of the Rolls, upheld the distinction between “land” and “buildings.” And, now, the Lord Chancellor, together with Lords Watson, Macnaghten, and Morris finally agree with the judgment of the Master of the Rolls, with the result that market-gardens under glass are in future not to be rated as agricultural land, but are to be assessed on the same scale as land on which immovable buildings are constructed.

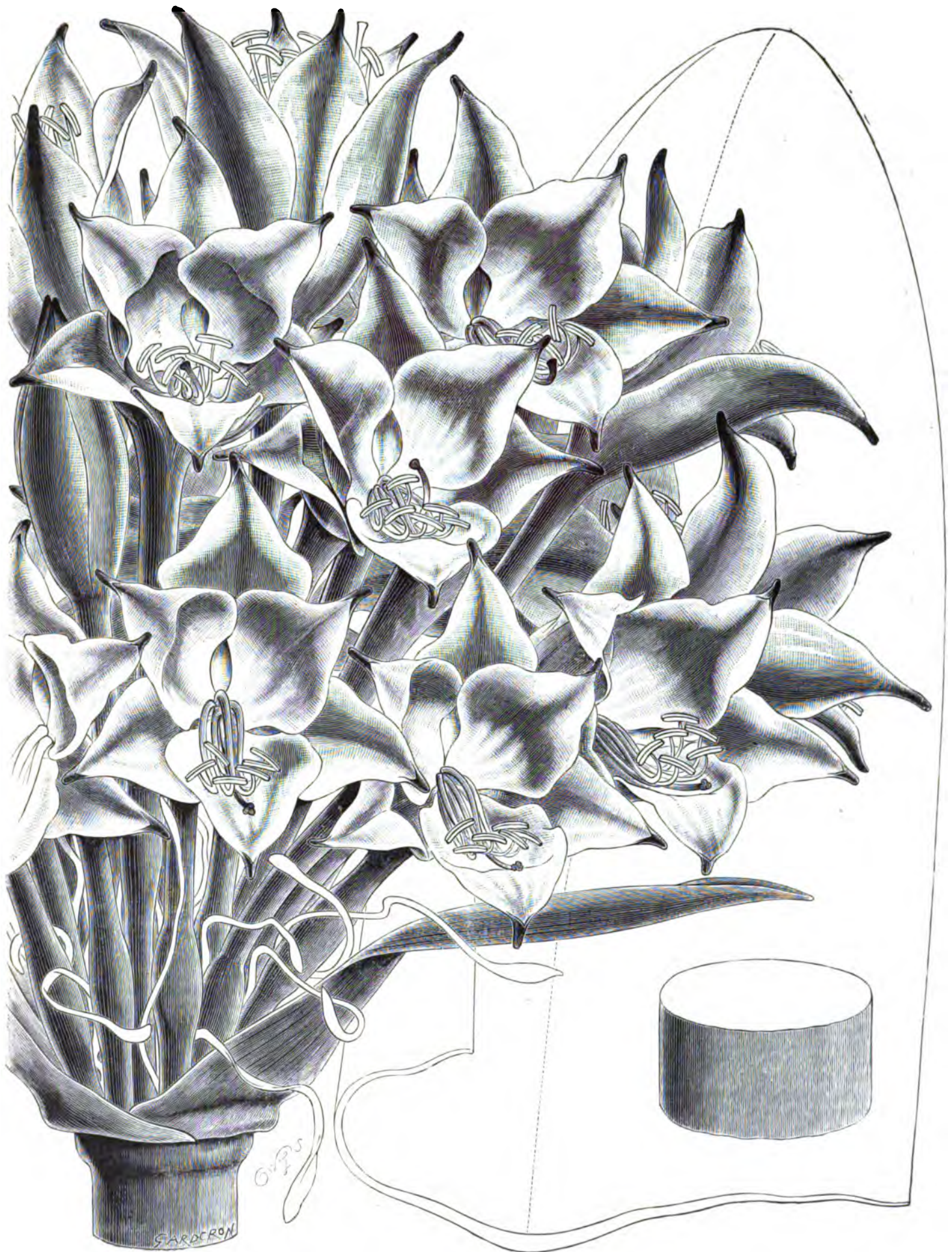


FIG. 49.—CRINUM "VAN TUBBERG," (SEE P. 133.)

As it would be now too late to enter the field for these and other prizes, it would be useless to burden our columns with details. Suffice it to say, that these exhibits are to be shown on tables eight feet wide and four hundred and seventy-two feet long, and to consist of seven dishes of fruit and seven dishes of vegetables; and ten points, the highest possible given to any exhibit, are to be allowed for table plants; ten for cut flowers and foliage; and ten for tasteful arrangement. Another very important art development, full of hopeful arrangement for the culture and taste of the open century so near at hand, may be seen in the advance of the photographic exhibitions.

Originating in the happy thought of gardens of taste, placed in contrast to gardens run to waste, it has become a free school of art, and provides demonstrations of great usefulness to thousands of the masses. Fine arts, whether on canvas or in horticulture, or in the cottagers' homes or gardens, can only be taught by example. Already the culture of fruit and flowers, the illustrations of the finest samples through photography, have done much to rub off the sharp angles of cash and profits, and to mellow and enrich the character and lives of the million through this gentle art of horticulture in our gardens and homes. While waiting for our photographic pictures in colour, we as horticulturists welcome every advance in the science and practice of photography, which has proved such a useful ally to horticulture.

Perhaps no part of the labours of the One-and-All Movement has been so fruitful in prompt and powerful result in bringing the charms of Nature and art into the hearts, homes, and gardens of the working classes as its photographic exhibitions of what to choose and what to avoid in homes, gardens, windows, rooms, back-yards, &c. Hitherto, horticultural merit has been the main object, but the time has now come to illustrate the highest science in photography as well. Hence the division of the Photographic Exhibition into two—the horticultural section, to be judged by Messrs. SANDERS and FISH as usual; and the highest section of scientific photography, by Messrs. SNOWDEN WARD and E. ZAMBRA, of the Crystal Palace. Mr. SNOWDEN WARD, one of our great authorities on high art photography, will also repeat his lantern lecture on horticultural photography, and many things may be seen and heard that cannot fail to prove most interesting and instructive.

In the words, however, of one of our well known correspondents, by running our horticultural landscapes abreast of our highest science and finest examples of perfect photography as a fine art, it will be more likely to sustain the fine art of gardening, furnishing an illustration at its highest level.

Landscape photos need lack neither light nor shade, proportions nor harmony, perfect finish nor workmanship. Still, this lesson should be for gardeners, to show them how best to help them in the furnishing and filling the garden and home.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, August 15, in the Drill Hall, James Street, Westminster, from 1 to 5 P.M. At 3 o'clock a lecture on "Pruning, what for, How, and When," will be given by Mr. R. P. BROTHERSTON.

RATING OF NURSERIES, ETC.—We have received the following letter from the solicitor to the

Nursery and Seed Trade Association:—"Overseers of the Parish of Worthing v. Richmond (Surveyor of Taxes), Agricultural Rates Act, 1896.—I enclose you a copy of the judgment of the House of Lords delivered in this case on the 3rd inst., as reported in the *Times*, affirming the judgment of the Court of Appeal, which decided that glasshouses in or on a market garden, if buildings, must be rated as buildings and not as agricultural land, thereby confining the benefit conferred by the Agricultural Rates Act to agricultural land. Believing that the majority of the Court of Appeal were right in their judgment, and that their decision in this case did not affect the decision of the Court of Appeal in *Purser v. The Worthing Local Board of Health*, I took the opinion of counsel, and was advised that such was the case. Market gardeners and nurserymen are liable to be assessed for the district rate in the proportion of one-fourth part only of the net annual value of their nurseries and market-gardens. It may be advisable for you to remind your subscribers of this, and that the decision of the House of Lords does not deprive them of the benefits of the Agricultural Rates Act in respect of Poor-rates so far as regards land used independently of, and not covered by buildings.—Yours truly, CHARLES BUTCHER, Solicitor to the Nursery and Seed Trade Association, Limited, 30, Wood Street, Cheapside, E.C."

THE BOARD OF AGRICULTURE AND COMMONS, ETC.—The recently published annual report of the Board of Agriculture is a splendid advertisement for the Commons Preservation Society, for we learn that no order for the enclosure of a common was made last year—nor is there under consideration any application for such. An application—the last, we believe—was made in the year 1895, and it deserves notice because the lands proposed for enclosure (2685 acres) in Northants was mostly fields, meadows, and pasture, worked by the parishes in which they lay, therefore not quite common. Of this lot 42 acres were turned into field gardens, 44 acres into recreation-ground, and an open heath of over 100 acres was let alone. Last year two metropolitan commons were given over to a district council; a third (Harrow Weald Common) is now being alluded to in the House of Commons. This land is part of an enclosure made in 1803—in fact it was an allotment made in that year for supplying gravel, &c., for highways and private roads. It is intended to turn it into an open space, under proper care, and so will be a great boon to a fine suburb.

THE UNIVERSITY OF LONDON.—The transfer of the University to the Imperial Institute will be of great advantage to the University, and together with the proposed institution of a teaching department to the examination centre already existing, will increase the reputation of the University. It is not generally known that the standard set up by the University is in some, if not in all departments much higher than in the older universities, where the culture of athletics, and the development of the body are in practice considered more important than the development of the mind.

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.—At a meeting of the Directors of this Society, held at the office of the Secretary, on 5th inst., Mr. PYPER, of Hillhead, presiding, it was intimated that arrangements are now complete for the forthcoming show of the Society to be held in the Duthie Public Park, Aberdeen, on 17th, 18th, and 19th inst.

REJUVENATING PORTMAN MARKET.—We understand that a proposal is now on foot for rehabilitating this market under the title of "Portman Market, Limited." The company is to acquire the benefit of an agreement for a lease to be granted by Viscount PORTMAN of the site named, and erecting in the place of the present buildings an improved and enlarged market building, with cool storage

and offices. The market, we believe, dates from 1830, and its fortunes have been "various," though it might surely be predicted of such a scheme in the Paddington district, that success must attend a well-directed effort to supply fruits, roots, and vegetables to a somewhat dense population.

PRESERVATION OF COMMONS, ETC.—Those who for many years past have banded themselves together to preserve the commons, "greens," &c., in this old England, must be gratified with the success of their endeavours. Applications for the enclosure of commons have dwindled to the vanishing point, and quite lately there has passed both Houses of Parliament a Bill for preserving commons and open spaces to the people. The Bill consists of twenty-four clauses and two schedules, and makes the district council the authority for drawing up the necessary regulation schemes, when there is agreement among the parties interested, thereby avoiding the expensive machinery of a scheme and inquiry by inspectors sent from London. The district council can assume powers of management in respect of a regulated common under a scheme, and can delegate them to a parish council. A county council may also invest a parish council with all the powers of the Open Spaces Act, 1877 to 1890. We may note that Part I. of the main object of the Bill is to provide simpler and less expensive machinery for regulating commons. At present a common cannot be regulated or placed under local management without a provisional order or a scheme conformed by Act of Parliament. Part II. makes some minor amendments in the Enclosure Acts, and in the enactment relating to open spaces and recreation grounds, and repeals certain enactments relating to commons which are either obsolete or inconsistent with modern legislation. The lord of the manor is relieved of certain responsibilities, and the modern machinery of district and parish councils, as stated, will now take over all the duties.

"BLIND" GAILLARDIA.—Messrs. BARR & SONN have sent us what they call "blind" flowers of a Gaillardia. The "blindness" consists in the entire absence of the ray florets, whilst the central ones are tubular, cylindric, closed at the apex (cleistogamous), or occasionally with traces of five divisions at the apex. In many cases they are studded with multicellular hairs, a purplish pigment occurring in alternate cells, so that a banded appearance is produced. The two stigmas are more or less leafy, the other parts of the flower are not specially altered. A flower so changed has no attractions for the average gardener, who, however, is apt to ask inconvenient questions, such as "Why does this happen?" To this the botanist can only shamefacedly say, "I do not know." If he had been present at the beginning of things instead of at the end, he might have been able to explain why those particular flowers were arrested in their growth; as it is, he can only chronicle the results of a *post mortem*.

PURLANE SEEDLINGS.—We have been interested in watching the behaviour of some seedling Portulacacs grown in a cold frame for salad purposes. The two ovoid, fleshy, green cotyledons, are borne on the top of the "hypocotyl," or caulicle, and in the daytime they spread at right angles. As darkness comes on, they become erect, and appressed one to the other, thus protecting the young leaves. These leaves, which are in "alternate" pairs, show the same movements, spreading to avail themselves of the sunlight, raising themselves as temperature and light go down, to avoid the effects of radiation.

STOCK-TAKING: JULY.—The general conditions of trade during the past month has prepared us for a satisfactory report by the Board of Trade in connection with "Trade and Navigation." The Board of Trade figures for July show an excess of imports over those for July, 1898, of £4,032,333,

gained thus:—1898, £35,903,039; 1899, £39,935,372. Of this great increase, nearly £1,811,000 is placed to the account of food and drink, including live animals and tobacco." Our usual extract from the "summary" table is as follows:—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	35,903,039	39,935,372	+4,032,333
(A.) Articles of food and drink—duty free ...	13,258,826	14,691,228	+1,432,402
(B.) Articles of food & drink—dutiable	2,043,863	2,239,201	+195,338
Raw materials for textile manufactures ...	3,474,294	3,443,455	—30,839
Raw materials for sundry industries and manufactures	5,321,559	5,852,130	+530,571
(A.) Miscellaneous articles ...	876,344	1,084,374	+208,030
(B.) Parcel Post ...	88,369	88,242	—127

We come now to our little table recording imports on fruit, roots, and vegetables, as follows:—

IMPORTS.	1898.	1899.	Difference.
Fruits, raw:—			
Almonds ... cwt.	1,972	3,193	+1,221
Apples ... bush.	30,739	117,835	+87,096
Cherries ... "	190,878	104,026	—86,852
Grapes ... "	51,509	104,394	+52,885
Lemons ... "	176,891	217,484	+40,593
Oranges ... "	7,931	91,625	+83,694
Pears ... "	13,621	49,823	+36,202
Plums ... "	67,715	135,435	+67,720
Unenumerated ...	455,159	483,615	+28,456
Roots and Vegetables:—			
Onions ... bush.	367,188	454,268	+87,080
Potatoes ... cwt.	588,969	681,572	+92,603
Vegetables, raw, unenumerated ... value	£201,129	£215,002	+£13,873

The figures here are certainly very striking, bearing in remembrance the table recording the fruit harvest of the year. What may have been the amount of foreign fruit destroyed by atmospheric and other conditions in transit we have no means of learning, but doubtless the foreign exporter has learnt a lesson we trust he will take to heart. The imports for the seven months of the year have reached the total of £276,639,107, as against £271,881,490, or an increase of £4,757,617. Not a bad account to date. Coming now to the past month's

EXPORTS.

we find still another increase to record. The figures for July are £23,195,958, compared with £20,089,878 for the same period last year, or a gain of £3,106,080. The increase is spread over nearly every item of importance, and the total gain in the seven months is £17,119,795. We note that the Franco-American tariff has been arranged after heavy work; the latter country is now on the same footing as England and Germany. With wages advancing in certain important trades, it will be admitted that, on the whole, the "show" for July is a very good one indeed.

PETER LAWSON & SON, LIMITED: NURSERY AND SEEDSMEN, EDINBURGH.—We learn that the directors of this old-established concern will submit a statement of the Company's affairs as at June 30, 1899, being the close of the financial year, showing a profit upon the year's trading of £1874 16s. 6d., of which sum the directors recommend, for the approval of the shareholders, that a dividend at the rate of 5 per cent. per annum on the paid-up capital, free of income tax, be paid on September 1 next, thus absorbing the sum of £875, and that the balance, viz., £999 16s. 6d., be carried forward to the current year. The directors who now retire by rotation are Mr. LYTLE and Mr. SOMMER, who are eligible, and offer themselves for re-election; and

it is recommended that the auditors, Messrs. A. & A. PATERSON, C.A., be re-appointed. The accounts will be open to the shareholders for examination at the registered office of the company, No. 1A, George IV. Bridge, during business hours, for a week before and a week after the annual general meeting of the company.

ISLE OF WIGHT.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday, August 5, Dr. J. GROVES, B.A., J.P., presiding over a fair attendance of members. Mr. T. ROBINSON, of Hildyard, Sandown, read a very interesting and profitable paper on the "Cultivation of Vines," which evoked a good discussion.

INTERCROSSING AND HYBRIDISING.—PROF. J. C. EWART sends us the following note: "Having read with much interest the reports in the *Gardeners' Chronicle* of the Hybridisation Conference recently held, it has occurred to me that a résumé of the main results already obtained by crossing plants, would be extremely helpful to all interested in the subject of heredity. From what takes place when animals are crossed, I would expect plant hybrids and crosses in their structure, coloration, habits, constitution, fertility, &c.—

1. To be nearly intermediate between the two parents.

2. To closely resemble either the seed or pollen parent.

3. To resemble a recent, an intermediate, or a remote ancestor.

4. To possess all, or nearly all, the characters of one of the parents, plus one or more of the characters of the other parent, or one of its ancestors.

5. To exhibit in an undiminished form, the more striking characters of both parents.

6. To closely agree in some respects with one of the immediate parents, and in other respects with the ancestry; or

7. To neither resemble the parents nor any of their known ancestors.

If a table were prepared giving examples of these and like results, it would, I am satisfied, prove most useful; and its utility would be augmented if an attempt were made to account for the form &c., of the hybrids—to explain, e.g., why a hybrid resembled the pollen more than the seed parent. Perhaps it would simplify matters if hybrids (i.e., crosses between species or still higher grades) are placed in one table, and crosses (or to use a more distinctive term, *crossings*), i.e., the offspring of well marked varieties, races, or strains, are arranged in a second table. *J. Cossar Ewart, University of Edinburgh, Aug. 8. 1899.*

RAILWAY CONCESSION FOR CRYSTAL PALACE VISITORS.—Numerous horticulturists in particular and the public generally who have, in the course of a year, so many inducements to visit the Crystal Palace, will be gratified to learn that the directors of the Crystal Palace have arranged with the District and Metropolitan Railway Companies to provide tickets, including return railway fare and admission to the Palace, from all Inner Circle stations for 1s. 6d. On all lines within a radius of twenty-five miles of the Crystal Palace a considerable reduction on combined fare-and-admission tickets has been effected. To get from (say) Notting-Hill to the Crystal Palace with admission for eighteenpence is a surprising offer, which speaks volumes for the enterprise of the new directorate.

TRADE IN PLANTS, ETC.—If one is desirous of learning what is the value or extent of our foreign trade in nursery and garden products, it will be useless for him to look up the monthly returns issued by the Board of Trade—imports and exports alike. The word "miscellaneous" covers quite a host of items, but is useless to the average inquirer. Customs bills of entry are not very inviting pieces of literature—besides, life is short, and though we have occasionally indirectly suggested the abolition of the item "miscellaneous," and the substitution of the separate or more im-

portant items, it has not been found possible to take notice of the suggestion. The Secretary of the Board of Trade has been approached on the subject, and no later than July 25, in answer to an inquiry, wrote that the "exports of plants from the United Kingdom are not separately recorded;" but as to the imports, "if"—there is much virtue in an "if"—we did so-and-so, then we could get at the total value of our imports of plants, &c., from all foreign countries and British possessions. These figures the writer obtained in the library of the London Chamber of Commerce, in a huge Blue-book, under the heading:—

Imports of Plants, Shrubs, Trees, and Flower Roots entered for Value only.

Imports for four Years.	1895.	1896.	1897.	1898.
	£	£	£	£
Germany ...	30,187	30,465	42,020	43,889
Holland ...	184,025	203,390	213,663	221,793
Belgium ...	38,493	40,271	44,780	49,872
France ...	46,515	46,237	41,591	49,703
Japan ...	10,852	12,100	18,954	18,147
United States of America	17,377	18,222	18,373	18,395
Mexico ...	3,251	1,816	2,204	319
Republic of Colombia ...	3,735	9,896	9,009	10,425
Brazil ...	3,689	5,002	3,715	6,259
Other foreign countries	4,448	4,117	4,607	8,410
Total, foreign countries	346,962	381,216	398,875	417,217
Channel Islands ...	6,352	7,441	10,856	10,363
Cape of Good Hope ...	753	389	817	804
Natal ...	745	269	1,182	514
British East Indies ...	7,078	7,266	4,786	4,865
Hong-Kong ...	157	407	2,983	171
Australasia ...	804	486	871	780
Canada ...	123	690	1,212	1,151
British W. India Islands	509	625	944	543
Other British possessions	467	277	962	704
Total from British possessions	17,053	17,830	23,613	19,598
Grand total ...	364,015	399,046	422,488	436,815

These figures speak for themselves; not a line is necessary to show further elucidation. Incomplete as the information may be, we live in hope that by-and-by we may not only achieve some details as to the nature of exports apart from value, but also some data as to the other side of the account.

PLANT PORTRAITS.

STRAWBERRY JARLES.—In the issue of *Le Jardin* for May 5 this year, there appeared a coloured figure of this new French variety of Strawberry; and in the *Revue Horticole* of May 1 it was stated that Jarles is an improved Docteur Morel, which has been introduced to commerce by the fruit-cultivator, M. L. Jarles. The variety is much sought after in the markets, and the first that were sold in 1898 fetched 25 marks the basket of eighteen fruits! This year, quite recently, several fruits were sold at 65 pf. to 1 mark each. The fruit is flatish, kidney-shaped, much larger than Docteur Morel, and colour more brilliant. The creinations of the leaves are rounded, not pointed. At the meeting of the Société Nationale d'Horticulture de France on April 13 last, the raiser of the variety, stated—"that since April 1 he had sent to the Market Halls baskets containing twenty-four fruits each, which fetched at auction 15 to 19 marks per basket. A woodcut of this variety is found in the *Deutsche Gärtner Zeitung* for August 5.

CRINUM "VAN TUBERGEN"

(Lynch).

I APPLY the above name, for garden purposes, to one of the finest of hardy Crinum, which hitherto has been known only by an incorrect name. It came from Myn. C. G. Van Tubergen, junr., of Haarlem, as *C. crassifolium*, and until this note required to be written for the accompanying fine illustration (fig. 49, p. 131), that was supposed to be its true title. On comparing it with the description, however, in Mr. Baker's *Amaryllideæ*, considerable doubt arose, and by the kindness of Sir William Threlton Dyer, Director at Kew, a specimen was examined at the Herbarium there, with the result that it was queried as a variety of *C. longifolium*. Later,

when Myn. John Hoog visited Cambridge, as representative of the firm, he informed me that specimens had before been sent to Mr. Baker, who had not been able to supply a name. It is evident, therefore, that a name is required, and I have pleasure in calling it after the gentleman who presented the plant to the Cambridge Botanic Garden, and to whom the gardens in this country are indebted for many fine plants, examples of which have been seen at the Temple shows.

C. (Van Tubergen) is a fine stately species—if such for the present purpose we may call it, at once commanding attention, whether in flower or not, and certainly very distinct, from at least a garden point of view. It is so far unlike *C. longifolium* that no relationship with that species suggested itself, as they grew together. The height of the plant is about 3 feet, the leaves are about 5 feet long and 5 or 6 inches in breadth, or about double the width of those of that species. Moreover, they differ conspicuously in not being glaucous. The plant differs also in habit, the crowns being fewer and stronger, not forming so dense a mass of foliage. Unfortunately, a careful and minute description cannot be given, as the plant was too soon out of flower after its desirability became known. The dense inflorescence, however, is well shown by the illustration; and contrasting with *C. longifolium*, it may safely be said that the spathe valves are decidedly green, as is also the tube of the perianth, and that the scape in section is hardly compressed, but very nearly terete. There are, no doubt, evident similarities with *C. longifolium*, as well as distinct differences, but however these may be regarded, the greater substance of the flowers, and the much finer inflorescence, combine with stately habit to form a much more desirable plant. Myn. John Hoog informs me that it has long been cultivated in Holland, and that its history is now lost. I have, I believe, a hybrid between this and *C. longifolium*, but until it flowers this of course cannot be quite certain. I expect to flower the plant next year. *R. Irwin Lynch*. [We venture to call this "*Van Tubergen*," and not "*Tubergeni*." In Latinising names for botanical purposes, prefixes, like "*Van*, *de*, *O*," &c., are better omitted. When it is better known and more fully described, it will be easy to add an "*i*" to the name of this *Crinum*, and thus give it specific rank. Ed.]

HOME CORRESPONDENCE.

THE HOT-WATER CURE.—The "*Old Geyser*," p. 113, who is not destitute of the sense of humour, is down like a sledge-hammer on the inventors and purveyors of insecticides. He then exclaims: has any one tried the effects of water at 150° on the American-blight, and the Black Currant bud-mite? As to the exact temperature there may be differences. But to the hot-water cure hosts of growers are ready to attest its cleansing-killing power. But why heat the water to 150° when 130° will do? There is no merit in mere number, whether odd or even. It is the cleansing efficacy, the killing power of the water we need to be assured of. Water at 130° kills American-blight prompt, and kills in battalions, of this there is no doubt or question. I know the force and volume a stream has are factors in the cleansing-killing force of the water. But leaving the "*Old Geyser*" to formulate his facts and theories on such points, as well as to inform us how to get hot baths to the Black Currant-mites protected by the overlapping scales of the leaves of the Black Currant. It might be wise also for the "*Old Geyser*" and others to bear this fact in mind that if we lower our hot water 100°, and apply it as near the freezing temperature as may be without freezing, with sufficient force, the living American-blight shrinks into dead pulp before our eyes (?). One more point is of importance in determining the temperature of the water, viz., the age and texture of tissues to which it is used. Almost certainly the younger and more porous the plant, the lower the temperature of the safety point of the water. *D. T. Fish*.

— I can quite agree with what the "*Old Geyser*" says respecting hot-water in the *Gardeners' Chronicle*, p. 113. Twenty years ago I took charge of the gardens at Marden Park, Caterham Valley, Surrey, and the Peach-trees and Vines were in a very bad state indeed with mildew; the Peach-trees were also bad with white-scale. When the Peach-trees shed their leaves I gave them a thorough syringing with hot water. I put a house-flannel round the hand-syringe, and syringed the Vines and Peach-trees, and the next season mildew and white-scale were things of the past. During the fourteen years I was there, I was never again troubled with either white-scale or mildew. *G. C., Aston Rowant, Tetworth*.

THE SPARSITY OF HARDY FRUIT CROPS.—May it not be well to make a note of the fact, that the dearth of hardy fruit crops this season is not so much due to injurious frosts, which injured or destroyed the blooms, as to the long continued low temperatures experienced whilst the trees were in bloom and for some weeks subsequently? At least this was so as regards the district wherein I reside. The wood formed during the year 1898 was perfectly ripened, and the display of bloom, especially upon Pear and Apple-trees, was such as I had never seen before in my long experience. The former were sheets of individually perfect blooms, yet how sadly under-average the crop is, your lucid summary plainly proves. Hitherto, I must confess, I had imagined these hardy fruits could withstand all low temperatures short of actual frost. Evidently this is not so, because a persistent low temperature between 32° and 38° has now told its tale. The blooms and embryo fruits perished, though a dry period prevailed at the time, from sheer inability to grow. Actual frosts generally destroy the most exposed blooms, leaving others amid branches uninjured. Not so low temperatures: they destroyed all, so that upon more tender varieties not a fruit remains—this as regards sundry Pear-trees in my garden and round about. On the other hand, strange as it may appear, I have large trees of Ribstone Pippin and Blenheim Orange Apples laden with noble fruit, though small ones of Prince Albert, Warner's King, Golden Spire, &c., bear very few. One fact I noticed during the period the trees were in bloom, only a few solitary bees left their hives in search of pollen or nectar on three days. Our short fruit crop may be due to this simple fact. *William Earley*.

RASPBERRY SUPERLATIVE.—It may be interesting to many readers of this journal to know that this valuable variety, which of late years has come so much to the fore, was raised at Waldershare Park in the year 1881 by Mr. Merryfield, for many years gardener at that place. It is a cross between the White Antwerp and Fastolf. In 1883 the stock of it had increased to thirty canes, which formed a single row in the kitchen garden. In 1885 some fruits were sent to the Royal Horticultural Society, but as it was then thought to be identical with the variety called Hornet, no award was made; later, however, it received a certificate, and rightly so, too, for it is one of the best Raspberries in cultivation. *H. Markham*.

LAWN WEEDS (see p. 114).—In the absence of direct experiment it is impossible to state definitely whether the use of strong sulphuric acid as a weed-killer sterilises the spot of soil upon which it is dropped, for any considerable length of time. It is probable that, on most soils, the very small quantity used is quickly neutralised by the lime present usually as carbonate, and so rendered harmless. Has any reader tried hydrochloric acid (commercially known as muriatic acid or spirits of salt), and if so with what result? This acid, unlike sulphuric, is volatile. *C. W. H. G.*

A TOOL FOR LIFTING POTATOS.—As an amateur gardener, mostly doing my own digging, I should like to say a few words as to the best tool to use, especially for lifting Potatoes—the difference between a good tool and a bad one means all the difference. Till the last half dozen years or so I used a spade, but finding a fork work much more easily than the spade I was using, I discarded it for the fork. Now I find I leave a lot of small Potatoes in the ground, and these, much to my annoyance, spring up amongst the other things everywhere, giving the beds a very untidy appearance. They seem to slip through the fork and bury themselves entirely, till they begin to shoot up in the spring,

I cannot remember this happening so much when I used a spade; and though all the spades I have ever used are harder to work than a fork, I should return to the spade if I was certain it made so much difference in turning up the small Potatoes (of which I have plenty this year owing to the drought). Has any of your readers noticed such? I think a spade means death to the weeds more than a fork, by cutting up the roots. *C. Mullins*. [The tool-makers and village smiths used to make a three-tined fork, with the tines about 1 inch wide, $\frac{1}{2}$ -inch thick, and the entire fork of a width of 7 to 8 inches. This fork is a better tool than the steel digging-fork, injuring fewer tubers. Ed.]

THE APRICOT CROP.—In a return I made for the *Gardeners' Chronicle* about the fruit crop, I omitted Apricots, intending to add a special note. These were in full flower from March 20 to 25, during which time the frosts were very severe, averaging 15° below freezing every night. The Apricot flowers out were all turned quite brown, and I despaired of the crop, but the result is a better crop than I have had for many years, and the fruit finer. I have for many years given up all attempts to protect the flowers, finding by experiment that the trees protected by the insertion of Fir branches generally produced a worse crop than those left bare, owing, I believe, to the wet which the evergreens collect and hold. *C. Wolley Dod, Edge Hall, Malpas, Cheshire*.

SCARCITY OF INSECTS.—In last week's issue of the *Gardeners' Chronicle*, Sir Joseph Hooker, residing at Sunningdale, says that insects were scarce there. I wish it was so here, for though they may be a little late, the air is filled with the white Cabbage-butterfly. Wasps are in evidence, these pests having begun to eat the Grapes in the vineries. Both wasps and the Peacock-butterfly are mostly autumnal in their visits, and I expect by the time Sir Joseph's Plums are ripe he will, I fear, have to deplore their large numbers. *R. M., Newbury*.

SINGLE HOLLYHOCKS.—"Growler" is quite right in referring to single Hollyhocks as more beautiful than are the double ones, but he is wrong in thinking that the warty fungus has well nigh destroyed the latter. [It was so till lately. Ed.] When annually raised from seed, doubles are found to be remarkably alive. But beautiful as the singles are, they also are not exempt from the ill which beset Hollyhocks, for the fungus preys upon them also, though not so severely as on the doubles. But unless some wonderful remedy can be found, I fear the fungus will in time prove to be too great an enemy to these apparently more robust plants. We want in single Hollyhocks a rather dwarfier race, as when long stems are produced it is rare to see them coated with flowers, as is the case with the doubles. Perhaps it would be a good plan to pinch out the points of the stems, and thus compel them to branch freely. Certainly something is needed to make the flowers retain hold of the stems much longer than they now do. The charm of the flowers lies in their pleasing form, silky texture, and wondrous variety of colours and markings; indeed, so varied, so soft, and so beautiful are the colours thus produced, that few hardy flowers can rival them. A fine field for active and useful operation is open to the breeder if the single Hollyhock be taken in hand. Whether gardeners look upon them with disdain or not, I do not know; but they are seldom seen in large gardens, the best displays that come under my notice being at railway stations (where they are invariably greatly admired), in suburban cottage gardens, and occasionally in seed grounds. The plants produce seed all too freely. Did they not do so, no doubt they would retain their flowers longer. All the same, no admirer wishes to see the flowers doubled. *A. D.*

SWEET PEAS.—It has been suggested that in view of the marvellous advance made in the production of beautiful varieties of these flowers, that a conference and special exhibition might well be arranged for at Chiswick next July. The proposition is an attractive one, and might even go further and include every section, and so far as possible known, members of the great Pea family. In such case there would be ample to employ and interest not only the Royal Horticultural Society's Committees, but many of the Fellows. Sweet Peas are especially in need of such selection as a conference

and exhibition of them could furnish. Like culinary Peas they have their special points, and whilst we understand those of the culinary section very well, the desired features of Sweet Pea flowers are less understood. Probably were a rigid examination of every variety of Sweet Pea instituted, it would be found that many of them suffer from floppy or weeping standards, that are as much a defect as burst flowers are in the Carnation. Raisers should work hard to give us stout, erect standards, with large flowers and beautiful colours. The raisers and admirers of edible Peas might find enough to talk about also, and then there would still be the numerous beautiful hardy perennial section which so much merits greater development. One special feature of the conference might be prizes for the most tasteful method of exhibiting Sweet Peas as art flowers. *A. D.*

TYING PLANTS.—Prof. Henslow's article on this subject hardly comes within the range of practical horticulture as applied to plant growing for market, yet it opens up a discussion from which much interest and benefit may be derived. I can hardly follow Mr. Henslow's suggestions with regard to the theory of saving strength, and diverting it to other sources; yet in practical horticulture it is quite evident that a little artificial assistance is necessary, and plants are benefited by being tied to some support to keep them in their proper position, for when a plant which, naturally, should grow erect, falls over, the flow of sap is checked, and consequently diverted to another direction, generally to making new growths from the lower portion of the plant, to the detriment of the main growths which should produce the bloom. But to come to the more practical results of tying plants, it keeps them in shape, and when done properly does not detract from the natural beauty of any plant; but it often occurs that unsightly stakes are used, and the plants instead of being supported in their natural habit are tied "out of shape" and their natural beauty destroyed. I remember the time when it was suggested that all plants put before the Committees of the Royal Horticultural Society should not be tied, but it was found that this stipulation could not be carried out; for although when a plant left in one position would keep in good shape, after being shaken about on a journey it would not hold up in its natural position without some kind of support. The great point in "tying plants" is to do it in a slightly manner. I object to a plant which naturally would present an uneven outline, being tied into a formal, though symmetrical shape. The craze for formal-shaped flowers and distorting plants by tying and clipping them into unnatural shapes is fast dying out, but it will always be necessary to give some assistance to various plants. What I am most surprised at is that many who excel in culture pay so little attention to "tying." Many of the best grown plants that are sent into our markets are distorted and made ugly by being clumsily tied, and by the use of thick ugly sticks. I have often heard complaints from those who use plants for decorations, that the growers use large unsightly sticks, which have to be replaced by neater sticks or dispensed with altogether. Some growers, I may say a good many, use split laths which have not been shaved up at all, and are in a rough state. Of course, this is economical; but if neater sticks were used, and a little more attention given to tying, a slight advance in price which they would be sure to command would fully compensate for the extra trouble. One of the greatest faults I have noticed has been in tying Pelargoniums, three or four clumsy sticks being used, and these spread out, leaving the centre of the plants hollow, or without a leading shoot. Now with regard to the necessity of tying plants, there are two cogent reasons. The first is, as I have previously remarked, that plants which remain in one position will stand up well, but when moved and shaken about, as is unavoidable when moving them about, they are sure to fall over and get out of shape. The second, and perhaps the most important, is, that all cultivated plants are grown more or less under artificial conditions, and consequently require artificial assistance to keep them in shape. The abundance and weight of flower too often require that a support be afforded. The great point, therefore, is to tie as neatly as possible, and while supporting the plants in a natural shape, to avoid over-tying or twisting the plants out of their natural shape. It requires some practice to tie plants well. I have generally found that a man who could tie well and quickly, could do most work well. If young men were to

pay more attention in starting, to do this work in a proper and systematic way, it would benefit them quite as much as giving their minds to theories which are difficult to bring into practice. When a young man starts tying, it does not take long to see if he has ever learnt to handle a plant properly. Some are naturally quick, and can get through their work expeditiously without exertion; while with others it seems to be impossible to tie properly, much more to get it done expeditiously. *A. Hensley.*

PAPAVER SOMNIFERUM.—Why does "A. D." call this a French Poppy? Its origin is supposed to be *P. setigerum*, a cornfield weed of South Europe. It would be interesting to know if the plant in question be not this true wild species and not *P. somniferum* of cultivation. *George Henslow.*

QUALITY GRAPES NOT TO BE JUDGED BY TASTING.—Perhaps this is the most startling innovation proposed by Mr. Buchanan in his review of the present methods of Grape judging, and showing a suggested improvement. I quote his exact words to prevent the possibility of mistakes: "The quality class to read thus:—Four bunches of Grapes; distinct varieties. Quality to be the first consideration." So far clear and good. But the annexed sentences follow: "The flavour *not* to be determined by tasting, as this, while men's tastes differ so, such is a most unsatisfactory way." Besides it would open the door to miserable looking bunches with no cultural merit to recommend them. The quality should be determined by the judges knowing the varieties. Another aid to judging the quality class would consist in choosing them, to begin with six, eight, or twelve varieties well known as high flavoured varieties, or in other words partially at least rely on schedule-made selections instead of wholly on the judgment of the jurors, then the anti-tasting argument for quality will not hold water at all. The judges rely on memory, the previous knowledge of what was known of varieties, instead of the more direct, more recent and powerful appeal to the palate, and the senses with which we smell besides taste induce us for our purpose to test the qualities of our fruits and foods. Nor does it also appear how the light of other days, and the Grapes of previous times, are to give us the sounder or more just decisions as to quality of Grapes or ought else than the up-to-date demonstrations of the living present. As the quality classes are not to be judged by their appearance (at least not primarily) they need hardly be judged at all. For the proposed selections from quality sorts and the glowing memories of jurors of the Grapes of other days may be totted up at home or assessed by telephone. *D. T. Fish.*

FLOWERING OF MORISIA HYPOGÆA.—It is possible your correspondent Mr. T. Harris has an early blooming variety of this pretty plant? My experience is that it blooms *en masse* in the month of May, and I find on referring to botanical dictionaries, the months of April and May are given, respectively, as its season of flowering. The delightful district from whence your correspondent writes may have its influence, however, on his particular plants. From the manner his plants seem to thrive, it may not be out of place, to ask, has he yet seen an illustration of its seed burying characteristic? *William Earley.*

THE FLAVOUR OF MELONS.—The key to this is mostly in their culture, of which more anon. I do not, however, agree with "H. L." that there is any general lack of flavour in modern Melons. Mr. Markham's hints on the development and preservation of flavour in Melons will be generally endorsed by growers. A sudden lowering of temperature at the finish through excessive ventilation, as this writer says, is more likely to mar than enrich the flavour. These writers give useful hints as to the readiest and easiest means of developing the highest flavour in Melons, a subject that might be profitably re-discussed. Purposely and to make the matter more definite I left all this out of the special points referred to, and which I insisted on—viz., that under good culture the entire produce of a Melon plant will be good alike, true to type, and that fragrance is a true index as to flavour. Both your correspondents in last week's *Gardeners' Chronicle* endorse these views in other words, and I may have more to say as to cultural relations to flavour after the One-and-All Flower Show. *D. T. Fish.*

REMARKS ON THE FRUIT CROPS.

(See Tables, ante, pp. 103 to 109).

0, SCOTLAND, N.

SUTHERLANDSHIRE.—Apples, Pears and Plums are the worst crop we have had for many years. Rain, easterly winds, and occasional cold or frosty nights prevailed during May, followed in the early part of June with scorching winds, bright sunshine and drought, and the effect on the fruits named above has been disastrous. Small fruits promise well, although they are only an average crop. *D. Melville, Dunrobin Castle Gardens.*

1, SCOTLAND, E.

ABERDEENSHIRE.—The fruit crops this year are under an average, and in nearly all cases there was a splendid show of blossom, but the late frosts we had in May and early in June caused great damage among fruit-trees in flower. With us Raspberries and Black Currants are the only crops that are a good average, and it is only on some of the free fruiting varieties of Apples that have anything like a remunerative crop upon them. *J. Brown, Delgaty Castle Gardens, Turriff, N.B.*

BANFFSHIRE.—Peach trees were very badly ripened as regards the wood of last season, and blossoms were scarce. Apricots were much the same, and owing to the continued cold and frost during the flowering season there is no fruit worth mentioning. The cold cutting winds affected the growth of the trees, and the foliage was much blistered. Strange to remark, Figs grown here on the open wall make an excellent appearance, and give evidence of finishing well. Plum blossom looked remarkably promising, but the continuous bad weather affected the setting of the crop, and fruits are thin. Plums on standards, owing to their flowering much later, have set a fairly good crop. All the better varieties of Pears on walls were rather short of blossom, and have therefore a thin crop. Standards, such as Hessel and Bergamote, show a good crop. Apples looked remarkably well early in the season, having an extra fine display of blossom, but owing to the drought the fruit dropped off very much. Small fruits generally are a good crop throughout. Strawberries being extra good, especially Royal Sovereign, which continues to maintain its good name. *J. Fraser Smith, Cullen Gardens.*

BERWICKSHIRE.—There was an abundant blossom on all our fruit trees, but we had a spell of cold wet sunless weather in May which prevented the fruit setting, and many that had every appearance of swelling dropped off. Among Apples, what we have as Aitkin's No. 2, otherwise in the south named "Seaton House," never in any season misses a crop. Newton Wonder is a most excellent and reliable sort. Pears are a scarce crop. Doyenné Boussoch is one that never fails here. Czar Plum is a grand cropper, and otherwise good variety. Strawberries suffered very much with the drought in June, but when the rain came picked up wonderfully. *Wm. Cairns, The Hiral Gardens, Coldstream.*

CLACKMANNANSHIRE.—The fruit crops in some districts are a fair average; Apples and Pears are however not up to expectations on account of the cold east winds that set in when the trees were in flower. There was a good set on some varieties of Apples which always do well in this shire, such as Cellini, Loddington Seedling, Stirling Castle, Duchess of Oldenburg, Worcester Pearmain, and King of the Pippins. The Pear crop is the worst I have seen for years. Cherries are a complete failure; both May Dukes and Morellos; Plums have a fair average crop of some varieties, viz., Victoria and Pond's Seedling. Strawberries on heavy soils are a heavy crop, the dry weather in the month of May not having affected them. Small fruit, Currants, Gooseberries, and Raspberries are average. All fruit is swelling out well after the recent rain. *Alexr. Kirk, Norwood Gardens, Alloa.*

HADDINGTONSHIRE.—Upon the whole the fruit crops here and in the district generally are very satisfactory. I never remember to having seen such an abundance of blossom on all kinds of fruit trees, testifying to the beneficial effect of an abundance of sun and ripened wood of the previous year. Apples when in flower were favoured with the best of weather, ensuring a good set. The following bear heavy crops:—Cox's Orange Pippin, Kerry Pippin, Mr. Gladstone, James Greive, King of Pippins, Blenheim Orange Pippin, Lords Suffield and Grosvenor, Ecklinville, Tower of Glamis, Bailie Keilson, Bismarck, East Lothian Seedling, Celini, and Warner's King, &c. Pears are a good average crop, the best being Williams' Bon Chrétien, Louise Bonne of Jersey, Triomphe de Vienne, Mdme. Treyve, B. Hardy, B. Diel, B. Easter, Dr. Jules Guyot, Marguerite Marillat, and Catillac. Plums with the exception of Victoria and Cox's Golden Drop are very poor. Apricots are an average crop of good fruit. All small fruits very good. *T. H. Cook, Gosford Hall Gardens, Longniddry, N.B.*

— The fruit crops this year are not good. Apples are a light crop, the best crops are of the Codlin type. Pears are almost a failure. The trees looked very promising in the bud, but the weather we experienced at the time of flowering proved very disastrous. Of Strawberries Royal Sovereign has been very fine. *G. Taylor, Broxmouth Park Gardens, Dunbar.*

FIFESHIRE.—The fruit crop is variable this year. In a few places within a radius of twenty miles, the crop is fairly good all round, while within the same area the crop will be light in the majority of places. Apples are the best in the large fruit section, and yet certain varieties have completely failed. The Codlins of sorts are good, as well as Lane's Prince Albert, Cox's Orange Pippin, King of the Pippins and many others; while, Cellini, Ecklinville and Blenheim Orange are thin. The warm moist weather we have lately experienced, has been swelling the fruit well which promises to be of good size and form. *W. Williamson, Tarvit, Cupar.*

FORFARSHIRE.—The fruit crop in the gardens here is not up to the average taking it all round. Pears had a fine appearance when in bloom, and although there seemed to be a good set of fruit, it mostly dropped later on. Apples are a fair crop on most varieties, Stirling Castle, Beauty of Moray, Tower of Glamis, Ecklinville, King of Pippins, Warner's King, Lord Grosvenor, Duchess of Oldenburg and Worcester Pearmain being the best. Strawberries are fair but not a heavy crop, a good many fruits moulding and rotting with the wet weather; Royal Sovereign has been worst in this respect. Black and red Currants are scarcer than usual. *W. McDowall, Brechin Castle Gardens.*

PERKSHIRE.—There are some good crops of Apples of the following varieties, viz., Alfriston, Warner's King, Stirling Castle, Ecklinville Seedling, &c. Bismarck and some other shy setters are blank. *W. McIntyre, The Glen, Innerleithen.*

6, SCOTLAND, W.

AYRSHIRE.—The cold in May injured the Apple bloom badly, especially in the case of wall trees that were more advanced in flower than the standard trees. Black Currants and Gooseberries are of splendid quality and the bushes clean. The same may be said of Plums, which look very promising at the present date. Some varieties of Pears are cropping heavily, but the foliage of the Pears is much healthier than that of the Apples. *D. Murray, Culzean Castle Gardens, Maybole.*

DUMFRIESSHIRE.—The crops of Apples, Pears, and Plums are the smallest and most insignificant crops which we have known for the past ten years, and this in spite of there being an enormous quantity of flowers. *J. Urquhart, Hoddon Castle Gardens.*

— In all probability you will receive very disappointing reports of garden crops generally from this part of the country this year. From a weather point of view it has been one of the very worst seasons we have passed through for many years, and fruit and vegetable crops have suffered very much thereby. The weather was unusually mild, with a very heavy rainfall; while through all the spring months there was a continuation of excessive damp, low temperatures, and a great lack of sunshine, which retarded the early growth of fruit-trees, vegetables, and crops generally. Without having any real genial spring weather, summer came upon us all at once; and the sudden rise of temperature and scorching sunshine experienced in the early half of June was very damaging to growth out of doors and under glass. In this district Apples and Pears are decidedly under the average, and the same must also be recorded regarding stone fruits, such as Peaches, Apricots, Cherries, Plums, &c. Even under the very best cultivation and attention the return is not satisfactory compared to recent years. Bush fruits, however, are giving a very good return all round about this district, Currants and Gooseberries being very good in quality, and the weight of crop all that can be desired. Strawberries and Raspberries are also a good crop, and we are getting fine weather just now to gather them. Early Potatoes, although ten days later than usual, are lifting well, and the quality is excellent. Field crops look well all over, and as yet no trace of disease has made its appearance. Vegetable crops under good cultivation are generally speaking looking well now, although we had to wait ten days longer this year for an out-door gathering of Peas, Cauliflowers, Carrots, Turnips, and such like. *John Mackinnon, Terregles Gardens.*

— Small fruits are a good average crop, and are ripening off well, the rain having come just in the nick of time. Strawberries are above the average, and especially on all young plantations where the ground was well manured and trenched. The fruits of Royal Sovereign and Noble are very large, but the latter is of very poor quality. *J. McDonald, Drifholm Gardens, Lockerbie.*

STIRLINGSHIRE.—The late spring frosts in first week in May—4° and 7° for eight days—destroyed to a great extent the Pear and Plum blossoms. Even Red Currants and Gooseberries suffered so much as to cause many of the young fruits to drop off. I notice Plums on walls (east and west aspects) are likely to cast much fruit at the stoning time. The Strawberry season will be short. *Alex. Croshie, Buchanan Castle Gardens, Drymen, N.B.*

WIGTONSHIRE.—The fruit crops, with the exception of Gooseberries, Raspberries, and Currants, are considerably below the average of several years past. Pears, Plums, Figs, Peaches, and dessert Cherries are very lightly cropped. Apples, though below the average, may turn out fairly well, as both fruit and foliage have a healthy and clean appearance. Of Strawberries the late and mid-season varieties have done the best. *J. Day, Gallo-way House Gardens, Garliestown.*

2, ENGLAND, N.E.

NORTHUMBERLAND.—The fruit crops hereabout are somewhat variable, the confident hopes of a good all-round fruit-season being upset by the extremes of weather experienced. The earlier flowering fruits as Apricots, Peaches, and Gooseberries suffered in March from the frost and cold winds, and the crop of fruit is very thin. Strawberries have come in nearly a week earlier, but they are not fruiting well. Apples are good on young trees, and healthy and clean generally. *George H. Ackroyd, Howick Hall Gardens.*

YORKSHIRE.—The fruit crops in this district are very poor; we had fine bright weather during March which brought the bloom out too early, then the very cold weather in April and May spoilt the splendid promise of abundant crops. I never saw a better bloom. New plantations of Straw-

berries have been excellent, proving without a doubt the goodness of the practice of making annual plantations; the best varieties here are Black Prince, Royal Sovereign, Noble, President, Sir J. Paxton, Gunton Park, one of the very best. *Bailey Wadde, Birdsall, York.*

— We had a fine show of healthy blossom on all fruit trees. During the flowering period we experienced cold north and north-east winds (to which we are exposed), showers of rain, and frost, which seriously injured the crops. *G. Bailey, Wentworth Castle Gardens, Barnsley.*

— The fruit crops this year in this neighbourhood are generally under average, through inclement weather during their blooming period. On high and sheltered positions they are slightly better, than in the lower and more exposed districts. Our best crops of Apples are Lane's Prince Albert, which has never failed to produce a full crop these last eight years. Warner's King, Ribston Pippin, Stirling Castle, Old Hawthornden, Worcester Pearmain, Cellini, and some few others are bearing heavy crops. Pears very thin. Plums a total failure. Small fruits are plentiful with the exception of Gooseberries, which were lightened of their crop by 10° of frost. *J. Easter, Nostell Priory Gardens, Wakefield.*

— The stone-fruit crops are very disappointing (though there was abundant blossom which suffered greatly from the late frosts). Strawberries have not turned out so well as they promised from the great amount of blossom. Apples and Pears are also only moderate. The following varieties of Apples are carrying the best crops, Yorkshire Beauty, Sturmer Pippin, Mère de Ménage, Charlestown Pippin, Warner's King, Lord Suffield, Stirling Castle, Peasgood's Nonsuch, Potts' Seedling, Irish Peach, Ribston Pippin, Tower of Glamis, Small's Admirable, Lord Derby, Nancy Jackson, Loddington Seedling, Domino and Ringer. Pears, Louise Bon of Jersey, Baurré Diel, Baurré d'Amanlis, Souv. du Congrès, Clapp's Favourite and Winter Nelis. A friend, who is a large market grower, tells me his fruit crops have not been so poor for thirty years. *J. Snell, Elmet Hall Gardens, Leeds.*

— Apricots and Plums did not show much blossom hereabouts, which was due, I believe, to the drought of the summer of 1898. All other fruit-trees blossomed well, but failed to set their fruits, owing to continued prevalence of very cold, sunless weather, with occasional keen frosts. *J. P. Leadbetter, Tranby Croft Gardens.*

— The fruit crops in this neighbourhood are disappointing, especially Apples, Pears, and Plums. The crops are very irregular, a few trees carrying good crops, while others have scarcely any fruit on them. May was a very wet and cold month; to this, I think, we may attribute the failure of the fruit to set. Plums are almost a failure, and the same may be said of Apricots and Peaches. Strawberries and Cherries a good average crop. Small fruits abundant and very good. *J. S. Upez, Wiggan-thorpe Gardens, York.*

— There could scarcely have been a better promise of a fruit crop than there was last spring in most gardens and orchards, every tree being clothed in bloom, nor could there be a much more disappointing crop. Apples, certainly, are about an average crop; some trees have scarcely any fruit, while others have heavy crops. Pears and Plums are nearly a failure; of the latter, Victoria is the only variety bearing fruit. All Plum-trees are terribly infested with aphids. Cherries, Sweet and Morellos, are half a crop. Apricots are thin. *J. Hughes, Wentworth Woodhouse Gardens.*

(To be continued.)

PUBLICATIONS RECEIVED.—From the Proceedings of the Linnean Society of New South Wales:—*Notes from the Botanic Gardens, Sydney*, No. 3, by J. H. Maiden and E. Betcher; and *Observations on the Eucalypts of New South Wales*, Part IV., by Henry Deane and J. H. Maiden.—*Nature Notes*, August.

FOREIGN VEGETABLE PRODUCTS.

SOME very interesting notes on the vegetable products of the several countries represented by British Consular Agents have recently appeared in their official reports, from which the following are culled :—

NAPLES AND SOUTHERN ITALY.

Walnuts.—Although these nuts are exported to England and the United States in considerable quantities, the cultivation is not made a specialty of by any growers. Except a few patches in gardens at Sorrento, which can hardly be dignified by the name of orchards, the Walnut-trees are merely scattered among the Vines and other fruit trees, and form no special feature. Any estimate of the acreage

from Calabria, and forms the basis of many principal perfumes. The crucial test is the proportion of a substance called "Acetato di liniale," which is the ingredient which gives the odour to the essence. The essence has been frequently adulterated with lemon juice, thereby, of course, diminishing the proportion of the essential ingredient in the fluid put upon the market. The Chamber of Commerce of Reggio delegated the examination of samples to the Agricultural School of Palermo, and asked for information on the two points : first, whether they could suggest a method for discovering adulteration ; and, secondly, whether the perfume of the essence of bergamot arose exclusively from the "liniale" contained in it. The replies obtained were unsatisfactory, as the tests proposed, such as the polarisation of light, are only suitable for a

PATRAS AND DISTRICT.

Currants are far and away the most important article produced in and exported from this district. The prosperity of the Morea in fact depends almost entirely on its Currant crops. For some years past the Currant growers have been suffering from the effects of over-production, the result of the great stimulus which the planting of Currant-vines received some fifteen years ago, when the French vineyards had suffered enormously from the ravages of the phylloxera, thus creating almost an unlimited demand for Currants for wine-making, at most remunerative prices for the Currant grower. But the partial reconstitution of the French vineyards, and prohibitive laws against Currants, have caused this demand to disappear almost entirely, and no other outlet for the surplus production has yet been found, excepting at ridiculously low prices, which barely cover expenses of cultivation. Under similar circumstances, most other crops would have been partly replaced by more paying products ; but planting a Currant-vineyard is a most expensive operation to start with, and then it has to be carefully cultivated, manured, pruned and sulphured for five years without giving any return whatever to the proprietor. When the plant has attained its tenth year it bears fully, but by that time the amount expended on it by the proprietor is so great that he will undergo many reverses, loss and disappointment, rather than root up his vineyard.

The world's annual consumption of Currants for eating purposes under the most favourable circumstances barely reaches 120,000 tons, whereas the average crop of Currants, under normal conditions, amounts to about 150,000 tons. This annual surplus of about 30,000 tons was of course the root of all the evil ; it had to be sold somehow or other, and experience has proved that in an article like Currants a reduction in the retail price only increases consumption to an infinitesimal extent. The only possible outlet, therefore, for this large surplus was to sell it to Germany and Austria for wine-making purposes, but wine makers in those countries could only afford to pay prices which do not pay cultivation expenses.

Up to the 31st December last, 102,078 tons of Currants were exported, 58,115 tons of which were taken by Great Britain. On January 1st of the present year the stock of Currants remaining in Greece and the Ionian Islands was estimated at 35,000 tons, which is considered very heavy for the season of the year. The various markets being well supplied, it is said to be difficult to see how this very large stock is to be disposed of except it be at ruinously low prices to Germany and Austria for wine-making purposes.

The total crop of Sultanias did not exceed 1,000 tons, but realised from £25 to £30 per ton owing to high prices ruling for the article in the Smyrna market. The Greek crop is shipped exclusively to the United Kingdom. In quality this fruit is almost equal to the Smyrna produce, and it is unaccountable that it should be so little cultivated in Greece, as it is an article which is unusually growing in favour in various markets of consumption, and under normal circumstances is infinitely more paying than Currant growing. J. R. Jackson.

(To be continued.)

VERONICA ARMSTRONGI.*

We are indebted to Mr. Lindsay of Murrayfield, Midlothian, for the opportunity of illustrating this interesting little shrub (fig. 50), which is well adapted for cultivation on the rock-work, or in pots. It is

* *Veronica Armstrongi*.—A dwarf, much-branched shrub. 1–3 feet high. Leaves minute, dimorphic (1), linear patent, or sub-patent, $\frac{1}{2}$ to $\frac{1}{4}$ inch long, acute ; (2), closely appressed, tumid, and coriaceous, adnate with the branch for half their length, broadly ovate, subacute, margins faintly ciliate. Flowers in terminal 3–8 flowered heads, sessile ; sepals ovate-lanceolate, with a strong median nerve, ciliated, corollatube short, limb $\frac{1}{2}$ to $\frac{1}{4}$ inch in diameter, whitish ; capsule ovate-acuminate, longer than the sepals, slightly tumid, and notched at the apex. South Island. T. Kirk, in *Trans. N.Z. Instit.*, xi. (1879), p. 461.

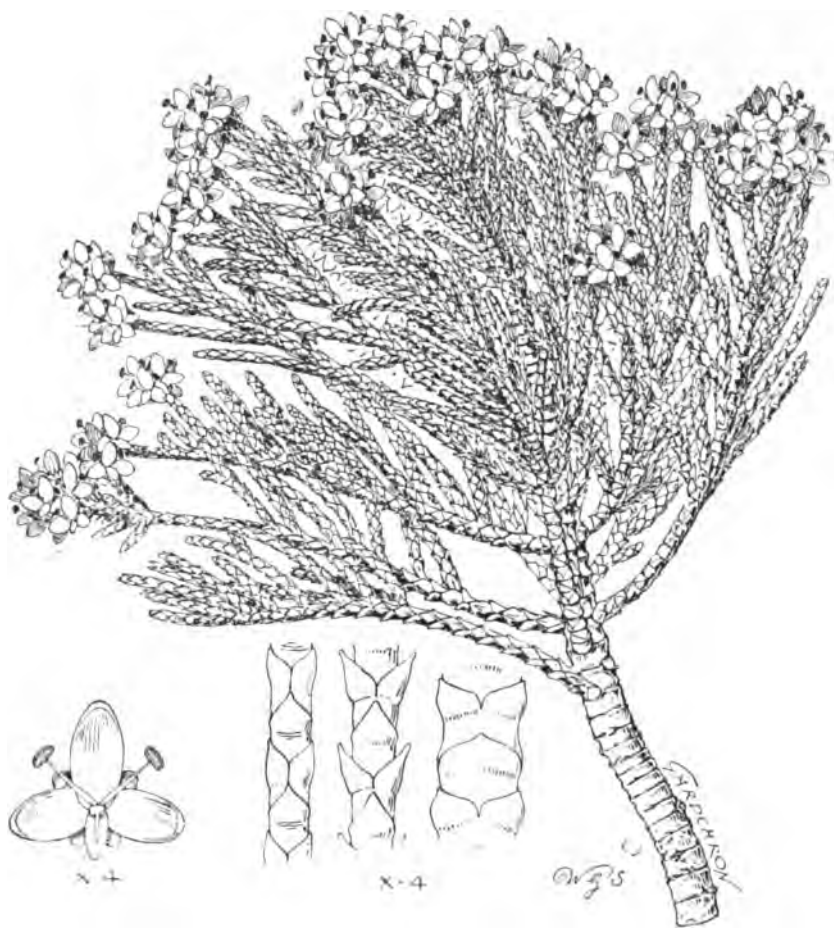


FIG. 50.—VERONICA ARMSTRONGI: FLOWERS WHITISH.

Diagrams of flower, magnified ; and diagrams of young and old shoots, magnified.

devoted to this fruit is therefore impossible ; and as to quality of soil, it may be said that the tree seems to thrive where other fruit trees thrive, namely, in good deep garden soil. In this climate the trees begin to bear in their tenth year, and reach their full productiveness when they are twenty years old. They are hardy, and do not require irrigation. From the age of twenty years a tree should produce fifty pounds of nuts per annum. The fruit is ripe in September, and when gathered requires to be seasoned by ventilation and exposure to the sun's rays. An excellent crop was secured in 1898, and shipped so as to reach England before the Christmas season, when the demand is greatest. The principal seat of export is from the little roadstead of Piano di Sorrento.

Bergamot.—With regard to this product, it is said, perfumers at home will be glad to note that great efforts are being made to secure the purity of the essence of bergamot, which is largely exported

scientist in a specially-fitted laboratory. In August 1897, a law was passed by the Italian Government against the adulteration of essences ; but as it includes sumac and other substances, it will be inoperative as to bergamot, on account of the present insufficiency of chemical methods to detect adulteration, and thus to set the law in motion. Consul Neville-Rolfe says :—"It is strange that the attention of the perfumery trade should never have been directed to South Italy. The flowers of the Orange and Lemon trees, so carefully collected in the South of France, are allowed here to rot upon the ground, and might be had in any quantity for the asking. Roses and many other scented flowers grow here in wonderful profusion. Alcohol used to be one of the main products of the district, and is still produced in large quantities. Bergamot, which is the active ingredient of many scents, is to be had in plenty, and it looks as if there were a good opening for perfumery works. The soapmakers alone would be large customers."

one of those species which produce leaves of two forms, and it is one of those plants which, as is alleged, affords an illustration of "mimicry," the supposition being that the plant is protected against injuries from enemies of one sort or another by "mimicing" some other plant which is not exposed to attack. The term is unfortunate, for no one, we presume, attributes to the plant any conscious attempt at "mimicry." The resemblance of form may possibly be accounted for by the fact that the plants mimicker and mimiced are exposed to the same conditions of growth.

CULTURAL MEMORANDA.

ARISTOLOCHIA GIGAS VAR. STURTEVANTI.

THE subject of this note is one of the giants of the vegetable kingdom, and although the individual flowers are of short duration, lasting only one day in perfection, their immense size, and the quick succession with which they are produced, together with the striking resemblance they bear when in the bud state to the pelican (hence its name, Pelican Flower), should be sufficient reasons for arousing the admiration of lovers of the curious. The flowers on first expanding, which is usually in the early morning, emit a very disagreeable odour, which, however, soon passes off, and after a few hours is not noticeable, and certainly should not prevent its becoming more generally cultivated. To grow it successfully, it requires, like most other hothouse climbers, to be planted out in a border, and trained to the roof, when it will continue to flower for many weeks. It is easily propagated by cuttings—an item which should not be neglected, as it is a difficult plant to keep through the winter months. J. G., *Liverpool*.

FOREIGN CORRESPONDENCE.

A RAT'S NEST IN AN ORCHID.

I NOTICE in your issue of July 1 a report by Messrs. Hugh Low & Co. of a bird's-nest in an Orchid. Perhaps it may be interesting to your readers to know that this season we collected a specimen of *Laelia majalis* alba with a rat's nest inside. The plant is one of the finest specimens we have seen, with over 140 bulbs, and when it reached us it contained 15 beautiful flowers. The nest was constructed inside with three entrances, and the plant was found on an *Oponotia* (prickly Pear), a plant that rats often build their nests in. J. A. McDowell, *Apartado 167, City of Mexico, July 14*.

SOCIETIES.

BISHOP'S STORTFORD HORTICULTURAL.

AUGUST 7.—The thirtieth annual show of this Society was held on the above date in the beautiful grounds, The Grange, the residence of J. Barker, Esq.

A feature of this show that is made much of consists of table decorations, and though there were nearly thirty tables, there was great good taste displayed by the exhibitors, who were principally ladies, the colours being harmoniously blended, and graceful materials employed. The 1st prize fell to Miss H. M. CLAYDEN, of Walden, who had single red Carnations, various grasses, Palms, and flowers of *Pelargonium* and *Gypsophila*. Miss M. HICKS, of Standen, was 2nd, but the awards might, in our opinion, have been reversed, this being a very pretty table, the materials used being Carnation Baby Castle, with *Gypsophila paniculata*. Six valuable prizes were awarded, but space forbids any description of the exhibits.

Decorated fireplaces and mantel-boards were features of the show, one side of the tent being set apart for them. Mr. J. RICHARDSON, Stanstead, was 1st, with a concoction of light-coloured Carnations, *Caladiums*, and *Oplismenus* (*Panicum*); and Mr. G. BENCH was 2nd, *Campanulas* being used at the base of his exhibit, and grasses were used freely in it.

A considerable amount of space was devoted to groups of plants arranged to afford fine effects. The 1st prize fell to H. A. BLYTH, Esq., Stanstead, for a light arrangement, grasses being freely employed. There were also plants of *Clerodendron fallax*, and foliage plants in

much variety; the 2nd prize was taken by Sir J. BLYTH, Bart., the competition being very close; Lily of the Valley was used very freely, but although it is a favourite flower, it seemed out of season in the heat of an August day.

Stove and Greenhouse Plants, although not numerous, were of good quality. H. A. BLYTH, Esq., and C. GOLD, Esq., M.P., taking the prizes in the order of their names. The last named gentleman took 1st prize for several excellent specimen Ferns; Mrs. RIVIERE being a good 2nd.

Cut Flowers of Herbaceous Plants were largely shown in twenty-four and twelve varieties. Messrs. G. PAUL & SON, Cheshunt, were 1st; and A. PERRY & SON, Winchmore Hill, 2nd in the larger class. Cut Flowers formed a strong section of the show; several splendid plants of Ivy-leaved *Pelargonium* was shown that were 6 feet in height, G. GOLD, Esq., taking 1st prize for them. For zonal *Pelargoniums*, Mr. HOLLAND was 1st with plants that were finely flowered. Table plants were well staged. Mr. H. A. BLYTH being the most successful exhibitor of them.

Fruit was less well shown than Vegetables; still, good Grapes were shown, and Mr. GEO. PAUL obtained a Certificate for the new Black Muscat Grape Lady Hastings, a valuable addition to the dessert. For White Grapes, Mr. J. BARKER and J. BAILLY, Esq., M.P., took the prizes in the order of their names, having capitally-finished bunches; indeed, Mr. BARKER took the greater number of the prizes in the fruit classes, being 1st for Black Hamburgh Grapes, and for a collection of fruit, in which he had good Pears, Peaches, Nectarines, Greengages, and Plums.

Mr. DAVIS, Bishop's Stortford, had the best Peaches; Mr. J. BARKER was a close 2nd in this class, and the winner of a 1st prize for Nectarines, Mrs. RIVIERE being 2nd, with excellent fruits of Lord Napier. This was a class in which the competition was weak, and the committee intend in the future to make the fruit, flower, and vegetable classes more interesting by insisting on every exhibit being named, a thing that is rarely done at this show.

The vegetables were numerous, and mostly of good quality, Potatoes making a show of themselves. The collections were likewise very creditable; and of the cottagers' exhibit it may be truly stated that they were above the average in quality, a noteworthy fact in this season of great heat and drought.

HORNSEY HORTICULTURAL ASSOCIATION.

AUGUST 7.—The fourth annual exhibition of the Hornsey Horticultural and Allotments Association was held on Bank Holiday, and a very large number of people availed themselves of the opportunity of spending a pleasant day in the exhibition field.

In point of numbers there was a slight falling off, but this was accounted for by the fact that there were fewer exhibits of extremely poor quality. Competition was very keen, and especially so in the vegetable classes. In one of the collection baskets, twenty-six varieties were counted. In the open classes, the best subjects were *Gloxinias* and the foliage plants, and groups of foliage and flowering plants. Tubers, Beetroot, Escalots, and Cabbages were very good indeed, in both allotment holders and cottagers' divisions, and, considering the extreme drought, so also were the Scarlet Runners, French and Broad Beans, and Marrows. Roses in this division were conspicuous by their absence, but the table decorations, hand-bouquets, button-holes, and baskets of cut-flowers were very meritorious.

NORTHAMPTON HORTICULTURAL.

AUGUST 7.—The tenth annual show was held at Delapre Park, by kind permission of John Cooper, Esq., who is President of the Society; and, considering the very dry season experienced, a very creditable display was made.

SPECIMEN PLANTS.

For twelve stove and greenhouse plants, Mr. CYPHER was, as usual, 1st with grand specimens of *Kentia Belmoreana*, *K. Forsteriana*, *Latania borbonica*, *Codiaeum Sunset*, very fine in size and leaf-colouring; *C. angustifolium*, *C. Cheloni*, *Statice intermedia*, *Bougainvillea glabra*, *Stephanotis floribunda*, *Ixora Williamsii*, and *Erica Marnockiana* and *E. Actoniana*. Mr. FINCH, Coventry, was 2nd with excellent plants of *Kentia Forsteriana*, *Cycas circinalis*, and *Codiaeum Sunset*.

STOVE AND GREENHOUSE PLANTS, OPEN TO THE COUNTY.

Mr. Wm. Woods, gr. to JOHN COOPER, Esq., Delapre Abbey, was 1st, his best being *Hydrangea*, *Thrinax* species, *Areca Verschaffeltii*, and *Plumbago capensis*. Mr. SODEN, gr. to F. G. ADNITT, Esq., Northampton, was 2nd, having a very finely-flowered plant of *Lilium lancifolium* roseum.

Mr. REEVES, gr. to Mrs. COULSON, Northampton, had the finest *Fuchsias*, doubled flowered tuberosus, and single flowered tuberosus *Begonias*; and Mr. SODEN was 1st for three well-trained plants of *Coleus*.

FERNS.

For six Ferns, Mr. Wm. Pearce, gr. to S. LODGE, Esq., Floore House, Weedon, was a good 1st with splendid specimens of *Platyterium alcinorne*, *Davallia Mooreana*, *Dicksonia squarrosa*, *D. antarctica*, *Davallia filix-feris*, *Adiantum* variety. Mr. HOLLAND, gr. to L. BOSTOCK, Esq., was 2nd with fine specimens, having very nice *Gymnogramma sulphurea*.

Mr. S. COLE, gr. to ALTHORP PARK, received a 1st prize for a beautiful collection of Sweet Peas in twenty-four varieties.

GROUPS.

There were only two groups arranged in a space of 30 feet by 12 feet, and after much discussion, Mr. VAUSE, of Leamington, and Mr. CYPHER, Cheltenham, were the exhibitors declared equal. Mr. VAUSE's group consisted of a *Thrinax reclinata* in the centre, and from each corner to the centre a small bridge of cork was erected, and Ferns and other plants, the whole being a very pretty conception; it contained *Lill's*, *Hydrangeas*, *Codiaeums*, *Abutilons*, *Caladiums*, *Cattleyas*, *Ananassa sativa* (variegated), *Humeas*, *Panix Victoria*, *Asparagus prostrata*, *Gloxinias*, *Odontoglossums*, *Acalypha hispida*, *Coleus*, *Fuchsias*, and many small decorative plants and Ferns. It was a shade heavier than that of Mr. CYPHER. The group staged by the latter consisted of a tall *Kentia*, with two bridges running from the side; *Bambusa* in variety, *Humea elegans*, *Codiaeum* in variety, *Oncidium*, *Strobilanthes*, *Lycopodiums*, *Sedums*, *Aralia Veitchii*, *Asparagus*, *Lilies*, *Fuchsias*, *Eulalias*, and *Cocos*.

ROSES AND DAHLIAS

were well shown, especially the latter. The chief prize-winners were Messrs. T. PERKINS & SON, and Messrs. J. PERKINS & SON, both of Northampton.

FRUIT (OPEN).

For a collection of eight distinct kinds, Mr. Goodacre, gr. to the Earl of HARRINGTON, Elvaston Castle, was 1st, with Canon Hall Muscat and Black Hamburgh Grapes, Pine-apple Nectarine (very fine in colour), a Queen Pine (a rather small fruit, but well coloured), grand Negro Largo Figs, a Melon (Hero of Lockinge), Peach Exquisite (very good), and a dish of fine Pears. Mr. S. COLE secured the 2nd prize, his best dishes being Barrington Peach, Countess Melon, Madresfield Court Grape, and Lord Napier Nectarine (good).

For six dishes of fruit, distinct, open to the county, Mr. H. Kempshall, gr. to Capt. ISHAM, Lamport Hall, was 1st, having Madresfield Court Grapes, beautiful in berry and colour, but small bunches; good Brown Turkey Figs, Sea Eagle Peach, a seedling Melon, small but a nice-looking Moor Park Apricot, and Morello Cherries—a small collection, but fresh and well finished. The Royal Horticultural Society's Silver Medal is added to the 1st prize for this collection. Mr. S. COLE was 2nd in this class; his best dishes were Barrington Peach and Ingestie Hybrid Melon.

The single dishes of fruit were well contested. In the competition for three bunches of Black Grapes, Mr. KEMPSTALL was placed 1st with well-coloured bunches of Madresfield Court, fine in berry, but lacking in size; Mr. A. Child, gr. to H. ATTENBOROUGH, Esq., Cat shy House, Daventry, was 2nd.

For three bunches of White Grapes, Mr. A. CHILD was 1st, with good specimens of Muscat of Alexandria; and Mr. DYMCK, gr. to B. WENTWORTH VERNON, Esq., Stoke Bruerne House, Towcester, was 2nd.

Messrs. COLE, HOLLAND, and KEMPSTALL were 1st, 2nd, and 3rd respectively for six Peaches; and Mr. BATEMAN took 1st honours for some well-coloured Nectarines; and Mr. HOLLAND had the best-flavoured Melon.

VEGETABLES.

In the open class for twelve varieties, Mr. DYMCK, gr. to Stoke Bruerne Park, was 1st with a good collection considering the dry season, having Celery Giant White, Tomato Perfection, Pea Duke of Albany, Onion All-ws Gray, Cauliflower Autumn Giant, Artichoke Paris New, Potato Windsor Castle, Turnip Jubilee, Carrot Perfection, and Scarlet Runner Jubilee; Mr. S. COLE was 2nd, his 1st varieties being his Beetroot, Cauliflower, and Tomatoes. For nine varieties Mr. DYMCK was again 1st; followed by Mr. COLE, 2nd.

For eight table-plants Mr. COLE, gr. to Althorp Park, was 1st. Mr. OWEN SODEN had the best Coxcombs; and Mr. KEMPSTALL, gr. to Lamport Hall, was 2nd for these plants.

Mr. VAUSE, Leamington, was the most successful competitor for the table decorations, having a nicely-arranged table very lightly arranged, consisting of Carnation Baby Castle, Montbretias, *Gypsophila paniculata*, Ferns, and *Asparagus deflexus*. Mrs. BUBY, of Northampton, was 2nd, with an arrangement that was much less light.

CASTLE ASHBY FLOWER SHOW.

AUGUST 7.—This pleasant annual event came off in fine weather in the grounds of Castle Ashby on the above date.

The exhibits, mostly those of cottagers, were very creditable to the growers, in particular Potatoes and Carrots.

The vegetables and fruit came from the Marquis of NORTHAMPTON's garden, and Mr. Hayes, his lordship's gardener, arranged a fine group of plants to add to the attractions of the show; Messrs. PERKINS & SON, Northampton, showed Sweet Peas in quantity, and other flowers, as likewise fruit; and Messrs. H. E. & W. LACK, of Wellingborough, exhibited similar productions. The Marquis, assisted by his gardener, undertook to adjudicate upon the specimens of the bouquetists' art exhibited.

ST. NEOT'S HORTICULTURAL.

AUGUST 7.—This, the thirty-fifth exhibition of this Society, was held as usual on Bank Holiday, and on this occasion in the grounds of the Old Hall, in the centre of the town. Two spacious tents were filled with exhibits, and a third contained agricultural and market-garden produce, poultry, &c.

GROUPS.

The best of these, which were arranged for effect, was furnished by Mr. Redman, gr. to Miss GOODMAN, Eynesbury;

Mr. T. Lockie, gr. to A. J. THORNHILL, Esq., Diddington Hall, was 2nd. Both were very creditable arrangements, but that of Mr. Redman had rather a superior finish.

Zonal Pelargoniums in sixes were well grown and bloomed, Mr. LOCKIE taking the 1st prize, and Mr. REDMAN the 2nd. Mr. REDMAN had the best four tuberous-rooted Begonias, the plants well grown and bloomed; Mr. W. Last, gr. to F. DAY, Esq., was 2nd.

In the amateur's class some good specimens were staged in competition for the special prizes offered by Mr. H. J. JONES, of Lewisham. The best six plants in bloom came from Mr. REDMAN, a very good lot, including Bougainvillea glabra, Allamanda cathartica, Stephanotis floribunda and Clerodendron Balfourianum. Mr. REDMAN also had the best specimen, a fine bush of Bougainvillea glabra; Mr. LOCKIE coming 2nd, with a very fine Fuchsia Venus de Medici Improved. Some capitally-grown and flowered specimen Fuchsias were shown by Mr. REDMAN.

Foliage Plants were represented by Ferns, some good examples coming from Mr. REDMAN, who had a fine piece of Platycodon alcinorn. There were some capital bushes of Coleus from Messrs. LOCKIE and REDMAN, and the two were bracketed equal 1st. There were also pretty plants for table decoration.

Cut Flowers were represented by Roses and Dahlias; a stand of twelve blooms of the latter from Mr. LOCKIE were very good for the time of year; but while Asters were poor on account of the drought, African Marigolds and Zinnias were particularly fine, as were also zonal Pelargoniums and bunches of flowers of hardy herbaceous perennials plants, which, shown in stands of eighteen bunches, made a fine display; and Sweet Peas in bunches formed a pretty feature.

FRUIT.

Mr. Stone, gr. to R. A. COCHRANE, Esq., had the best collection of eight dishes of fruit, run very close by Mr. Carter, gr. to Captain DUNCAN, Waresley Park. There were fairly good dishes of Peaches, Nectarines, and Apricots. Black Grapes were represented by Black Hamburgh and Muscat of Alexandria; any other black, by Gros Maroc; and white by Foster's Seedling and Buckland Sweetwater. Rivers' Prolific was the best dessert Plum; and Washington the best culinary shown. Striped Juneating and Irish Peach were in good form as dessert Apples; and Lord Suffield and Warner's King as culinary. Bush fruits were generally in good character; and some of the Melons were excellent.

VEGETABLES.

The best collection of nine dishes of vegetables came from Mr. LOCKIE, all in his usual style; and his brace of Royal Windsor Cucumbers were perfect, and though sent out some years ago, the variety serves as a model of an exhibition Cucumber as well as for use. Potatoes were good, especially a collection of six dishes from Mr. CARTER; and all other vegetables, with agricultural and market-garden produce, had a great interest for visitors.

A very fine collection of Cannas and two dozen spikes of Gladiolus came from Messrs. WOOD & INGRAM, of Huntingdon; while Mr. LOCKIE had six superb specimens of Cockscabbies of large size, and finely finished.

The arrangements at St. Neot's made by Mr. W. Ratchelous are always excellent, greatly assisting both exhibitors and judges. St. Neot's is essentially a show of the country-side, and includes poultry, rabbits, pigeons, cage-birds, bread, eggs, honey, &c.

MARKETS.

COVENT GARDEN, AUGUST 10.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

FRUIT.—AVERAGE WHOLESALE PRICES.

a. d. s. d.		a. d. s. d.	
Apples, all home-grown:		Lemons, Naples, per case of 420.	18 0 —
— Juneating, bus.	8 0-5 0	— Messina, case of 140	0 —
— Julien, bushel	3 0-4 0	Lyches, Chinese, packet, 1 lb.	1 8 —
— Keswick, bush.	8 0-4 0	Melons, in cases 24	
— Suffield, bushel	5 0-6 0	— or 36	11 0 12 0
— Quarrendon, bus.	8 0-12 0	— each	1 0-2 0
— Various, bushel	2 6-3 0	— Foreign Rock...	2 0-3 0
Bananas, per bunch	11 0-14 0	Nectarines, A., doz.	6 0-10 0
Figs, per dozen	2 0-4 0	— B., per doz.	3 0-5 0
Currents, black, sieve	7 0-8 0	Oranges, Italian, case	13 0-14 0
— Red, sieve	3 0-4 0	Peaches, A., doz.	6 0-10 0
— White, gallon	2 0-2 6	— B., per doz.	3 0-5 0
Grapes, English, Hamburg, lb.	1 0-1 6	Pears, Williams, 48, case	5 0-5 6
— Alicante, per lb.	1 0-1 6	Plums, Blue, sieve	6 0-7 0
— Gros Colmar	1 6-2 0	— Orleans (Englab), per sieve	8 0 —
— Muscats, A., per lb.	2 0-4 0	— Rivers (English), per sieve	6 0-7 0
— B., per lb.	1 6-2 0	Gages, sieve	10 0 —
— Belgian, per lb.	0 8-1 3	— pecks	5 6 —
— Hamburg, lb.	0 9-1 3	— large boxes	4 6-4 9
— Muscats, lb.	1 8-2 0	Raspberries, per	
— Denis, White, barrel	8 0 —	— cwt.	80 0 —
— Black, barrel	10 0 —	— punnets	5 0-6 0

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

a. d. s. d.		a. d. s. d.	
Arum Lilies, dozen blooms	3 0-4 0	Orchids, per dozen blooms	5 0-16 0
Asparagus "Fern," bunch	2 0-3 6	Pelargoniums, doz. bunches	4 0-6 0
Carnations, per doz. blooms	1 6-2 0	Roses indoor, per dozen	2 0-3 0
Eucharis, per dozen	4 0-6 0	— Red, per doz.	2 0-4 0
Gardenias, per doz.	1 6-2 6	— Tea, white, per dozen	2 0-3 0
Lilium Harris, per dozen blooms	4 0-5 0	— Yellow, Perles, per doz.	2 0-3 0
Lilium longiflorum, per dozen	4 0-6 0	— Safrano, per dozen	2 0-2 6
Marguerites, p. doz. bunches	8 0-4 0	Smilax, per bunch	3 0-4 0
Maidenhair "Fern," per doz. bunches	4 0-6 0	Sweet Peas, dozen bunches	4 0-6 0
Mignonette, dozen bunches	4 0-6 0	Tuberose, dozen blooms	0 8-1 0

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

a. d. s. d.		a. d. s. d.	
Adiantum, p. doz.	5 0-7 0	Foliage plants, var., each	1 0-5 0
ArborVite, var., doz.	6 0-36 0	Fuchsias, per dozen	4 0-6 0
Aspidistra, p. doz.	18 0-24 0	Heliotropes, per dozen	6 0-8 0
— specimen each	5 0-10 6	Hydrangeas, p. doz.	6 0-10 0
Crotons, per doz.	18 0-30 0	Lilium Harris, per dozen	18 0-24 0
Dracena, var., doz.	12 0-30 0	Lycopodium, doz.	8 0-4 0
— viridis, per doz.	9 0-18 0	Marguerite Daisy, per dozen	6 0-9 0
Erica, var., per doz.	18 0-36 0	Myrtles, per dozen	6 0-9 0
Eunymus, various, per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var., per dozen	4 0-18 0	— specimens, each	21 0-63 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, scarlet, per dozen	4 0-6 0
— small, per 100	4 0-6 0		
Ficus elastica, each	1 6-7 6		

VEGETABLE.—AVERAGE WHOLESALE PRICES.

a. d. s. d.		a. d. s. d.	
Artichokes, Globe, per doz.	1 6-2 0	Marrows, Veg., doz.	1 0-1 6
Beans, English, Dwarf, per sieve	1 0-2 0	— Tally	3 0-4 0
— Broad Windsor, in bushels	1 6 —	— in pads or pott.	2 0-2 6
— in bags	2 0 —	Mint, per dozen bunches	4 0-6 0
— Scarlet Runners, per bush.	1 6-2 6	Mushrooms, house, per lb.	0 6-1 0
— per sieve	1 0 —	Onions, Dutch, bags	4 0 —
Beetroots, new, doz. bunches	2 0-3 0	— Oporto and Valencia, cases	4 6 —
— in pots	4 0 —	— new, bunches	3 0 —
Cabbage, Tally	4 0-8 0	Parsley, new, dozen bunches	4 6-5 0
— dozen	1 0-2 0	Peas, blue, per bushel	5 6-6 0
Carrots, new English, per dozen bunches	0 9-2 6	— bags	7 0-9 0
— good, cwt. bags	8 6 —	Potatoes, Hebron, Snowdrops, &c.	7 0-10 0 0
Cauliflowers, dozen	2 0-3 0	— per ton	
Celery, new, per bundle	1 6 —	Radishes, round, breakfast, per dozen bunches	1 6 —
Cress, per dozen punnets	1 6 —	Salad, small, punnets, per dozen	1 8 —
Cucumbers, doz.	1 6-2 6	Shallots, new, sieve	2 0 —
— ridge in pots	4 6 —	Spinach, New Zealand, per peck	0 9-1 0
Endive, new French, per dozen	2 6 —	— sieves	1 0-2 0
Garlic, new, per lb.	0 2 —	Tomatoes, new English, per lb.	0 3 1/2-0 4
Horseradish, English, bundle	3 6 —	— Channel Islands, p. lb.	0 2 1/2-0 3
— foreign, per bundle	2 6 —	— French, sieve, 20 lb.	2 3 —
Leeks, new, per doz. bunches	2 0 —	— boxes	2 0 —
Lettuce, English, Cabbage, dozen	1 6-2 0	Turnips, new, doz.	5 0-6 0
Lettuce, Cos, doz.	1 6-3 0	Watercress, p. doz. bunches	0 4-0 6

POTATOS.

Hebron, Puritan, Snowdrop, Up-to-Date, &c., 70s. to 90s.; best Kent Snowdrops, 110s. to 120s. John Bath, 32 & 34, Wellington Street, Covent Garden.

REMARKS.—During the past week Runner Beans have daily been coming down in price, and on Saturday, the 5th inst., some were sold at 1s. 6d. a bushel. Frame Cucumbers are abundant, and the demand is small. The ridge Cucumbers are appearing more plentifully than they have done for a number of years. No Pine-apples are on sale, and Bananas are a short supply. Potatoes advanced in price. The holidays always seem to disorganise trade.

SEEDS.

LONDON: August 9.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report to-day's market as quite of a holiday character, with but little doing. Trifolium commands late rates; there is no change in either Mustard or Rape-seed. New Rye comes forward slowly. Winter Tares shortly expected. Canary-seed keeps firm at the late advance; dwindling stocks and short crop prospects strengthen holders views. Blue Peas, Haricot Beans, and Lentils, show no alteration.

FRUIT AND VEGETABLES.

GLASGOW: August 9.—The following are the averages of the prices recorded since our last report:—Cherries, English, halves, 7s. to 8s. 6d. per half sieve; Gooseberries, hard greens, 10s. to 16s. per cwt.; do., Sulphurs, 8s. to 11s. do.; do., red, 16s. to 18s. do.; Grapes, Guernsey, 9d. to 1s. per lb.; do., English, 1s. 8d. to 1s. 9d. do.; Plums, 7s. to 10s. per half sieve; Melons, Valencia yellow, 24s. 5s. 6d. to 6s. 6d. per case; 90s. 6s. 6d. to 7s. 6d. do.; Peaches, home, 4s. to 8s.

per dozen; do., small, 1s. 3d. to 2s. do.; Currants, Scotch, Black, 4d. to 5d. per lb.; do., English, 8d. to 4d. do.; Green-gages, quarters, 5s. to 6s.; do., per pad, 4s. to 5s.; do., halves, 9s. to 11s.; Peas, 3s. 6d. to 4s. per half bag; do., 7s. per bag; Carrots, Dutch, 3s. to 4s. per hamper; Tomatoes, Scotch, 6d. to 8d. per lb.; do., English, 4d. to 5d. do.; do., Guernsey, 8d. to 4d. do.; do., Valencia, 4s. to 5s. per case; do., French, 2s. 6d. per crate; Cucumbers, 3s. to 4s. 6d. per dozen; Raspberries, 4d. to 5d. per lb.; Dutch Peas, 2s. 3d. per small sieve; Dutch Beans, 2s. 6d. per hamper; Onions, 4s. per bag; Mushrooms, 10d. to 1s. 6d. per lb.; Cabbages, 9d. to 1s. 8d. per dozen; Cauliflowers, Edinburgh, 2s. to 2s. 6d. per dozen; Parsley, 1s. to 1s. 6d. per stone; Lettuces, round, 6d. to 1s. 8d. per dozen; do., Cos, 9d. to 1s. 8d. do.; Turnips, French White, 8d. to 9d. per bunch; Carrots, new round, 9d. per dozen; Marrows, 6d. to 8d. do.

LIVERPOOL: August 9.—**Wholesale Vegetable Market.**—Potatoes, per cwt.: Early Regents, 1s. 9d. to 2s. 3d.; Kidneys, 2s. 6d. to 4s.; Turnips, 6d. to 8d. per doz. bunches; Swedes, 2s. to 2s. 6d. per cwt.; Carrots, 6d. to 8d. per dozen bunches; Parsley, 6d. to 8d. do.; Onions, foreign, 2s. 6d. to 4s. per cwt.; Lettuces, 4d. to 6d. per dozen; Cucumbers, 1s. 3d. to 3s. do.; Cauliflowers, 1s. to 2s. do.; Cabbages, 10d. to 1s. 8d. do.; Peas, 2s. 4d. to 2s. 8d. per bushel; Beans, 1s. to 1s. 2d. do.; Scarlet Runners, 1s. 3d. to 1s. 6d. do.; Kidneys, 1s. to 1s. 3d. per peck. St. John's.—Potatoes, 1s. to 1s. 2d. per peck; Grapes, English, 1s. to 3s. per lb.; do., foreign, 4d. to 8d. do.; Pines, English, 4s. to 6s. each; Currants, red and white, 4d. per lb.; do., black, 5d. do.; Gooseberries, 3d. per quart; Peas, 1s. per peck; Cobnuts, 8d. per lb.; Cucumbers, 3d. to 4d. each; Mushrooms, 1s. per lb. and basket. **Birkenhead.**—Potatoes, 6d. to 10d. per peck; Peas, 10d. to 1s. do.; Cucumbers, 3d. to 4d. each; Cherries, 6d. to 8d. per lb.; Currants, black, 6d. do.; do., red, 4d. to 5d. do.; Gooseberries, 2d. to 3d. do.; Grapes, English, 1s. 6d. to 3s. do.; do., foreign, 6d. to 10d. do.; Mushrooms, 6d. to 1s. do.

CORN.

AVERAGE PRICES OF BRITISH CORN (per imperial qr.), for the week ending August 5, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.
	a. d.	s. d.	a. d.	s. d.	
Wheat	35	7	24	10	- 10 9
Barley	26	11	20	9	- 6 2
Oats	20	7	18	0	- 2 7

THE WEATHER.

[The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.		
	ACCUMULATED.				More (+) or less (-) than Mean for the Week.	No. of Rainy Days since January 1, 1899.			
	Above (+) or below (-) the Mean for the week ending August 5.	Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.					
DISTRICTS.									
0	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Inch.			
0	5 + 120	0	+ 214	- 6	9	123	25.6	56	28
1	5 + 137	0	+ 142	- 20	8	119	19.5	41	31
2	4 + 148	0	+ 279	- 93	7	109	14.1	45	32
3	3 + 155	0	+ 282	- 196	7	95	12.2	75	42
4	6 + 171	0	+ 259	- 141	5	94	14.4	61	40
5	7 + 183	0	+ 384	- 183	4	82	12.5	73	46
6	5 + 140	0	+ 166	- 49	10	125	28.5	48	33
7	5 + 154	0	+ 292	- 146	6	112	20.1	58	38
8	7 + 177	0	+ 377	- 121	6	103	22.2	65	45
9	5 + 147	0	+ 193	- 72	5	132	21.1	42	32
10	6 + 160	0	+ 810	- 54	1	113	25.0	53	37
*	7 + 189	0	+ 138	- 67	6	99	15.8	69	59

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E. 4, Midland Counties; 5, England, including London Principal Graining, &c. Districts—6, Scotland, W 7, England, N.W.; 8, England, S.W.; 9, Ireland, N 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending August 5, is furnished from the Meteorological Office:—

"The weather during this period was generally fine and dry, but towards the close of the period thunderstorms were experienced in most of the southern and western districts, the accompanying rain being very heavy in some places, slight in others.

"The temperature was again considerably above the mean, the excess ranging from 3° in 'England, E.' to as much as 6° in the 'Midland Counties' and 'Ireland, S.' and to 7° in 'England, S. and S.W.' and the 'Channel Islands.' The highest of the maxima occurred during the earlier half of the period, when they varied from 89° in the 'Midland Counties,' 88° in 'England, S. and S.W.' and 87° in 'England, N.E.' to 81° in 'Scotland, N.' and 80° in 'Scotland, W.' The lowest of the minima were registered about the middle of the week at most of the English and Irish stations, but towards its close in Scotland; they ranged from 43° in 'Scotland, N. and E.' and 47° in 'England, E.' and 'Scotland, W.' to 53° in 'England, N.E. and N.W.' and to 58° in the 'Channel Islands.'

"The rain/fall slightly exceeded the mean in 'Ireland, S.' but was much less elsewhere. In all the more northern and eastern districts the fall was scarcely appreciable. The amounts towards the end of the week varied greatly in different localities, the largest, occurring at Dublin during Saturday night, being 2.23 inches.

"The bright sunshine was very abundant, the percentage of the possible amount of duration varying from 75 in 'England, E.,' 73 in 'England, S.,' 69 in the 'Channel Islands,' and 65 in 'England, S.W.,' to 43 in 'Ireland, N.,' and 41 in 'Scotland, E.'"

THE HERBACEOUS BORDER.

CODONOPSIS OVATA (BENTHAM).

THIS Himalayan hardy perennial is of elegant habit, and flowers abundantly in June and July. It also reproduces itself from self-sown seedlings, every flower being succeeded by a pod full of seed. The inside of the flower is more remarkable for beauty than the outside, but the pendulous habit prevents the inside from being readily seen without gathering the flower. Then the strong foxy smell of the whole plant is objectionable, and detracts from its merit as an ornament. I have noticed that the flowers are visited exclusively by wasps of more than one species, and have on several occasions watched in vain for a visit from any other insects. After entering one or two flowers the wasps become as white with pollen as a miller in his working dress. *C. Wolley Dod, Edge Hall, Malpas.*

COLONIAL NOTES.

A MARKET GARDENER IN VICTORIA.

In your issue of April 13, you were calling attention to the fact that there are still openings in the colonies for fruit-growers, dairy-men and others with small capital. I am much indebted to my father, of Yattendon Gardens, Newbury, for the regular weekly arrival of the familiar *Gardeners' Chronicle*, it is the link that connects me with the old life of a private gardener, which I relinquished to come out to Victoria, some few years ago, to commence market-gardening.

I would just like to say that I believe if young gardeners who are drudging along with the hope of gaining some day one of those nice snug head-places, knew of the opportunities here, that could be taken advantage of by smart men, they would grind on no longer on low wages in private establishments on the expectancy of something they may never get, but come out here, and go in for fruit-growing on their own land.

I am not advising those who have only their willing hands to go to work with—that means many years of hard work and waiting. The would-be colonial fruit-grower should have two or three hundred pounds at command to put his land under fruit-trees straight away.

Allow me to give you some of the quick returns from fruit-trees in this, the Bendigo district of Victoria. Peach-trees budded on seedling stocks, will carry comfortably 40 lb. of first-grade fruit three years from the bud—of course,

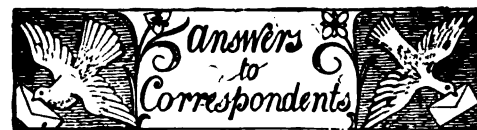
providing attention and irrigation be given. It may be interesting to my old colleagues to know that "Brigg's Red May" (American origin), is our first on the market; then Alexander, and Early Rivers; then as to mid-season varieties in this district, curiously enough, Hale's Early, I should say, is generally immediately preceded by Royal George, the season being filled up by Merri Merri, Lady Palmerston, and Winter Cling. I have never known real good "first-grade" Peaches sold at unremunerative prices here, and though there is a short season of glut, there are very few good Peaches sent to the canning works.

Grapes are produced in this district by the 100 tons, and the Vines seem to revel in all descriptions of soil, from ironstone-gravel, heavy clay, to pure sand. Vineyards are generally planted with two-year-old Vines; in five years from the cutting they will give handsome returns, and will carry and mature to a finish a case of Grapes (40 lb.) without injury to the Vines for the next season. It would surprise the home-growers to see the fine, heavy, well shouldered bunches of Black Hamburg, Red Prince, or Waltham Cross hanging from these young Vines, and above them ripe canes by the yard. The Vines are mostly grown on low trellises, and with no other treatment than disbudding, and the first tying. The majority of the growers here are just blundering along, gaining their experience by the mistakes they make. There are few such men as young gardeners are when about ready to take places as foremen in private gardens; and few men with a fair knowledge of the plant they are growing, but the climate and the virgin richness of the soil help them along. Lately it has been amply demonstrated that Victorian Apples can be safely landed in Covent Garden. I have now before me two samples—a Sturmer and a Scarlet Nonpareil as good and firm as ever Berkshire clay or Kentish loam produced, and at the same time you at home are glad to pay up to 16s. per case for these same varieties. Now we have got thus far with fruit, why not further, and most certainly you will soon see Victorian Grapes in good condition in Covent Garden Market, and doubtless there will be plenty of people to buy them without injury to the home-grower. Our colonial taste is not a cultured one, and your connoisseurs will be horrified when I say that Waltham Cross Grape realises more than Muscat Hamburg. In this quarter Waltham Cross is the ideal market Grape, it colours up splendidly, and travels well.

We have had a terrible phylloxera scare; but here the State fosters everything, and it has even fostered this scare to the detriment of vineyards and growers, and to the glorification of the Vine-louse. Ex-postmen and one-time Government officials have been transformed as by a magician's wand into horticultural experts, and have been improving right and left; and the very latest idea is wholesale planting of American resistant stocks, but in spite of all this legislative interference, Vines are still being planted, and are giving wondrous yields.

Tomatoes are a very paying crop, and are largely grown, and I suppose form the most popular fruit here. I have tried many varieties, but I have had nothing to surpass Sutton's Eclipse for good all-round merit.

I could go on and on, and still, I think, be interesting to gardeners, but perhaps I have now written more than you can find space for; still, I would like to state that freehold land can be bought from £3 to £6 per acre, commanded by the irrigation-channels. Land can still be selected in 21 acre blocks, and after six years' occupation, it can be purchased outright. Artificial manures are about the same prices as at home, though labour is dearer. Implements and horses are very cheap, and all the latest American labour-saving implements in use; and above all, living is cheap. If you think anything further on the subject would be acceptable, please say so, and I will give you of my experience. *A. V. M.* [We sincerely hope our correspondent will carry out his intentions. *Ed.*]



ACER CALIFORNICUM: *H. L. & Co.* Our list of awards was furnished by the officials of the Society, and if you are in doubt as to its correctness, it would be well to apply to the Secretary, 117, Victoria Street, Westminster, for further information.

CATERPILLAR: *J. H. and R. M.* The caterpillar of the Death's-head moth, *Sphinx atropos*. It is destructive to Potatoes.

CATTLEYA GIGAS: *P. H.* A fine variety, with the outer segments deeper in colour than usual. The lip is not remarkable.

EEL-WORMS IN SOIL: *J. D.* Certainly it would not be safe to use the soil for the purposes named, unless you can in some way sterilise it; or as you have such a large quantity, you might keep it in stack for two years, keeping the sides and top free from all herbage, when the warmth of fermentation, the lack of air, and of food will annihilate these pernicious worms and all other insects.

LEAVES OF PEAR AND APPLE DAMAGED: *D. H.* This injury is caused by the Apple and Pear leaf-miner moth, *Ctenostoma scitella*. It is too late to attempt any preventive methods this season, but next season, if the pest makes its appearance, spray with Paris Green, 1 oz. dissolved in 20 gallons of water. *E. M.*

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. B.* *Calystegia pubescens*.—*G. W.* 1, *Rhus Cotinus*; 2, *Ginkgo biloba*; 3, *Rhus Toxicodendron*.—*J. Hewitt.* *Echinops sphaerocephalus*.—*J. U.* A species of *Saxifrage*, we do not know which one.—*J. B.* *Elodea canadensis*. The American water-weed, once a great pest, but it seems to be dying out.—*A. C.* *Acer Negundo variegatum*.—*P. C. Gault, Cheddle.* Probably some Chinese variety of *Phaseolus vulgaris*.

POPLAR: *E. C. B.* The leaves are affected by a gall-fly, *Cynips*.

ROSE GALL: *H. & Sons.* The "Robin's Pin-cushion" is caused by a gall-fly, and is extremely common; but it is astonishing to find how many Rose growers, as we know by experience, have never noticed it.

SPOTS ON LEAVES OF CYPRIPEDIUMS, &c.: *J. Gibbons.* The fungus forming minute black spots is *Asterina orchidis*, a tropical species often introduced with plants into this country. It is not injurious, and will probably soon disappear. Sponge with dilute solution of potassium permanganate. *E. M.*

TOMATOS: *A Constant Subscriber* does not read his *Chronicle* very diligently, or he would recall the oft-repeated figure and description of the Tomato-disease. It is due to a fungus. The diseased fruits should be destroyed by fire, and the plants syringed with Bordeaux Mixture or sulphide of potassium, half-an-ounce to a gallon of water.

TWIN CUCUMBERS: *R. K.* Due to the union of two flowers at a very early stage of growth. By no means uncommon.

WHITE LILY: *G. McK.* You have got a very old variety called the double White Lily, in which the true flower is not formed, but only a number of white bracts. The other plant is *Campylobotrys*.

COMMUNICATIONS RECEIVED.—*W. S.*, Bishop's Stortford.—*D. T. F.*—*L'horticole Coloniale*.—*Herbert Spencer.*—*J. H. W.*, St. Andrews.—*Dr. Settegast, Kostritz.*—*Prof. Ewart.*—*E. S.*—*W. M. W.*—*R. D.*—*W. F. & Sons.*—*N. E. B.*—*A. & Co.*—*W. K. A.*—*Fryers.*—*G. W.*—*H. S. & Co.*—*C. M.*—*B. Noakes.*—*Toogood & Sons.*—*R. C. B.*—*C. R.*—*H. W.*—*W. S. H.*—*J. S.*—*G. H.*—*W. M. Cuthbertson.*—*R. W. A.*—*A. H.*

IMPORTANT TO ADVERTISERS.—*The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,*

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS, AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE Gardeners' Chronicle

No. 660.—SATURDAY, AUG. 19, 1899.

THE PAST ROSE SEASON.

IF it be difficult in writing beforehand to give a correct forecast of what the season is likely to be, it is equally difficult to declare what it has been when it is over, although we have the record of all the facts to enable us to form an opinion. This arises from various causes. There comes first of all the question from what point of view we regard it—that is, whether we have the eyes of an exhibitor, or of those who love their garden, of which Roses form a special and cherished feature, but who never dream of placing flowers on the exhibition-table; and then, if one is an exhibitor, his judgment is apt to be swayed by the number of prizes he has obtained, or the contest in which he has failed. Then the climatic conditions of the localities in which our Rose-growers live are so varied, and in our fickle climate so changeable during the flowering season, that in some places all is favourable, and in others utterly disastrous. As an example of this, we may take the effect of thunderstorms: I have known during the past season that hailstorms have passed over a district where every Rose-tree was stripped of its foliage, and of course the flower utterly ruined, while a short distance off there was nothing but bright sunshine and clear sky. Now, ask two Rose-growers thus situated what they thought of the past Rose season; one would say, "Simply horrible!" while the other would reply, "Oh! it was a very good one." But on the whole, I should say that, so far as the enjoyment of Roses at home was concerned, the past season has been a delightful one. There was bright sunshine, and during the flowering time the thermometer did not go up so high as it has done since; there was little or no wind, so the flowers were not battered as they very often are by both wind and rain.

There was in some gardens (as in my own) complete absence of aphids, and I never syringed once, and consequently the plants have not that messy appearance which they have when you are obliged to use Gishurst or any of the various insecticides which are offered now for the purpose. Neither did mildew nor orange-fungus make its appearance until the Roses were out of flower; so that, after all, perhaps the best way to judge of the character of the Rose season is to look at the exhibitions, especially those of the National Society.

I have been forcibly struck by what has been mentioned to me by more than one grower—that a Rose exhibition, pure and simple, of itself will not attract the public; and that in most places, if not in all, something has to be added to the show to make it attractive. Of course, in every place you will doubtless find a certain number of enthusiasts who will rejoice in discussing the merits of the flowers, especially if there be any novelties; but the general public want something more. Supposing it is a hot day, and the tent but indifferently ventilated, which is often the case, a visitor goes in,

say, at 2 o'clock, to look at flowers which have already been there a few hours, and present many of them a sorry spectacle; and therefore, if there be no other attraction, they grow to their heart's content. The Crystal Palace is of course, unique; the place itself is an attraction. The best Roses that the country can produce are all there; the Rose-grower meets with those from north, south, east and west, who come to do honour to the queen of flowers, and to support loyally the society which has done so much to encourage the culture of the Rose. What, then, do we learn from the exhibition held there?

Every one must be struck by the prominent position assumed by East Anglian Rose-growers, especially by those in the trade; the public has been accustomed for many years to see the prominent position held by the two great firms of the Cants, Mr. B. R. Cant, and Messrs. Frank Cant & Co., and now they have a third one closely treading upon their heels, Messrs. Prior & Son; and in some places taking the prizes from their grasp. The record of the old veteran, Mr. B. R. Cant, and of his two worthy sons, is a remarkable one, and although he himself is now unable to take any active part, it must have very much gladdened him to see how his sons were keeping up the honour of the house. His record of 1st prizes this year is as follows: from June 21 to July 22, he took fifty-one 1st prizes, including all the big classes he showed in; also the Challenge Trophy, N.R.S.; the Jubilee Trophy, N.R.S.; the Queen's Cup, the Richmond Cup, the Woodbridge Cup, and the Brentwood Cup; two Gold, and five Silver Medals. It is not to be expected that any amateur should be able to have such a record as this; some of them can only compete well at early shows, and others at late, while few of them can incur the trouble and expense of frequenting so many shows. To the trade-grower, however, it is a matter of business, and therefore from the beginning to the end of the season he likes to be found in the forefront of the battle. The Rev. Joseph H. Pemberton does, however, make a very remarkable record each year, and although this season was much against him at the earlier shows, as his Roses were not in flower, yet he is able to say that he exhibited at ten shows, staged in forty-four classes, won twenty-six 1sts, eight 2nds, and seven 3rds. Nor were the amateurs in East Anglia behindhand; it is true that none of them were able to snatch the laurels from Mr. E. B. Lindsell, who still remains our champion grower. But Mr. Orpen, the Rev. Foster-Melliard, and the Rev. F. Page-Roberts showed in fine form, especially in the Tea classes; while Mr. Orpen, of Colchester, secured the Tea Trophy. In the nurserymen's division Messrs. Frank Cant & Co., Mr. B. R. Cant, and George Prince shared the chief honours, East Anglia again asserting its supremacy.

Another most encouraging feature is the fact that so many new growers and exhibitors are coming forward; it will, of course, be a long time before any of those who have recently entered the lists will be able to compete successfully with some of the Goliaths amongst amateurs, but it is not given to everyone to possess the extent of garden and the amount of means for that purpose; nor is it wise for an amateur to go beyond his strength. I have seen many a case in which a too ambitious exhibitor has missed his chance by endeavouring to exhibit in a larger class, when he ought to have been content with a smaller one. Another feature

occasioned by the lateness of the season, and one much to be deplored, was the absence of northern growers. We used to have in former days exhibits from Cheshire and Durham, in the persons of Mr. T. B. Hall and Mr. Whitwell, but they have retired from the field; but even Mr. H. V. Machin, that enthusiastic grower, was unable to put in an appearance. Messrs. Harkness & Son exhibited of course as they always do, well, but they are not purely northern growers as they have established a nursery at Ledbury.

Among the noticeable features in the exhibitions both at the Crystal Palace and at Colchester, was the entire absence of absolutely new Roses. This was shown by the fact that the only gold medal awarded was for a Rose already exhibited, and to which had been awarded a certificate of merit, and which was now shown by Messrs. Piper, of Uckfield. Sunrise is a very beautiful garden Rose, striking in colour, and apparently a good and constant sport from Sunset (see *Gardeners' Chronicle*, May 20, 1899, p. 319, fig. 117). Last year there were three gold medals awarded, so in this respect there was a great falling off. Everybody wanted to know what Roses Messrs. Alex. Dickson & Sons had brought forward, and great disappointment was felt that they had none; for during the last few years they had obtained twelve Gold Medals for new Roses, and their flowers have appeared in nearly all the winning stands.

Again garden Roses have come very much to the front; the lateness of the season was certainly in their favour, and groups of visitors were constantly round the stands where they were exhibited. As usual, Messrs. Paul and Son of Cheshunt, and Messrs. Cooling & Sons of Bath, ran each other very close; but I must not forget other exhibitors. The amateurs made a brave show, and Mr. Tate of Leatherhead, Mr. Orpen of Colchester, the Rev. J. H. Pemberton, and Mr. Champion of Reigate, all showed excellently well; while in the smaller class, Mrs. Perkins, Miss D. Nesfield, and Miss Beatrice H. Langton, had well-arranged stands of good flowers. Mr. Champion was also awarded a prize for nine vases of Sweet Briar, making a very attractive exhibit. It is pleasant to find that small amateurs are coming forward to compete in the classes for garden Roses.

It generally happens that some one Rose comes forward so as to mark it as the Rose for the year. I should be inclined to think that honour falls to Marquise Litta; the bloom of it exhibited by Miss Langton, which obtained a Silver Medal for the best hybrid Tea was one of the finest Roses exhibited this year. The newer Roses seem to have carried off the lion's share of the medals, although such old flowers as Françoise Michelon and Princess Beatrice claimed the like honours.

It was perhaps an unfortunate thing that as the show at the Crystal Palace was held on as early a date as it could be, July 1, the season should have been an especially late one, and consequently there has been much disappointment in many quarters; but, on the whole, I think that growers have borne themselves manfully under what, to many of them, must have been a grievous disappointment. The decisions of the judges have been acquiesced in with cheerfulness, and there has been an entire absence of those unfounded growls which used to mar the pleasure of some of our exhibitions. As usual, there was the friendly meeting of rosarians from various parts, although there was a very sad blank occasioned

by the recent death of that accomplished rosarian and keen critic, Mr. T. W. Girdlestone. I trust that we may look to a more straightforward course of events for the ensuing year, and that exhibitors will be spared the many disappointments they have had during the present season. *Wild Rose.*

POTATOS.

Of Plums, we have the large, the small, the long, the round, the black, the purple, the red, the yellow, and other colours; and in flavour, the acid, the rough, the smooth, the sweet, and the rich, fine Gages. Varieties to please the eye, suit the purpose, and the palate. And so with our Pears—varieties for all, from the hard, perry-making, to the scarcely less hard baking Pear, the musky, the vinous, the sugary, the buttery, and juicy; some large, some small, some round, some oval, and some pear-shaped; but, like the Plum, each so differentiated from the other as having among them something to suit the most fastidious. And again, in the Apple, what a multitude of sizes, colourings, shapes, and textures, some semi-sweet, some semi-acid, some with just "a thought" of bitterness, some soft, some crisp, some hard (so much so that they might well be called the Dentist's Favourite), some rough to the eye, as russets, with a pineous flavour; some smooth and brilliant in skin, pleasant to look at, but only just a little good, and some with not much quality but beauty. This is the "eye-taster," and these are called *good market Apples*; as though the public bought twice when they had been taken in by appearance once. Now, this brings me to my subject. If with all these varieties, fine, luscious, and delightfully-enjoyable fruits, different form, colour, and flavour to suit all eyes, palates, and tastes is offered, and fruit-lovers are not made to eat all sour, all acids, or all sweets, either one or the other, with no change or interchange; but such is the pomologist's catering, that it must, indeed, be a continuous indulgence to the fruit-lover in trying to select amongst the many, where no two are alike, that which pleases him the most.

But with the Potato, how changed is all this! We are told, but I am loath to believe it, that one that boils to "a ball of flour" is the right thing, and it must be white, and not yellow; why, I know not. I was praising a Potato a short time since to a grower, when he said, "Yes, it is pretty good; but it won't sell, mind you, for it is yellow-fleshed." "Oh!" said I, "then colour has something to do with it?" "Just so," said he; "they (the Potatoes) must boil white, and be 'balls of flour.'" "Oh," said I—"but why? I hate a mere tasteless ball of flour in my mouth. I want a Potato with some flavour." Why not have different flavoured Potatoes as we have different flavoured fruits? I own in the shape of the Potato there is an advance, but the texture, taste, and flavour, are gone. Why is the "ball-of-flour" man to be catered for entirely to the exclusion of those who will not have such a kind of Potato on their table? Why are yellow Potatoes not "the right thing?" When I was young, and that is a very long time ago, my brother, John Jenner Weir, F.L.S., &c., and myself, used to look forward to the coming of the new Potatoes. How we longed for the time. How eagerly we looked for "the coming dish" of the then bright yellow new Potatoes; and for our dinner we wished for, wanted not anything else but these, and—butter; firm in texture, but slightly mealy, and then there was a flavour—a flavour that was not in any other vegetable; a genuine, fine mellow Potato-flavour. Oh! how we and others used to enjoy them with a never satiated appetite. "Oh, those were days!" But now for some time I have asked for my table some new Potatoes; yes, and have had them! They, "the young" of "the balls of flour" outvie their parents in their want—tastiness. Some were like pulp of an undistinguishable kind in one's

mouth, with only the knowledge that it was "nasty;" others with a sort of semi-transparent sickly, tallowy-look like a consumptive's cheek, and these were at the "improved" price of 4d. a pound. No, there has been nothing nice or "potatory" about them! Who eats these I do not know, nor do I care, so long as they are not put before me again as—food. I daresay they are very good croppers, so are called "good market Potatoes." Not they. A good tradesman must now cater for the public's appreciable taste; rubbish may be bought once or twice, but not often. As it is with me, so with my friends. We will not eat the present sorts of Potatoes when—"new." What I ask is, let us have a variety of flavour, flesh, or what not; let us enjoy our different textures, tastes, and not be "jumped upon," as it were, when we say we do not like insipid, dry, tasteless, powdery, balls of flour. We do not want such hot flour, but *Potatoes*, and the real quality of the Potato, with a fine and delicate though slight perfume, giving a pleasurable feeling on the palate—that from a tasteless "ball of flour" is non-existent. *Harrison Weir, Sevenoaks, July 21.* [Many—ourselves among the number—will endorse our correspondent's opinion. The same holds good of the Tomato. Ed.]

ABBOTSBURY CASTLE, DORCHESTER.

ABBOTSBURY is situate 9 miles from Dorchester, and about an equal distance from Weymouth. The castle is the seat of the Earl of Ilchester, and is a fine residence commanding a beautiful view of the bay. The climate is uncommonly genial, and the grounds are so well sheltered that many exotic plants succeed in the valley in which the estate is situated far better than when grown in glass-houses. Abbotsbury has a proprietor who takes a great interest in outdoor gardening, and especially in completing the adornment of his extensive estate and in experimenting with any and every new plant that can be obtained. Mr. J. Benbow, the gardener, has had charge of the estate for the past eight or nine years, and he most heartily enters into the labour connected with the planting and cultivation of the numerous exotic and sub-tropical plants that here exhibit such evidence of vigour. An experience gained in North Italy, where for some years Mr. Benbow had charge of a fine garden, may have developed in him an appreciation for this style of gardening, but taste and inclination are of slight value unless they can be turned to practical account.

On my visit to Abbotsbury, my attention was first directed to a site recently enclosed for the culture of new varieties of trees and shrubs. This portion is well protected by existing parts of the ground on the S.W., and by rising land on the E., and in addition, each plot is enclosed with reed hurdles and interlaced wattles, which permit some wind to pass through, but effectually break the force of the strong gales that sometimes sweep up the valley. *Acacia dealbata* in a young state, is here growing freely. *Spiræa grandiflora*, a shy bloomer in most cases, is here being given a fair trial. There are *Aralia manchurica*, *Cytisus purpureus*, the Judas tree, *Cercis Siliquastrum*, *Calycanthus floridus*; also plants of the variegated Tulip tree, a very attractive plant. Seedling plants of *Magnolia tripetala*, *M. grandiflora*, and *M. macrophylla*, were very healthy, and will be placed in permanent quarters when large enough, and spaces occur for them. *Cercis canadensis*, *Catalpa syriacifolia*, and *Quercus pyramidalis*, all appeared well. Near at hand was a long row of the Abbotsbury Clove Carnation, a very strong and erect grower, with bright pink-coloured flowers. One of the divisions here contained a row of the new hybrid China Rose, *Laurette de Messimy*, which is proving a strong and vigorous grower, and an abundant bloomer. *Deutzias*, in many varieties, occupy a considerable space, many rare forms being amongst them; and the same remarks apply to

Weigelas, *Spiræas*, and *Cytisus Andreanus*. A quantity of *Eucalyptus occidentalis* is growing very vigorously, and the distinct glaucous hue is very noticeable. *Citrus trifoliata*, a small shrub, is very free and pretty; intermixed with these are breadths of herbaceous plants. I noticed a splendid plant of *Phygellus capensis*, bearing quantities of scarlet blossoms. Presently we passed a fine row of Walnut trees, bearing an unusually heavy crop of fruits; numerous plants of *Rhus Cotinus*, with its singular feathery flower-stalks; whilst of the *Berberis*, the varieties are very numerous.

A new departure has been made here in outside Grape-growing, and already a border 150 yards long is planted, so that an avenue will ultimately be covered with canes. The Vines have been planted 10 feet apart, with some fourteen varieties of the new French and American hybrids, and it is anticipated these will succeed and ripen their fruit in this position. The border faces the south-east, and is 12 feet wide; the canes at the back have already reached 10 and 12 feet in height, and on many of these some eight or ten bunches of fruit, about the size of red Currants, looked well. The whole of the border has iron standards fixed at regular distances, which are just 8 feet above the ground, and on these iron arches are fixed. The canes are trained up the standards, carried over the arches, and in a season or two the whole will be completely covered.

In close proximity to these are veritable hedges of Bamboos, 4 to 6 feet in height, giving such an impression of tropical vegetation as is seldom seen in an English garden. *Bambusa khasiana* is also much in evidence, with large plants of *Chamærops Fortunei* growing amongst them. In the Bamboo garden, we are surrounded by a grand collection of some forty species. Some three years ago, an importation was received from Japan. *Arundinaria gracilis*, from the Himalayas, is small, though neat and pretty. *Phyllostachys quadrangularis*, with growths 10 feet high; *Arundinaria chrysantha* is a dense bush with leaves of a very dark-green colour, some 6 or 8 inches in length, having lines of a paler hue running the whole length of the leaves. *A. auricoma* forms an erect bush some 4 feet high, whose pale-green and yellow foliage is very distinct. In borders adjoining, *Paulownia imperialis* is represented by healthy and large trees, and closely associated is *Cæsalpinia japonica*. *Beschorneria yuccoides* is represented by two magnificent specimens in flower at the time of my visit; the spikes have reached a height of 12 feet, and at the juncture of the numerous laterals to the spike, the large bracts of a bright cherry-colour, add much to the singular beauty and interest of the plants. *Rosa Carolina*, which is here an evergreen, is represented by a fine plant.

The Dell (fig. 51, p. 143).—This is a most charming spot, and the picture gives a capital idea of its beauty. The winding character of the water, and rarity of the plants on its banks, would allow of a number of scenes equally beautiful.

In this dell through which there is running water, there are many novelties. This portion is well protected, and the most has been made of the boggy piece of ground. By the side of the ponds and streams, plants of *Bocconia cordata* are very numerous, the leaves some 18 inches across, were very handsome. Here also were plants of *Zizania latifolia*, the Japanese Rice, looking vigorous and inviting. Seedling *Phormium tenax* and *P. Colensoi* are freely distributed in this dell, and grow well. At the pond sides, where the water is shallow, quantities of *Richardias* are planted, and have flowered very freely (fig. 52, p. 143). We here get a view across the Dell, with *Arundo Donax*, and *Hydrangeas*, *Phormiums*, &c. Just from the pond edge, sometimes creeping down to the water, are masses of herbaceous Musk, these evidently enjoy to the full the moist situation, as they are masses of gay colours.

Eucalyptus, in many varieties overhead, impress themselves upon one's notice, *E. eugenoides*, with



FIG. 51.—THE DELL, RUSTIC STEPS AND SERPENTINE WATER, ABBOTSBURY. (SEE P. 142.)



FIG. 52.—VIEW ACROSS THE DELL, SHOWING ARUNDO DONAX IN THE BACKGROUND, WITH HYDRANGEAS, ETC. (SEE P. 142.)

leaves of a singular crinkled habit; whilst the glaucous *E. coccifera*, raised from seed, is thoroughly at home, making fine long shoots. Still pursuing our way, and nearing the ponds, I noticed grand clumps of *Eulalia gracillima* and *E. japonica variegata*, whose light, feathery sprays, some 5 and 6 feet high, were singularly graceful.

In another very sheltered site, remodelled a few years since, are Bamboos in abundance, from a foot to 12 feet in height; Palms, *Eulalias*, *Benthamia fragifera*, in numerous specimens; *Dracæna indivisa*, 8 and 10 feet high, some in flower, others having fruit ripening on them; thirty species of *Eucalyptus*, and every conceivable variety of the Himalayan *Rhododendron*. *Acacia armata* is a large shrub here. *Ozothamnus rosmarinifolia* from South Australia, with its yellow blossoms, is most beautiful.

Now we come again to the Bamboos, not as isolated specimens, but as immense clumps and in great numbers; *Phyllostachys aurea* made growths 15 feet in height in ten weeks. In a shady dell are masses of *Onoclea sensibilis*, and remembering the size this is usually met with, it was a matter of surprise to find fronds 3 feet in length and proportionately wide; associated with this were grand plants of *Osmunda regalis*. *Cortaderia Quila* (carminum), one of the Pampas-grasses, is in fine condition; it is a choice species, the rose-coloured plumes develop considerably earlier in the season than those of *C. argentea*, and are light and feathery. Here the ground is almost covered with *Heuchera sanguinea*, dwarf and compact; its numerous deep scarlet-coloured flowers are an attraction, and even a relief among so many shades of green. *Magnolia Campbelli* is represented by a very large plant.

On banks by the pond sides, again, are masses covering spaces of 30 and 40 feet in length of *Mesembryanthemum edule*. Many of its Fig-shaped fruit were noticed. *Cedrela sinensis*, with lengthened sprays of white flowers, were common, and the same may be said of *Acacia dealbata*, 20 feet high. A hybrid *Verbascum*, with spikes of white flowers, was very distinct in the border. *Hypericum punctatum* was spreading very freely, and is distinct in growth and appearance.

A bank in a sheltered spot is filled with many distinct and beautiful varieties of *Athyrium filix-femina* and *Lastrea filix-mas*. These it is not necessary to enumerate; they are beautiful, and in the most robust health. A grand plant now appears of *Arundinaria Simoni*, whose growths are 30 feet high; this is a most conspicuous object, and arrests one's attention immediately. Near by are clumps of *Salvia Horminum*, with deep purple bracts, with paler, somewhat hidden flowers; the terminal portion of the spike is often quite destitute of flowers, the bracts only being developed. *Fatsia japonica* (*Aralia Sieboldi*) is about 15 feet in height, and its branches spread out, covering a space just 50 feet in circumference. This specimen has flowered many times, and ripe seeds have been obtained from it.

There are some beds cut in the grass that contain fourteen species of *Yucca*. I noted *Yucca superbiens* with a tinge of scarlet in the young growth. By the side of this garden is a bank of *Cistus florentinus* with pure white flowers; whilst on the another side is another hedge of Bamboos, 70 yards long. In front of it were border Carnations in quantity; with these, Violets are planted, and spreading out have covered the ground, so that the Carnations which are not tied to stakes, but resting on the Violets, are kept clean, and are always fit for cutting.

In a large pond, regularly supplied with water, and which is surrounded by tropical vegetation, are numerous plants of *M. Marliac's* new forms of Water-Lilies, and most beautiful do they appear. *Silene Armeria* close by is pushing up its bright crimson flowers. *Fagus asplenoides*, with its peculiar leaves, arrest attention, and *Lapageria rosea* on a wall is healthy and strong.

Our illustration of the rocky steps and water-basin (fig. 53, p. 145) presents but a small portion of this interesting piece of work.

In a part of the grounds which was planted first, *Azalea indica alba* grows so strong and so dense that they act as shelter to many other subjects. *Magnolia grandiflora* Exmouth variety, or as it is here named *M. ferruginea*, is met with as trees, with foliage of large size and grand colour. I noticed *Berberis nepalensis*, very strong and distinct; *Eugenia myrtifolia*, covered with its pretty white flowers; *Musa Ensete*, with immense leaves; *Acanthus mollis*, with many spikes of bloom, &c. And so among beds and borders full of Camellias, Azaleas, Aralias, *Eucalyptus* of sorts, and Himalayan *Rhododendrons*, many reaching 20 to 30 feet in height, one naturally looked up to see the dimensions of the imaginary glass structure covering these fine plants, so much does the whole appear like an immense winter-garden. *Rhododendron Thompsoni* is represented by large specimens, its deep red flowers are much esteemed; *Eucalyptus cordata*, raised from seed saved on the place; *Acacia dealbata*, 20 feet high; *Magnolia Soulangeana*, as real trees. Turning for a moment from these specimens to an enclosed space, we notice just a thousand young plants of the Pampas-grass, *Gynerium* or *Cortaderia argentea*; *Oxydendron arboreum*, a tree 20 feet in height, has sprays of white flowers which are very effective.

On a high wall were several distinct plants, including *Psoralea glandulosa*, in flower; *Vitis heterophylla purpurascens*, in fruit, the leaves of which in autumn become deep purple in colour; *V. h. variegata*; *Salvia crispa*, also fixed to a wall; *Catalpa syringefolia aurea*, &c. Young Cork-trees raised from seed are here at home; and close by is *Ginkgo biloba*, 40 feet high. Low down are broad patches of *Hypericum brevifolium*, a small, neat grower, full of yellow blossoms; *Spiræa Douglasii*, with clusters of pink flowers. And then we are brought round to a variety of *Arundo Donax*, with plumes reaching a height of 15 feet—a most conspicuous object; *Chamerops excelsa*, 15 feet high; *Paulownia imperialis*, growing in many positions; *Spiræa flagelliformis*, with plumes of white flowers; *Cratægus glandulosa*, with a stem 12 feet in circumference, whose pendulous branches cover a space 35 yards round—the spines on this tree are, many of them, 2 inches long. Hedges of *Fuchsia Riccartoni* and avenues of Myrtles call for special mention, and so beautiful is this part, that through such groves, the old church of St. Catherine's is distinctly seen standing prominently on the top of the hill. The illustration on p. 147 (fig. 54) conveys a fine idea of these two avenues. The *Quercus Ilex* are noble specimens; and the Myrtles, when covered with flowers, are of singular sweetness and beauty.

Colutea arborescens, with its inflated pink and pale green seed-capsules; *Hypericum pyramidatum*, a distinct St. John's Wort; and banks of *Mesembryanthemum edule*, and *Saxifragas* of sorts, are all noteworthy features.

Passing through an avenue of Tamarisk (fig. 55, p. 153), well in keeping with other portions of these grounds, we enter a recently-formed garden near the mansion, where Agaves and Aloes by the score are planted out in rockwork, with *Mesembryanthemum* in almost every conceivable variety amongst them. Close by were *Plumbago Larpentæ*, *Echinops Ritro*, *Medicago arborea*, *Statice macrophylla*, *Veronica elliptica*, and *Eleagnus reflexus*. We then pass *Pittosporum bicolor*, 30 feet high, with a stem 3 feet round; *Erica arborea*, 10 feet high; and *Nertera depressa* on the rockery, was covered with its scarlet berries. Here, too, was *Eucalyptus cordata* raised from seed; *Pittosporum undulatum*, also from seed; *Diospyros kaki*, the Japanese Apple, and *Diospyros virginica*; also *Senecio macrophyllus*, with large spikes of yellow flowers.

On one of the garden walls I noted the *Physanthus albens*, an evergreen Peruvian climber, with fruit as large as a goose-egg; *Cobæa scandens*,

Passifloras, *Solanum jasminoides*, Roses, and *Begonia radicans*.

Fig. 56, p. 153, shows that portion of the new rockery where alpine, succulents, and a few Agaves are planted. That portion of the rockwork devoted entirely to the Agaves, Yuccas, Aloes, &c., is not included in this picture.

In an enclosed space in front of the two glass-houses (which are all the erections devoted to plant or fruit culture), are numerous beds filled with herbaceous plants, and in some of the beds are large Bamboos 6 feet high. These were covered with a temporary dome-shaped wire trellis, and over these *Tropeolum Lobbianum* Firefly had freely grown, so that the whole was a mass of intense scarlet colour. Close by was *Datura Wrighti* fl. pl.; and another most remarkable plant was *Clerodendron trichotomum*, full of its white flowers—this plant was 18 feet through, and was most showy. On the wall at the back of the lean-to vinery, one of the glass-houses just referred to, running 40 feet long by 10 feet in height, one of the prettiest sights imaginable was to be seen—*Tropeolum speciosum* covered the whole of the space, and was blooming with profusion; the lovely flowers seemed to revel in the shade and moisture of this particular spot. *Indigofera Gerardiana* was covered with its rosy-purple flowers; while *Ceanothus Gloire de Versailles*, with its pale blue clusters, was equally attractive.

The robust health of everything that came under my notice was most remarkable; and every view seemed to rival its neighbour in attractiveness.

After a ramble of several hours, I sat down for a moment or two on one of the lawns; immediately overhead was a large Tulip-tree, and in front and surrounding were *Eucalyptus Globulus* 20 feet high, and *E. coccifera* 30 feet; immense *Phormium tenax*, *Aralia Sieboldi* as trees, *Dracæna indivisa* 20 to 30 feet high, Camellias, Poinsettias, Palms, as well as many of the varieties already mentioned. The whole of the extensive garden, so full of marvellous and interesting things, is in excellent keeping. S.

REMARKS ON THE FRUIT CROPS.

(See Tables, ante, pp. 103 to 109).

(Continued from p. 136.)

3, ENGLAND, E.

ESSEX.—Apples, Pears, and Plums showed well for bearing good all-round crops, judging by the profusion of blossom with which the several trees were clothed of the above-mentioned fruits. But the frosts which put in an appearance before the blossoms had "set," spoilt this bright prospect; the result being that the crops of Apples, Pears, and Plums, where not protected from the north and east, are very light indeed. I may mention that some young cordon trees of Keswick Codlin Apple, standing in the open, are studded with clean, healthy-looking fruit. During the many years that I reported on the fruit crops in South Wilts, I was, in every case, able to report favourably on this sure-bearing Apple. H. W. Ward, Lime House, Rayleigh.

LINCOLNSHIRE.—Heavy rains, followed by sharp frosts, made sad havoc with the Apple crop. Pear and Apple blossoms shared a like fate, and the embryo fruits, unable to withstand the long-continued low temperature, dropped. It is many years since we had such a poor Pear crop. Peaches were only saved by covering up with thick canvas, there being 17° of frost when they were in full flower. Strawberries were worse than we have ever had them; Royal Sovereign was the best, but three dull, wet days caused them to decay very much—it is a variety that does not seem to stand wet weather. H. Vinden, Harlaxton Manor Gdns., Grantham.

— In these parts the fruit crop, on the whole, is not very good. Plums are rather scarce, although the Victorias are bearing the most fruit this season. Pears are comparatively a failure, no doubt owing to the late frosts and the prolonged cold weather of

the spring. The Strawberry crop has been a remarkably good one, both in quantity and quality. *J. Rowlands, Manor Gardens, Bardney.*

— We had a splendid show of bloom all round. Plums suffered severely from the damp, cold nights. Early Apples of the Codlin type are carrying a splendid crop of fruit, but many of the later varieties are only moderate. Pears are much more regular, and we shall have some very good fruit. American-blight and the Currant-mite are our worst enemies. *J. Coward, Haverholme, Sleaford.*

SUFFOLK.—The very inclement weather prevailing in April, did great damage to Apricots, Peaches, Nectarines, and Pears; and in the case of Apricots it nearly destroyed the entire crop. Pears are exceedingly poor, both in quantity and quality. Cherries are not much grown in this part, but what trees there are have been quite loaded with fruit, and free from the black aphid. Strawberries have been very good, but the early bloom was destroyed with frost, therefore the crop has not been heavy. *B. Marks, Hardwicke House Gardens, Bury St. Edmunds.*

and nearly in full leaf at the same time, we rarely get a good crop. Cherries both on standard and trained trees are fairly good. Plums are partial. Gooseberries nearly all dropped off when small, owing to continual frosts, the foliage at the time not being sufficiently forward to protect the young fruit. Strawberries, Raspberries, and Currants, are plentiful and good. *H. Fisher, Flinton Hall Gardens, Bungay.*

4. MIDLAND COUNTIES.

BUCKINGHAMSHIRE.—We had a fine show of bloom on all kinds of fruit-trees; cold east winds cut most of it off after it was set and swelling. Apples are very thin; no Blenheim, although we have over 500 young trees. Very few Wellingtons, and only a crop of Cox's on young trees. The following varieties of Apples have a good crop:—White Transparent, Worcester Pearmain, Ribston Pippin, Washington, Yellow Ingestre, Seaton House, Lady Sudeley, Lane's Prince Albert, Duchess of Oldenburg, Cockle Pippin, Lemon Pippin, Keswick Codlin, Stirling Castle, &c. *J. Smith, Mentmore Gardens.*

— The failure of the crop of Strawberries this year is remarkable. I never, in my experience of over fifty years, remember it being so bad in general. Doubtless the deficiency in bloom on the plants this year may in some measure be ascribed to the want of water last year. This year also the plants suffered considerably from the same cause at a time they most needed it. These effects, combined, and the mischief done by frost when the plants were in flower, have brought about one of the worst crops of this delicious and greatly-esteemed fruit within my recollection. *Geo. Thos. Miles, Wycombe Abbey Gardens.*

— The fruit prospects at the beginning of the season were good, orchard and other trees showing an abundance of bloom; the late and severe frosts, however, almost completely destroyed the blossom and small fruit. No such damage has been known in this locality for a number of years, in some instances the results having proved most disastrous to the owners and occupiers of fruit-orchards. *W. Hedley Warren, Aston Clinton Gardens, Tring.*

— The choicer kinds of wall-fruit suffered from the severe frost we had during the time they were in bloom. The Peach and Nectarine-trees we covered up with mats and larger branches of Birch when in bloom, not removing them during the day, and then gradually exposing them to light, using nets, &c. We saved the bloom, and all the trees are now carrying a splendid crop. I believe the fish-nets prevented the blistering of the foliage, as we have been troubled with that pest in other years. Now the foliage of the trees is in fine condition. *John Fleming, Wexham Park Gardens, Slough.*

CHESHIRE.—We have very poor crops of fruit indeed here. Amongst Apples, only a very few varieties have full crops, of which Grenadier, Cellini, and Pott's Seedling are examples. Not one variety of Pear with us has a full crop, and many trees are entirely barren. Red Currants and Gooseberries were injured in the winter by sparrows, which took the buds. The early flowers of the Strawberries were destroyed by late frosts, so that it seems of no great consequence trying for sorts too early when they are so liable to be hurt by late frosts. *Robt. Mackellar, Abney Hall Gardens, Cheshire.*

DERBYSHIRE.—Early varieties of the Apple have fair crops of fruit, but late ones are very much below the average. Pears Louise Bonne of Jersey, and Beurré d'Amanlis are the only varieties that have good crops. *Thos. Keelley, Darley Abbey Gardens.*

— The Pear crop suffered very much from the late frosts that occurred on May 26 and 27, i.e., 6° on the 26th, and 7° on the 27th. Most of the trees were carrying an abundance of bloom at that time, but only a light crop of fruit survived. Early Strawberries also suffered a little, but not so as to



FIG. 53.—ROCKERY STEPS AND POOL, ABBOTSBURY. (SEE P. 142.)

NORFOLK.—I think this is the worst year for fruit I ever remember, for there is scarcely anything; a few trees of Pears, such as Louise Bonne of Jersey, Citron des Carmes, Marie Louise, and Vineuse, have a good crop, but the rest are nearly barren. Of stone-fruit, Apricots are quite a failure; Plums are nearly so; Nuts none, and altogether the outlook is a poor one. There was a good crop of Strawberries, but the fruit was small, and the season short. *H. Batchelor, Catton Park Norwich.*

— In this district, with but few exceptions, the fruit crops are very unsatisfactory. The blossom on Peaches, Nectarines, and Apricots, was completely destroyed by severe frosts which visited us from the 19th to 25th March, and which ranged from 20° to 23° at night. Three and four thicknesses of fish netting afforded but little protection against frost of that severity. Pears are only a light crop, and Apples the same. This year the latter were late coming into blossom, and I have observed that if the trees are in blossom

affect the yield much, and good crops are quite general. Royal Sovereign, James Veitch, and La Grosse Sucrée, are the best here. *F. G. Mills, Glossop Hall Gardens.*

HERTFORDSHIRE.—Fruit crops have suffered severely from late spring frosts. Apples are very few, and poor in quality; many trees are entirely fruitless. Strawberries, when in bloom, suffered badly from frost; and again, when the fruits were swelling, from heat and drought. Morello Cherries are good; and Raspberries more plentiful than last year. Pear-trees are yielding fairly, and the fruit promises to be good in quality. I do not hear of growers in general praising the fruit prospect for 1899. *W. Garman, Frytheeden Gardens, Berk-hampsted.*

—The fruit crops in this district are most disappointing. Apples generally are thin, and the trees very badly infested with American-blight. Pears, except on walls, are a failure; Plums, except on walls, are very poor indeed, in spite of every precaution; the bullfinches ruined the whole of our standard and pyramid, also such fruits as Medlars, Quinces, Pyrus japonica, and Crataegus of sorts, we had to net closely on walls, or these would have suffered the same fate. Gooseberries poor; Cherries of the dessert kinds are good, and Morellos under average. *E. Beckett, Aldenham House Gardens, Elstree.*

—Apples are a very partial crop in this neighbourhood, some trees being loaded, others are quite bare, and unfortunately many are falling off. Peaches and Nectarines promised well, but were cut off by frost. There are very few Plums except on walls, these promise to be good. *Thos. Nutting, Childwickbury Gardens, St. Albans.*

—The three most important of British fruits, viz., Apples, Pears, and Plums, are a poor crop, so much so here, that I have the worst crop since 1879. This result is unquestionably due to the very dry weather of last autumn, which prevented healthy formation of flower-buds to a large extent, and many that escaped this were destroyed by the late spring frosts. With the exception of Gooseberries, small fruits have been fine, Raspberries particularly so; the variety Superlative has been by far the finest. *G. Norman, Hatfield House Gardens.*

—Apples are much under the mark in this part of Hertfordshire. Here and there, as might be expected, trees are to be seen with a good crop of such varieties as Bramley's Seedling, Lane's Prince Albert, Grenadier, Lord Suffield, with a few other sorts; but to take this part round for miles, Apples are very much under the average. On the second Tuesday in May and two following nights our thermometers registered 14°, 11°, and 9° of frost. *O. E. Martin, The Hoo Gardens, Welwyn.*

LEICESTERSHIRE.—The fruit crops in this district are rather disappointing. There was abundance of bloom, and everything looked promising up to the last week in May, when a succession of frosts and cold rains caused so much destruction to the blooms of Apples, Gooseberries and Strawberries, as to rob me of half the crop. Apples are now swelling fast, and what there are, promise to be excellent. Pyramidal Pears seem most effected by the frosts. Stone fruits generally, are much below the average. *D. Roberts, Prestwold Gardens, Loughborough.*

—Seldom has there been a better prospect for a heavy crop of fruit than was presented here this spring at the flowering period. Apple and Pear trees in the orchards were huge masses of flowers; a few of the earliest were destroyed by the frost on May 4 and 5, when the thermometer fell to 27° each night, and cold N.E. winds prevailed up to the 14th, and are partly responsible for the failure. But the chief cause, in my opinion, is the extreme drought and heat of Sept. 1898, which affected the trees much, while they were carrying a good crop of fruit; those that were afforded water, and those in the most vigorous health, have the best

crops this year. Plums on walls are a good crop in most instances; the failure of standard Plums here is largely owing to the depredations of bullfinches and other birds which take the buds, often before the leaf has fallen in the autumn. Strawberries had some of the earliest flowers killed by the severe frost on May 28, when the thermometer on the grass fell to 27°, and much of the fruit decayed owing to continued wet weather during the last ten days of June, and July 1, 2, and 3. Apricots and Peaches suffered much from severe frost on March 19 to 25, when the thermometer fell to 15° and 22° on several occasions. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

NORTHAMPTONSHIRE.—The late frosts in this district completely wrecked the fruit prospects for this year; the early varieties however escaped, whilst late ones are a failure. Keswick Codlin is good, and Lady Henniker have good crops, but the better varieties were destroyed. Black Currants were very fine, the best we have had. Strawberries have been very fine in quantity and quality; we grow chiefly Royal Sovereign and President. *H. Kempshall, Lamport Hall Gardens, Northampton.*

NOTTINGHAMSHIRE.—Apples form an average crop, the best being Red Astrachan, Lady Sudeley, Irish Peach, King of Pippins, Ribston Pippin, Court of Wick, Worcester Pearmain, Bramley's Seedling, Bismarck, and Duchess of Oldenburg. We had a splendid show of Pear-bloom, which was destroyed by the late frosts; and Plums fared no better. Strawberries have been a splendid crop, and the best were Royal Sovereign and James Veitch. My best Royal Sovereigns were gathered from plants put out in August, 1898. *A. McCulloch, Newstead Abbey Gardens.*

—The flowering period was the most trying for fruit trees generally that I remember. Very low temperature, with north-east and east winds, prevailed all through the month of April, and far into May. Trees on south and west walls are fairly fruitful; on east walls quite a failure. Apples are dropping freely, but a fair crop remains. A fine autumn is needed to ripen the fruit. Trees generally are making very healthy growth this season. *J. Roberts, Welbeck Abbey Gardens.*

OXFORDSHIRE.—Apples of the better dessert kinds considerably under the average. Early cooking plentiful. Pears good on walls. Victoria Plums on north walls a heavy crop, on open trees thin. Cherries poor. Peaches and Nectarines promised well, but leaves blistered a good deal. The early kinds—Waterloo, Amsden's June, and Alexander—have been gathered, and were of good quality, and a fair crop. Good crop under glass. Small fruits were the worst we ever had, except Raspberries, which, owing to the heat, were soon over. Strawberries were very good, but a very short season. Royal Sovereign excellent; President and Latest of All good. *G. Stanton, Park Place Gardens, Henley.*

—In this neighbourhood, elevation above sea-level 530 feet, on a retentive heavy loam, overlaying the oolite, so that in a season like the present we are better enabled to withstand the drought than others less fortunate. Respecting our Apple and Pear crops, we are better off than many of our neighbours, as most trees have a liberal sprinkling of fruit, notably the Codlins, Tower of Glamis, Ecklinville, Cox's Orange Pippin, and Ribston Pippin; the same remarks apply to Pears, Williams' Bon Chrétien, Souvenir du Congrès, Pit-maston Duchess, Doyenné du Comice, Durondeau, and Monarch (Knight's), are bearing the best crops; we have one exception in Conseiller de la Cour, generally a reliable bearer with us; this year out of six trees it is fruitless. Gooseberries received a severe check from frost in their early stage of growth. Strawberries resisted the drought and attack of red-spider which has been prevalent, by being well mulched and watered. Red and Black Currant bushes are vigorous and healthy. *James A. Smith, Sarsden Gardens.*

SHROPSHIRE.—Apples are a disappointing crop

with us. Trees that were set before the frost in the end of May are carrying full crops, while those alongside of them that were caught in bloom have none. Pears are much the same. One of the best crops of Apples that I have is Saltmarsh's Queen; Tower of Glamis, Duchess of Oldenburg, King of the Pippins, and a few others are also good. *James Loudon, The Quinta Gardens, Chirk.*

—The spring frosts with cold winds spoiled the early Apple blossom; but we have a fair crop all round of later varieties, such as Bramley's Seedling, Lane's Prince Albert, Normanton Wonder, Mère de Ménage, and Dumelow's Seedling. *W. Weeks, Cheswardine Gardens, Market Drayton.*

—If it had not been for the spring frosts, there would have been an abundant crop of all kinds and varieties of fruit. All the tenderer varieties of Pears and Plums were very much damaged; and the late varieties of Strawberries suffered much more than the early varieties. I gathered the first outdoor Peaches, early Alexandra, and Waterloo, on July 10; they were of very good quality. *G. Pearson, Attingham Hall Gardens, Shrewsbury.*

STAFFORDSHIRE.—The fruit crop in this locality, with few exceptions, is very unsatisfactory; in some places there is a good crop, and in others scarcely any. The following kinds and varieties have done the best in these gardens:—Apples: Early Nonpareil, Blenheim Orange Pippin, Dutch Mignonne, Lord Suffield, Lord Grosvenor, Mère de Ménage, Ribston Pippin, Sturmer Pippin, Stirling Castle, Lamb Abbey Pearmain. Of Pears, Beurré Capiaumont, Hessel, Green Pear of Yair, Broompark, Jargonelle, Louise Bonne of Jersey. *G. H. Green, Enville Gardens, Stourbridge.*

—Thanks to the general dryness of the atmosphere, the fruit-blossoms did not suffer so severely in these parts as might have been expected considering the many sharp frosts experienced from the middle of March to the end of May. Stone fruits have suffered the most. This year the whole of the hardy fruit-trees and bushes were well covered with blossom, but the continued frosts, which on seven successive nights from March 19 to 25 inclusive, culminated in 17° of frost on March 16; and on April 17, 18, and 19, when there were 10°, 12°, and 7° respectively; also as late as May 26, 27, and 28, when 6° were registered on each night. Had we escaped these late frosts, the thinning of Pears and Apples would have been a big job; but under present circumstances, with some few exceptions, as Bergamot d'Esperen among Pears, and Duchess of Oldenburg, Keswick Codlin, and Alfriston among Apples, all of which set heavy crops, very little thinning has been needed. Plums and Damsons have suffered greatly, Denyer's Victoria and Dove Bank being the only varieties which have a fair crop; and Damsons are a failure. Peaches, Nectarines, and Apricots escaped damage better than was anticipated, and most of our trees are carrying good fruits, but not a heavy crop. Cherries, both the sweet and Morellos, were partially affected, and are slightly under the average; while Strawberries have been exceptionally good, especially Royal Sovereign, which we find satisfactory on this cold stiff soil. Of Raspberries, Superlative is still the best. The branches of both Red and White Currants are literally clothed with bunches of fruit, of good size and quality; the black variety are not so heavily laden, but the bushes have been well furnished with fruit, the berries being of a larger size than usual. Blackberries, "Rubus laciniatus," are showing well, the fruiting-wood being strong and a mass of flowers. Filbert and Cob nuts are not quite so plentiful as in previous years, owing in a great measure to the paucity of male catkins. Walnuts are a very heavy crop. Medlars are again a poor lot, but Quinces are well furnished with young fruits. The various and numerous insect pests which prey upon fruit trees, have been much in evidence this season, but the Plums were not attacked so early in the season as last year,

which gave the trees an opportunity of perfecting their basal leaves; the younger leaves towards the tips of the shoots, on some of the varieties are badly curled up. Black fly, "*Aphis cerasi*," was very prevalent on the points of the young shoots of the Cherry earlier in the season, but by dipping the points of the shoots infested in XL insecticide, using it at the strength of twenty parts soapy water to one of insecticide, we soon cleared the trees, and without damage to the young leaves. Queen wasps were very plentiful during May and June, but they were very lively, and difficult to capture, so I shall not be surprised if wasps are troublesome later on. *Geo. Woodgate, Rolleston Hall Gardens.*

— The fruit crop in this district is very satisfactory, the best I have known for years. Apples are mostly heavily cropped, the best among them being

south aspect have good crops, whilst those on others are under average, and of poor quality. *H. T. Martin, Stoneleigh Abbey Gardens, Kenilworth.*

— We had an excellent promise, wood well ripened, and blossom abundant, on all fruit trees, but the 10° of frost that occurred on May 4 killed them. Of Strawberries we have not gathered a good dish of fruit from any variety. *A. D. Christie, Rayley Hall Gardens.*

(To be continued.)

TOLLCROSS PARK, GLASGOW.

THE Glasgow Corporation is well known for its enterprise in all departments of municipal life. Its public parks are numerous. Quite recently an important addition was made in the Richmond Park, named after the present Lord Provost, Sir

range of glass is in course of erection by Messrs. Simpson & Farmer, who are now engaged in carrying out some £12,000 worth of work for the corporation of Glasgow. The new range here consists of a large public conservatory and propagating-house; also a house for *Odontoglossums* and one for *Cattleyas*. The plants for the Orchid-houses are the gift of ex-Bailie McDonald, of Glasgow.

In front of the old greenhouses there is a very fresh bit of bedding; pink *Pelargoniums* and yellow *Calceolarias* being very effective in front of *Gladioli* and *Dahlias*. White *Antirrhinum*, "Queen of the North," is true and good; but we were surprised to be told that most of the *Violas* had failed and had to be removed, their places being filled with such plants as *Lobelia*. It ought to be kept in mind by all who wish for effects with *Violas* that



FIG. 54.—*QUERCUS ILEX*, AND HEDGE OF *ESCALLONIA*, ABBOTSBURY. (SEE P. 142.)

Lord Suffield, Ecklinville, Bramley's Seedling, Stirling Castle, Ribston and King of the Pippins. Some of these varieties have been very light for some years previous to the present one. *E. T. Gilman, Alton Towers Gardens, Cheddle.*

WARWICKSHIRE.—Apples in this district are rather partial; some have a full crop, others hardly any. Blenheim Orange Pippin with us is abundant, and we are much better off than last year. Apricots and Peaches had a severe time when in flower, and afterwards; still, there is only one tree which is without fruit. *Crimson Gallant*, *Hales' Early*, *Sea Eagle*, *Grosse Mignonne*, *Early Louise*, *Early Alfred*, and *Barrington*, have fair crops of fruit. Plums, except on walls, are nearly a failure. *James Rodger, Charlecote Park Gardens, Stratford-on-Avon.*

— Apples in this neighbourhood have better crops than last year, and the trees are healthier. Such early varieties as *Frogmore Prolific* is well studded over with clean fruit. Several large trees in this garden of *Cox's Orange Pippin* are loaded with fruits. Peaches and Nectarines on walls having a

David Richmond. Tollcross Park was acquired in 1897 at a cost of £29,000. It extends to 82½ acres, and may well be considered a good bargain for the community. How Scotchmen love a good bargain! Tollcross is in the extreme east end of the city, and therefore the park is one for the east-enders, and its popularity on Saturday afternoons and Sundays is extraordinary. Taken as a whole, this park is remarkable for its natural beauty; there is nothing artificial about it. There is a charming natural glen, through which wanders Tollcross-burn for half a mile of its course. The banks are wooded; Ash, Beech, Elm, Oak, Plane, Hawthorn, and fine Chestnut-trees are abundant, and they are no mere modern specimens, many being from 80 to 100 years old, a few picturesque old Elms being decidedly much older than even the latter figure. The undergrowth is not crowded; it is made up of *Hollies* and *Rhododendrons*.

Tollcross Park, previous to its being acquired by the Corporation, was the home of a private gentleman, and the old glass-houses are still standing. They are filled with *Pelargoniums*, *Fuchsias*, *Caladiums*, *Dracenas*, and *Ferns*. An extensive new

they must be planted in March. Many gardeners court disaster with *Violas* by planting them in May. When put out then they cannot be expected to succeed. We omitted to ask when they were planted at Tollcross.

In a bed of seedling *Carnations*, Mr. Wilson pointed out a wonderful "freak" or development. I never saw or heard of anything similar. A plant is producing double and single flowers; on each flower-stalk there is a very double flower and several single ones. I advised Mr. Wilson to put down all the layers to see if such a rare occurrence can be perpetuated. [Not very uncommon in our experience. ED.]

Mr. Whitton is the Superintendent of all the Glasgow parks, and that they are well managed goes without saying. He has a manager or foreman in each. Tollcross Park is under the management of Mr. David Wilson, who was formerly the well-known gardener at Westmount, Kelvinside. Mr. Wilson has here every opportunity of increasing his reputation, and the collection of Orchids could not be in better hands. Mr. Wilson left many seedlings at Westmount, but a few he got permis-

sion to bring with him to Tollcross. They will all be interesting by-and-by; particularly so will be those from *Dendrobium nobile elegans* × *D. Owenianum*, the latter itself being a hybrid between *D. Linawianum majus* and *D. Wardianum*; others are from *D. Cooksoni* × *D. nobilium* and *D. n.* × *Farmeri*.

Within a few hundred yards of this park there are iron and steel-works, breweries, potteries, and chemical-works in abundance; but inside the park, where everything is fresh and green, one forgets all about such things. *William Outhbertson*.

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA ELEGANS VAR. HOUTTEANA.

FLOWERS of a very fragrant and showy variety of this natural hybrid, which agrees well with the fine form originally described by the late Professor Reichenbach as *Lælia elegans Houtteana*, are sent by Mr. Edge, gr. to J. Leeman, Esq., West Bank House, Heaton-Mersey, in whose garden it has just flowered. The sepals are of a dark tint of rose, with a greenish tinge at the base, and the petals are of a purplish-rose; the base of the lip and lower parts of the side-lobes bluish-white, with rose-coloured veining, ending in a purplish-rose blotch at the apex of each side-lobe, the broad and flatly displayed front-lobe being ruby-red, with a slight purplish shade. It is an exceptionally fine form of a class much favoured by collectors of good Orchids.

THE HERBACEOUS BORDER.

CAMPANULA MIRABILIS.

On p. 83 of *Gard. Chron.* it is remarked that if seeds are freely produced the plant is likely to be a great favourite! Not if others find it as difficult to flower as I have done. I have a plant which has now made a good rosette of leaves for three seasons, but shows no sign of intending to flower. It is growing in a warm border beneath a south wall, in a similar place to that in which I saw a plant in bud at Kew a month ago. [We have a fine photograph of the Kew plant, which we hope to reproduce later on. Ed.] Other stemless plants were by the side of the one in bud. Two or three of my friends who have had the plant for two years are disappointed in their expectation of flowers. *C. Wolley Dod, Edge Hall, Malpas*.

GILLENIA TRIFOLIATA.

This is a graceful plant, suitable for the herbaceous border, and the flowers when cut are excellent for furnishing epergnes, contrasting effectively with heavy self-coloured blooms. It is a native of North America, and closely related to *Spiræa*. Being hardy and blooming in the month of June, and growing to the height of 2 feet, it is a plant that deserves notice from gardeners. The plant is three-leaved, as the name suggests, and the blooms, though generally described as pink, appear to the casual observer of a shaded white. *William Earley*.

HOLLAND HOUSE.

THIS is truly a wonderful place. We are not speaking of the house, as that is known to the literary man, the archaeologist, and the average Londoner. We are thinking of the garden—a garden, be it remembered, within 4 miles of Charing Cross, and packed in between Notting Hill, Kensington, Hammersmith, and Earl's Court—in other words, in the centre of a dense population, and in a characteristically London atmosphere. On one side, it is true, it adjoins Kensington Gardens, and these are continuous with Hyde Park. But who, knowing the locality, would think of a profusion of Roses! or would dream of beds of hybrid Tea Roses, or expect to see La

France and Caroline Testout asserting themselves as they do among many others. The last-named is a special favourite, its colour leaving nothing to be desired. *Rhododendrons*, considering the circumstances, do excellently. They have not the advantage of peat to root in, nevertheless the foliage is bold, deep in colour, and thick in texture, and there is enough to show that the flowers were abundant. But the interest of Holland House, so far as its gardens are concerned, consists in their infinite variety. It is not long since we alluded to the principal features of this garden, and gave a series of illustrations of this historic residence (figs. 85 and 86, pp. 227, 229 *Gard. Chron.* for April 15, and figs. 99 and 100, pp. 267 and 269 for April 29, 1899). A still more recent visit affords us an opportunity of speaking of it again, and the interest is such that we need not fear tiresome repetition.

Holland House is placed in an old, well-timbered park; some of the trees have attained their life-limit, and are gradually decaying. They suffice, however, to banish the thought of London; the town is not seen, the roar of traffic is scarcely heard. Woodland glades, avenues, and breadths of turf call up visions of deer and rabbits, and we did actually see a pheasant, and more than one misletoe-bough, one on a Pavia! London might, for all one sees and hears, be miles away except—except for the Great Wheel that obtrudes itself objectionably here and there, but it is quite possible to wander in the grounds and never see it.

Holland House is the London residence of the Earl and Countess of Ilchester, and the secret of the great interest of the gardens lies in the fact that both the Earl and the Countess are enthusiastic plant-lovers. The park contains a delightful arboretum; the selection of trees and shrubs, which betokens taste and knowledge, are massed in groups—Lilacs here, Weigelas there, *Philadelphus* in one place, *Ceanothus* still in flower, Thorns in another, avenues of Birches, avenues of Limes, Ashes, Maples, Birches, Oaks, Alders, in astonishing variety, arranged with knowledge, and disposed with taste; Purple Peach, Golden Privet, and Golden Elm, with other like combinations, lending colour and lighting up the whole. *Catalpa Bungei* is pointed out by Mr. Dixon, who has charge of the garden, as remarkable for its rounded head, like a round-headed *Acacia*, and suggesting its fitness for a street-tree if it could be obtained in sufficient quantities.

In the garden proper, herbaceous plants, bulbous plants, alpine plants, bog plants, all find a place. There is a series of tanks placed at various levels. These tanks are filled with Latour-Marliac's Lilies or other water-plants; their rocky sides shelter Saxifrages, Campanulas, Dianthus, and other rock plants. A tiny rivulet connects one tank with the next, the overflow from the one feeding the little streamlet which meanders from tank to tank, now rushing sinuously through a rocky valley bejewelled with alpine plants, then merging on what might be an alpine meadow in miniature, an "alp"—then threading a swampy morass, with Bulrush and Japanese Iris, *Butomus*, *Eulalia*, and glaucous *Elymus*, and other noble water-plants, again winding amid clumps of Bamboos, of which *B. Simoni* makes the greatest show, but is not quite hardy, other varieties are smaller, but models of grace, and then the rivulet plunges into the wood where one loses sight of it for a while. And in all its windings the streamlet passes through and amongst plants of such interest that one wonders whether the beauty or the interest makes the greater impression.

Mixed herbaceous borders in which Roses are interspersed, Rose-beds carpeted with *Violas* such as *Groulter* might approve of—while in another case *Wichura's* Rose itself carpets the ground, a collection of hardy Vines, and of *Clematis*, Sweet Peas, and flowers for cutting, all these serve to impress one with the variety of this charming garden, and of the careful overlooking necessitated on the part of the gardener.

Of course in such a garden, and such a pleasure, there can be few days in the year, if any, in

which something of interest may not be observed. It must not be thought that this "wild" yet skilfully regulated style of gardening, monopolises the attention. It is not so. On the architectural terraces associated with arcades, parapets, oriels, battlements, and other architectural features, are glorious patches of colour, framed by the dark green of the rich creepers by which the grey walls are everywhere draped. Even carpet bedding is not entirely neglected, and clipped Box reminds one of Chantilly and other places where a little formality is in harmony with the surroundings. Majestic Cedars add dignity to the terraces, but, alas! it is but too evident that their life is well-nigh run out. A London atmosphere is not so conducive to longevity as the slopes of Lebanon. And yet, as we have already said, there can be nothing less like London than Holland House and its gardens.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. TORING, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Cypripediums planted out.—There are oftentimes places in Orchid-houses where, owing to a variety of circumstances, it is undesirable to place plants in pots, and as a consequence they remain unoccupied. It is in these that the commoner species of *Cypripediums* might be planted. Again, where large quantities of cut bloom are required of the gardener, a portion of a stage might be used solely for planting-out purposes, the plants occupying less space when planted out, and growing and flowering better than in pots. It is essential that the stage should admit of moisture draining freely away, to which end a layer of crocks might first be placed upon the stage. The *Cypripediums* could be planted about four inches apart, in a thin layer of peat and sphagnum moss, mixed in the same proportions as for potted plants; so long as the plants stand erect it is enough, and the compost should not be made very firm, as then the roots soon penetrate the soil, finding their way amongst the loose materials. Being in such a thin and loose layer, water may be abundantly applied soon after planting without an injurious effect being apparent. Plants of *C. barbatum*, when treated in this manner, flower twice a year, and increase so rapidly that they have to be taken up and re-planted at wider distances apart at the end of two years.

Potting other Cypripediums.—It is an established fact that many of the warm-house *Cypripediums* make the most growth at the end of the summer and in early autumn, hence it is good practice to examine the collection of these plants, and re-pot or top-dress such as are not in good condition as regards the rooting medium, selecting however for renewal only those that are not expected to flower for some time to come. Re-potting is a matter of importance to these plants, as they soon suffer from a soured soil; moreover, the roots not clinging to the sides of the pots are not injured by re-potting. I cannot here specify which species should be operated upon at this season, and in regard to idiosyncrasies I can only advise that those whose roots go down well into the drainage should have a deep body of materials, and that shallow-rooting species should have only a thin layer. Bearing these peculiarities in mind, water should be afforded in inverse ratio to the depth of the compost. I have already given particulars of how I grow *C. bellatulum*, and the compost now given is a suitable one for this plant.

Sophronitis grandiflora.—*S. g. coccinea* and *S. g. rosea*, now making growth, should have water applied more frequently. These plants, when cultivated in the cool house, have thicker and more highly coloured flowers than when they are afforded high temperatures. Any of them which stand in need of new pans or fresh material may receive attention at this date. Let the pan be broken carefully, not attempting to detach adhering roots from the fragments; but placing these intact in the new pan, affording plenty of drainage, and surfacing the pan with a small quantity of equal parts of peat and sphagnum moss.

Cilogyne cristata requires much water at frequent intervals, alternated with diluted farm-yard drainings. In affording the latter, put the spout of the watering-pot amongst the leaves so that no deposit is left upon them.

Rain-water being essential for the successful cultivation of Orchids, its storage and economical use become matters of importance in such weather as that that we are experiencing. If the quantity of rain-water is not equal to the demand, it should be used solely for applying to the plants at the root and syringing, other water being used for damping-down, &c. In the event of rain falling, provision should be made that the water substituted for it should be exposed to the sun for a few days before making use of it; and to further fit it for use, a bagful of fresh soot should be immersed in the vessel, and twirled round in it once or twice when taking water for use.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Summer Pruning of Apple-trees.—The surplus growths of bushes and pyramids may now be shortened back to four or five leaves, in order to let in the sun to colour the fruits and ripen the new shoots. If the trees were disbudded in June, the amount of pruning required now, will be much less than would otherwise have to be done. Partial disbudding, especially of the inner branches of an Apple tree, has much to recommend it, and in gardens where the time can be found for the job, it is much to be preferred to the wholesale reduction of the growths at this season. Barren trees making gross shoots should not have the lateral growths pruned too closely, otherwise, and more particularly if continued wet weather should occur, a free second growth would follow. The laterals on such trees may be cut back to five or six leaves, and at the end of as many weeks root-pruning should be carried out (to be referred to again later on), with a view to inducing fruitfulness. If exhibition fruits are required, water must be afforded the trees, for no rain that we are likely to get at this season will have much effect in increasing the size of the fruits. Let the soil be afforded a good soaking with clear water, and afterwards one of weak liquid-manure, or scatter a small quantity of fish-manure or guano on the surface, and then apply water abundantly. A mulch of half-rotted manure is a great help this year, and it is not too late to apply it. An occasional overhead syringing will do the trees much good.

The Fruit-room.—As the storing of early fruits will shortly begin, the fruit-store should be thoroughly cleansed forthwith, the woodwork being scrubbed with soap and water, and rinsed with clean water afterwards. To make sure of removing all germs of decay, and to render the place wholesome and sweet, limewash the walls, and scrub the floors. When the work is finished, throw open doors and ventilators. An equable temperature is not always possible in fruit-rooms from lack of packing materials between the ceiling and the roof, if this consists of tiles or slates, and this is a matter that should now be remedied. The best kind of roof is one of reeds or of wheaten straw, which has been threshed with a flail. Straw or dry bracken makes good non-conducting materials wherewith to fill the space between the ceiling and a roof of tiles or slates. If the space be not filled, the straw, &c., should be, at the least, 2 feet in thickness, laid evenly, and kept close together by placing boards or poles upon it.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt Tisbury, Gloucester.

Zonal Pelargoniums.—The propagation of these plants should not be commenced later than the middle of the present month; and as at this season the plants have covered the ground, one or two cuttings may be taken from each without disfiguring them. A little care is wanted in taking cuttings, as the risk of damping off is considerably lessened if they are not bruised in any way, all are well matured, and not less than 6 inches in length. In preparing them make a clean cut with a sharp knife through the lowest joint, cutting all leaves close to the stem as far as the third joint, and removing the little stipules at the base of the leaf stalks. The cuttings are then ready for dibbling into the cutting-boxes, the compost for filling which was alluded to in last week's Calendar. The holes made with the dibber should be of a little larger diameter than the cutting, so as to prevent bruising when inserting the latter. Do not place the cuttings thickly together, fifty per box

being as many as boxes of the size described last should properly hold. In a crowded box the cuttings take a longer time to strike, and they are apt to damp off during the winter. As soon as the cuttings are placed in the boxes, sprinkle them with a fine rose watering-pot, and remove to a position fully exposed to the sun, where they may remain till the end of September. The boxes are best placed on ashes, bricks, or wooden rails, so that worms cannot enter them. Remove dead leaves from the cuttings, and apply very little water, thus inducing a hardy, sturdy growth.

Variegated and Bronze-leaved Pelargoniums.—Although these are rather more delicate in constitution than the zonals, they may be propagated successfully in the same manner. The tricolor section should be struck in 6-inch pots, which should be well-drained by placing small crocks 2 inches deep at the bottom, covering these with moss, or the rougher siftings of the soil. A compost of rich leam and leaf mould, together with some coarse sand, should be well mixed and passed through a sieve having a $\frac{1}{2}$ -inch mesh, and with this the cutting pots should be filled, six or eight cuttings being placed in each. Sprinkle the cuttings with a fine rose watering-pot, and remove to a cold frame fully exposed to the sun. In this position they may remain till the middle of the month of October; and however strong the sun may shine, it will not be necessary to shade them, but they should be protected from heavy rains by tilting the lights at the top and bottom. The cuttings often damp off if they have too much or too little water, an even degree of moisture in the soil necessary to success in striking them.

Heliotropes, Iresines, Ageratums, Alternantheras, Petunias, and other tender plants may be propagated in store pots, and kept intact for affording cuttings in the spring. They require bottom heat, and where there is not a special propagating house or pit they may be struck under hand-lights in a Cucurbit or Melon-house. A compost of finely-sifted loam, leaf-mould, and sufficient silver-sand to make it porous, should be pressed firmly into 5 or 6-inch pots, placing in these from six to eight cuttings, which in the case of the free-flowering varieties should be taken from the base of the stem; while in the case of ornamental foliage plants, these are taken from the points of the shoots. If shoots are plentiful, choose those with the shortest joints; and in dibbling them into the pots, arrange them so that they are a uniform height. The pots should be plunged up to the rims in either Cocconut-fibre refuse or fine coal ashes. After sprinkling them slightly with water, place the lights over them, and shade from bright sunshine.

FRUITS UNDER GLASS.

By W. SREUGNELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

Strawberries.—Many growers prefer to layer the runners into 60's, and repot when well rooted, using as the fruiting-pots small or large 32's, the small for the earliest fruiters. The repotting of the runners will, in many gardens, be finished ere this; those who have not potted the plants should do so forthwith, because when the roots of Strawberry-plants become cramped in a 60-pot, there is a danger of not obtaining a strong and early matured crown before the winter. If turfy loam of good quality is obtainable, scarcely anything else is needed; but when the loam made use of is rather deficient in nutriment, charred garden-refuse and decayed manure may be added, also bone-meal in the proportion of a 6-inch potful to one wheelbarrowful of loam. A few crushed bones spread over the drainage will provide food for the roots that reach part of the pot. Clickers from the stokehole, if broken into small pieces, are as good as crocks for affording drainage. The stacks of loam are now so dry that it would be advisable to prepare the necessary quantity of soil a day or two beforehand, moistening it so as to make it bind together when used, but not making it so wet that it forms a pasty mass. The plants of Royal Sovereign, Auguste Nicaise, Leader, and James Veitch, should be put into 7-inch pots; 6-inch may be adopted for any variety, but finer berries come from plants in larger ones. The soil should be made fairly firm in the pots with the ramming-stick, in order to prevent the roots passing too quickly into the drainage, and to ensure sturdiness of growth. When potted, stand the pots in a fully open area, crowding of the pots being avoided as far

as possible. The drainage is kept more perfect when the plants are stood on thin boards, coal-ashes, or lattice-work. If stood on coal-ashes, these should form a layer thick enough to exclude worms; and the plants must be turned round every fortnight, so as to hinder rooting into the ashes. Clean water only should be afforded the plants, and an overhead sprinkling at the close of hot days is of benefit to the plants, besides keeping red-spider in check.

Tomatoes.—The plants raised from seeds sown about a month ago being ready for potting off, this should be done singly, that is in the case of their being sown in ordinary seed-pans or boxes; but when the seed is placed to the number of two or three in small pots, it only remains to remove the weaker ones, and keep them rather close for a few days. When re-establishment is assured, a shelf close to the glass in a cool-pit will be the better place for them for a time. Tomato plants when placed at the sides of a flower-pot, appear to emit roots more quickly than when surrounded with soil. Firmness of the soil is not needed in the earlier stages, besides there is danger of the stems being bruised if the soil be pressed very tightly into the pots. If the plants are drawn owing to being crowded in the seed-pans, bury the stems up to the seed-leaves in the course of potting. Where a constant supply of Tomato fruits is required in the winter, more seed may now be sown, and the plants brought on under cool conditions, this being preferable to sowing later in heat; cool-grown and sturdy plants coming into fruit quicker than those unduly hastened. Cuttings may be rooted for winter fruiting if such a course is considered necessary, but seedlings are usually the more fruitful. The plants now in bearing, which are intended to supply fruit in the winter, should receive periodical surface-dressings of soil.

THE KITCHEN GARDEN.

By H. MARKEHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Celery.—Great attention must be paid to early and late planted Celery, copiously applying water to the plants three times a week, weak liquid-manure being used alternately with pure water. The surface will in most cases have got impervious to the air, and should be stirred with a short hand-hoe, not damaging the roots by going deeply, and some of the soil from the sides of the trenches may be broken down with much advantage to the plants. The earliest crop of plants may receive the first earthing up, but it should be a slight one. Before beginning, twist off a few of the lower leaves and suckers, then soak the soil, and wait a few hours before beginning to earth up. This kind of work should be done at intervals, never putting too much soil to the plants at one time, nor in stiff land pressing the earth too severely, otherwise the heads will become deformed. If any leaves are infested with the mining-maggot, remove them, and dust the leaves frequently with soot as a preventative against the fly settling on them.

Turnips.—The last sowings have made but little progress, notwithstanding the repeated applications of water and the frequent dusting of soot and lime they may have had, it will be of little use sowing again before we get rain, and then three or four varieties may be sown at one or two sowings. Extra early Milan, Snowball, and Yellow Globe, or Chirk Castle being suitable.

Herbs for winter should now be gathered up for drying, tying them in small bunches, and hanging them in an airy shed.

The Drought.—The protracted drought is telling on all vegetables, especially on light or shallow-cultivated land, and water should be afforded in quantity where it is plentiful. If the gardener has trenched and heavily manured his land, putting the manure down to a good depth, say two spits, the plants will suffer but little even if water has to be sparingly applied. This, in fact, is the only method by which good vegetables can be obtained in the summer months, and I would advise every gardener to carry out a good lot of trenching every year, commencing in October or November, or as fast as land is cleared of the summer crops. Until the rain comes, water must be afforded vegetables on fleet soils, especially to Peas, French Beans, Cauliflowers, Lettuces, &c.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER. Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

APPOINTMENTS FOR THE ENSUING WEEK.

SHOWS.

TUESDAY,	AUG. 22	Brighton and Sussex Horticultural Society.
WEDNESDAY,	AUG. 23	Shropshire Horticultural Fête, at Shrewsbury. Hampden Horticultural Society. Hastings Horticultural Society.
THURSDAY,	AUG. 24	Ellesmere Horticultural Society. Boston Horticultural Society.
FRIDAY,	AUG. 25	Royal Horticultural Society of Ireland, at Dublin.

MEETINGS.

SATURDAY,	AUG. 26	Dutch Gardeners' Society, at Richmond.
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SALES

MONDAY,	AUG. 21	Great Trade Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY,	AUG. 23	Important Sale of Lillium Harrisii, Roman Hyacinths, Palm Seeds, &c., at Protheroe & Morris' Rooms.
THURSDAY,	AUG. 24	Great Trade Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,	AUG. 25	Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period August 6 to August 12, 1899. Height above sea-level 24 feet.

1899.	AUGUST 6 TO AUGUST 12.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			AT 9 A.M.		DAY.		NIGHT.		RAINFALL.	
			Dry Bulb.	Wet Bulb.	Highest.	Lowest.	Highest.	Lowest.	At 1-foot deep.	At 2-foot deep.
SUN.	6	S.E.	68°	56°	73°	62°	69°	65°	61°	58°
MON.	7	S.E.	67°	55°	71°	62°	67°	65°	61°	56°
TUES.	8	S.S.E.	63°	54°	73°	57°	66°	65°	61°	55°
WED.	9	N.N.E.	60°	57°	70°	54°	66°	65°	61°	48°
THU.	10	E.	67°	60°	74°	51°	65°	64°	61°	48°
FRI.	11	E.N.E.	64°	56°	75°	49°	64°	64°	61°	39°
SAT.	12	E.N.E.	65°	53°	74°	51°	65°	64°	61°	42°
MEANS...			65°	58°	73°	55°	66°	65°	61°	49°

Remarks.—The weather during the week has been bright and very hot, with high winds, mostly from the east. A small quantity of rain fell on the morning of the 6th inst.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—61°.

ACTUAL TEMPERATURES:—

LONDON.—August 16: Max. 79°; Min. 60°.

PROVINCES.—August 16 (6 P.M.): Max. 75°, Channel Islands; Min. 53°, Sumburgh Head.

Fine, warm; no rain.

The Co-operative Festival.

WE are inundated with "copy," printed and manuscript, relating to this great institution, and did we publish it all, we should have no space left for anything else for weeks to come. We feel ourselves precluded from entering upon the political and commercial aspects of the case, but in spite of the pressure on our space, we may appropriately allude to some of the principal features of this great organisation. The flower-show, which will be held mainly on Saturday, will be alluded to in our next issue. For the present we confine ourselves to the exhibition of photographs. An inspection of these deepens our sense of their importance as object-lessons.

The exhibits this year are said to exceed a thousand in number, all more rather than less perfect. Such perfect reproductions of natural and artificial beauty must exert a most beneficial influence. Take for example the one class of thirty-three. For a set of four photographs entitled Spring, Summer, Autumn and Winter, in which, singularly enough, there were thirty-three entries expressing a degree of expression, and a variety of beauty, which must be seen to be appreciated. We venture to think this the most useful, as it is the most useful class of all the collections of garden views, of sylvan scenes of Lime Trees, and agricultural subjects. Collections of named flowers, &c., numbered a baker's dozen.

There were also eight excellent collections of fruit and vegetable subjects; nine curious collections of British birds and insects; eight for a pair of photos of an old and young gardener, &c. In the photos for horticultural merit there were thirty-three exhibits for florally-adorned railway stations, lessons of beauty and pleasure to all that travel; fifteen of workmen's town gardens, ten of cottagers' country gardens, fifteen large country gardens, fifteen window-gardens, twenty floral porches or archways, thirteen backyards rendered beautiful, and fifteen examples of rockery, arbours, or summer-houses. There are others for interiors of greenhouses or conservatories, Fern-cases, hanging-baskets, table decorations, watergardens, water-fountains, &c.; fountains, streams, &c. Neither must the number of entries be mixed or confounded with the number of exhibits, a dozen or more photographs being often included in one exhibit; and the views come from all quarters, as well as in the most profuse variety. For example, M. CRICKORN, of Arbroath, sends nine garden Ericas, Mrs. MARY MACLACHLAN of Blairgowrie sends six collections of flowers. Mr. J. MUNROE of Dingwall sends studies of six suites of birds, &c., of Ross-shire, as curious as interesting; three collections of garden-views of winter in the North, and a flower-study. Mr. GIBBON of Dunnaton sends four photos of parts of his uniquely large and beautiful golden Lily of Japan, *L. auratum*, with 500 blooms in bud or blossom this year. Last year the numbers were 438 blooms; in 1897 there were 291 blooms. The photos of this wonderful Lily are by Mr. STEEL of 227, Stirling Road, Glasgow. The loan collections of photographs are also rich and varied.

Another feature of the present exhibition consisted in the delivery of lectures on horticultural subjects by Mr. GORDON, of the *Gardeners' Magazine*; Mr. SANDERS, of *Amateur Gardening*; and Mr. D. T. FISH. Reasons of space alone forbid our publication of these excellent addresses, but in future numbers we may be able to lay before our readers some portions of these voluminous documents.

THE LOQUAT (*ERIOTRYA JAPONICA*) is amply worth growing in the southern counties against a wall, as may be seen at Kew (see Supplementary Illustration). Its handsome foliage renders it very attractive. The leaves are oblanceolate, toothed, leathery, deep green above, covered with fawn-coloured felted down beneath. The white, hawthorn-like flowers, which are rarely produced except under glass, are in terminal panicles, and have a hawthorn-like perfume. The fruits shown in our illustration are of a pale orange colour, with an agreeable sub-acid flavour. It is not commonly ripened in this country, but might be produced in a warm orchard-house. It is largely grown in

Japan and Southern China for its fruits, which are also sometimes met with in Covent Garden Market, under the name of Loquat.

THE ENGLISH ARBORICULTURAL SOCIETY.—The annual meetings of the English Arboricultural Society were held in London this week. The Society, the objects of which are the advancement of scientific and practical arboriculture in all its branches, and the dissemination of a knowledge of such branches of natural history as are connected with it, was formed at Hexham, near Newcastle, some eighteen years ago. This is the first occasion on which the annual meeting has been held in London. About 100 members, mainly from Northumberland and Durham, arrived in the city on Monday evening, 14th inst. Tuesday was devoted to an excursion, which embraced a visit to Osterley Park, the seat of Lord JERSEY; Syon House, the Duke of NORTHUMBERLAND's residence; Kew Gardens, and Richmond Park. The business meeting was held at the Manchester Hotel, Aldersgate Street, last evening, when Mr. GRAHAM (Durham), president of the Society, occupied the chair. The report of the secretary (Mr. J. DAVIDSON) showed that the membership of the society was 439, as compared with 417 last year.

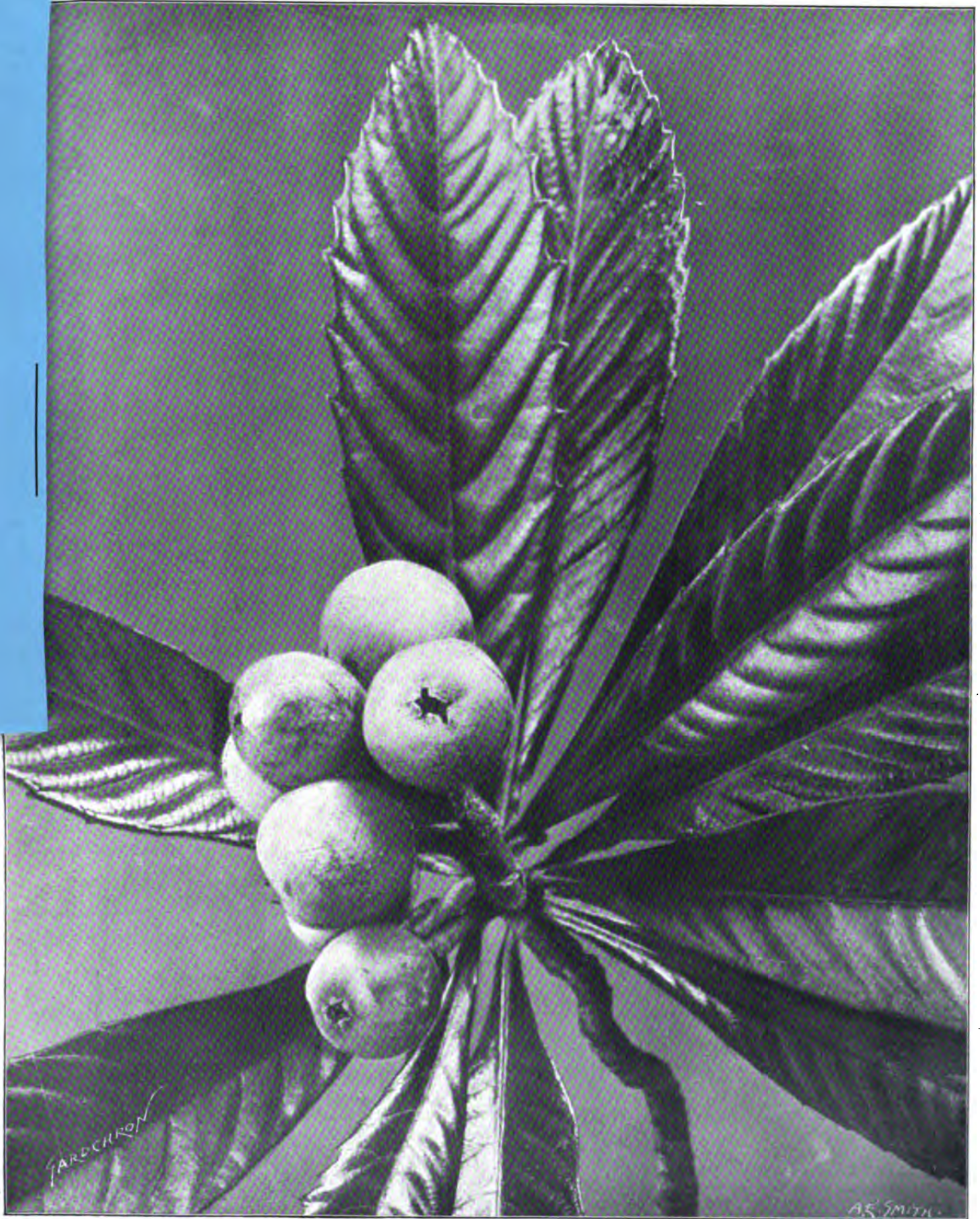
GLOXINIAS WITH DOUBLE COROLLA.—A correspondent sends us a photograph of a Gloxinia, in which the corolla bears on its outer surface petal-like outgrowths. These are not very uncommon, and to such a degree does the change occur sometimes, that two perfect corollas, one within the other, result. Figures are given in *Masters' Vegetable Teratology*. At one time it seemed as if the race were fixed, but of late years we have only seen incomplete forms, such as are represented in the photograph before us.

THE WEATHER in London on Tuesday, Aug. 15, was overpoweringly hot, 90° in the shade, and most oppressive. There was every appearance of a thunderstorm about 5 p.m., but the only storm was one of wind and dust. In Buckinghamshire and some of the Midland counties the storm was terrific. At Amersham the tents at the Horticultural Show were overthrown.

THE "JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY."—The first part of a new volume (the twenty-third), is before us. It is principally remarkable for the change in size, which is now a large 8vo. The appearance is certainly more imposing, and it will allow of the insertion of larger illustrations, but we do not think librarians will accord their benediction to the innovation. The present part, among many interesting papers, contains Mr. SPENCER PICKERING's account of the Woburn experiments, Mr. NORMAN's paper on the culture of *Asparagus*, Mr. HOOPER's narrative of a year in the orchards of Nova Scotia, together with an abstract of the proceedings of the Society.

THE MISSOURI BOTANICAL GARDEN.—The tenth annual report, to March 30, 1899, of the Missouri Botanical Garden, is now before us, and is a highly satisfactory record. The papers included in the publication are:—"Grasses in the Bernhardt Herbarium," by F. LAMSON-Scribner; "Sclerotoid Disease of Beech-roots," by HERMANN VON SCHRENK; "Biographical Sketch of EDWARD LEWIS STURTEVANT (with portrait)," by C. S. PLUMB; a list of publications issued and received, and a full index. The volume is illustrated with handsome and accurate plates.

THE "KEW BULLETIN."—Nos. 145 to 148 of the *Bulletin of Miscellaneous Information from the Royal Gardens, Kew*, have been recently issued. The contents deal with:—Cacao Disease in Trinidad, Nectria Baini (with plate), Coccid Pests on Sugarcane, and Moss Flora of the Royal Gardens, Kew, by Mr. E. S. SALMON; a descriptive notice and an illustration of *Agaricus melleus*, by Mr. MASSEE, is given. A short note is given on the artificial production of India-rubber by Professor TILDEN, which, though at present of scientific interest only,



ERIOBOTRYA JAPONICA (LOQUAT).

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may ultimately prove of commercial application. Other articles are not only intrinsically important, such as that showing that the percentage of sugar in the cane varies, and may be selected independently of reproduction from seed, but also noteworthy as showing the multiple interests served by the great establishment at Kew.

THE "JOURNAL OF THE KEW GUILD."—We are delighted to receive the number of the Journal, dated May, 1899, because we think it calculated to form an admirable bond between past and present workers in the garden. The remembrance of old friendships is renewed by it, new ones are formed, and the garden itself, of which Kewites with justice are so proud, cannot fail to benefit by this association and this journal. The present number opens with an excellent portrait of Mr. HEMSLEY, now the keeper of the herbarium, but who has worked his way up without adventitious aid, and in spite of drawbacks, from the position of "young gardener" to the keepership of the most important herbarium in the world, and to the fellowship of the Royal Society. The portion of the report most interesting to the home reader, already more or less familiar with what is going on at the present time in the garden, is that devoted to the doings and sayings of old Kewites in various parts of the world. Some of these were obviously not intended for publication, and should have been "dressed" by the editor. A fine illustration shows the whole length of the temperate-house as now completed, having a length of 628 feet, and a width of 164 feet, thus constituting the largest plant structure in the world. The entire number is most interesting, and may be read with pleasure, not only by old Kewites, but by outsiders.

ROYAL BOTANIC SOCIETY.—The annual report of the Society states that the establishment of a club, like the Welcome Club, within the gardens has proved a source of increased strength to the garden. It may be so, but for how long? We know by bitter experience the probable result of such undertakings. A proposition was made that the teaching of botany should be undertaken; but this was met by a statement, very extraordinary as coming from a Royal Botanic Society, that it was impossible to teach botany in London, as many of the commoner plants would not grow in London. We should have thought that the commoner plant, that is, the better adapted to varied conditions, more likely would it be to succeed in London. Besides, we take it there are, and always have been, more botanical students than anywhere else in the kingdom; and the report before us shows that 50,000 specimens were distributed in the past year among students from the garden itself, which surely has many facilities for teaching purposes. There is no objection *per se* to clubs and fêtes and amusements of any kind, even to the dressing of donkeys at proper places; but these are surely not the proper work of a "Botanic" Society with a Royal charter, nor do we think that the property of the Crown should be devoted to such ends.

A HORTICULTURAL UNIVERSITY.—M. VAN HULLE, in alluding to this matter, which formed a subject for discussion at the late meeting in Ghent, says very decidedly a horticultural university is not to be desired. For one learned theorist that is turned out, there should be hundreds of skilled practitioners. From M. VAN HULLE'S point of view, it would indeed be undesirable to turn out a race of half-educated men. The more highly educated the pupil, the poorer horticulturist he is commercially speaking. This is M. VAN HULLE'S opinion, and it is one with which most practical men will sympathise. We may nevertheless point out that there are other points of view. The man that, having been educated, and specially the one that has been trained, but who cannot apply his knowledge when the time comes, has either been badly taught, or he is mentally defective. The skilful practitioner that M. VAN HULLE wants to see, and that in a sense we all want to meet, is

only useful as a practitioner. He is simply a hewer of wood and a drawer of water. No progressive improvement in the art of horticulture can be expected from him, not even the reception of new ideas, nor the adoption of new methods. It is no part of the functions of a university to turn out "practitioners;" but it is the duty of a university so to equip its students, that they may become when opportunity offers not only practitioners, but pioneers.

EXPORT OF JERSEY POTATOS FOR SEASON 1899.—The following table of exports from Jersey during 1899 will impress our readers with the great importance of the tuber to the inhabitants of that island. Statistics of the total weight, value, &c:—

Weekly Shipments.	No. of Packages.	Tons.	Average Weekly Price per ton.	Weekly Total.	Year.	Comparative Statement.
May 1 to May 6	609	15	£ 4. d.	£ 4. d.	1893	36,468
May 8 to May 13	5,307	140	30 0 0	8,640 0 0	1894	86,655
May 15 to May 20	15,029	350	22 19 4	12,172 6 8	1895	48,524
May 22 to May 27	51,600	2,000	14 6 0	28,600 0 0	1896	64,890
May 29 to June 3	157,490	6,775	8 11 2	57,982 14 2	1897	50,078
June 5 to June 10	198,217	11,015	4 13 2	51,311 10 10	1898	60,988
June 12 to June 17	312,988	11,735	4 11 0	58,364 6 0	1899	52,700
June 19 to June 24	306,207	12,790	4 15 4	60,965 13 4	1890	54,109
June 26 to July 1	175,092	10,170	3 0 8	31,000 13 4	1891	66,810
July 3 to July 8	118,073	6,900	3 2 10	21,928 16 8	1892	57,762
July 10 to July 15	44,110	2,593	8 3 11	8,303 3 9	1893	60,005
July 17 to July 22	4,116	215	2 15 3	676 16 8	1894	54,390
Total	1,106,107	55,010	.....	350,421 0 0	1895	43,583
					1896	43,192
					1897	40,274
					1898	336,269
					1899	350,421

EXAMINATIONS FOR YOUNG GARDENERS.—Very frequently we hear these decried as of no use to practical men, or at least we hear the demand for a practical test as well as for a written one. Does it ever occur to these objectors that the use of education, and of examinations, is to develop a youth's mental powers so that he may not only gather knowledge, but know hereafter how to apply it? Purely practical work demands practice, and necessitates experience. How can you expect a tyro such as those who come up for examination, to be experienced? You must wait for that, and in the meantime do the best you can to ensure that the experience when it comes, shall be turned to account. There are some people who always want to move round in the same track, in the same way, and at the same pace. These men can be no better than their predecessors—not so good, indeed, for they are not able to avail themselves of their improved opportunities.

SALE OF POISONOUS WEED-KILLER.—Recently, before the Worcester County Court, the Council of the Pharmaceutical Society were the plaintiffs, and JOSEPH H. WHITE was the defendant, in an action in which the Society claimed a penalty under the Pharmacy Act against the defendant

for having "sold or kept open for the retailing, dispensing, or compounding of poisons," arsenic contained in and forming part of a compound known as "Climax Weed-killer." During the hearing of the case it was shown that the weed-killer was not directly sold by the defendant, but ordered by him from a company in Liverpool, by whom it was sent direct to the customer. The judge (Sir R. HARRINGTON) pointed out that the defendant was only an agent for persons at a distance, and did not himself stock or deliver the goods in question, nor hand any part of it over the counter to a customer; therefore, he (Mr. WHITE) had not subjected himself to any penalty. It was the Chemical Company who had broken the law, if anyone had done so. Leave to appeal was asked, but his Honour said he would consider that matter.

RENNES.—A good many people feel considerable interest in the proceedings now taking place in this city. We are not less human than our fellows, still, it is not for us to comment on the "affaire;" but we may remind our readers that the experiments on grafting, of which we have frequently spoken in our columns, were made in this city by M. DANIEL, a professor in the Lycée. The record of M. DANIEL'S experiments and inductions have been published, with numerous illustrations, by Messrs. MASSON, of Paris. Probably we shall again allude to the subject.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The annual garden fête, by kind permission of A. MORDAN, Esq., on behalf of the above, was held recently in the gardens of Stone House, Reigate, and we are glad to hear that the handsome sum of £31 10s. was realised, which has been forwarded to the Institution by Mr. GEO. STEER, to whose exertions the success of the fête was mainly due. A sum of £5 5s. has also been received from the Sandringham Flower Show Committee, through Mr. A. MCKELLAR.

"BOTANICAL MAGAZINE":—

Aloe Schweinfurthi, Baker, t. 7667.—A magnificent species with tufts of fleshy, lanceolate, acuminate leaves, remotely toothed at the margin, and tall, much-branched, many-flowered panicles of orange and yellow flowers. The species was found in the Nyam-Nyam district of north-east tropical Africa, on the confines of the Bahr el Ghazal (see *Gardeners' Chronicle*, 1898, i., p. 197, fig. 76). It flowered in the gardens of Commander HANBURY, at La Mortola, in the Genoa Riviera.

Heliophila scandens, Harvey, t. 7668.—Almost, if not quite, the only twining Crucifer known. The leaves are simple, lanceolate, and the whole plant has much the appearance of *Solanum jasminoides*. It is a native of Natal, but flowers in the succulent-house at Kew.

Aster Piccoli, Hooker f., t. 7670.—A new species of *Aster*, native of Northern China, with canline leaves, sessile, oblong, coarsely toothed, and lilac flower-heads with a yellow disc. Native of Shen Si, in Eastern China, where it was discovered by Father PICCOLI, and flowered at Kew.

Ephedra altissima, Desfontaines, t. 7671.—See *Gardeners' Chronicle*, 1890, vol. i. p. 791, f. 129.

Mussaenda capulifera, Balfour, t. 7662.—A stove shrub, with leaves sessile, lanceolate entire; flowers white, in terminal heads; corolla-tube long, slender (1 to 1½ in.), expanding into a circular flat, 5-lobed limb; the lobes obovate, narrowed at the base, notched at the rounded apex. Discovered in Socotra, by Prof. J. B. BALFOUR.

"CONGO" STICKS.—According to a recent number of the *Kew Bulletin*, the sticks so called are only saplings from the sweet Chestnut, *Castanea sativa*, the bark of which is lacerated to produce the markings, for which the sticks are valued. The sticks come mostly from Croatia.

STRAWBERRIES.—A correspondent of the *Journal of Greengrocery* gives his experience as to the productiveness of Strawberries grown in the open after having been forced. He planted out a

bed of Royal Sovereign immediately they came out of the forcing-house in April, and they bore in due season a good crop of fine fruit.

ANOTHER HORTICULTURIST HONOURED.—We are informed that Mr. H. E. MILNER, the eminent landscape-gardener, has been created by H.M. the King of Sweden and Norway, a Knight of the Order of the Northern Star. Mr. MILNER has carried out important work for the King at the Djur-gaard at Stockholm, and it is very satisfactory to his countrymen to find him honoured in this way. Mr. MILNER is also engaged in carrying out several works in Denmark.

RECORD FRUIT SALE.—At Paddock Wood, on Wednesday, August 9, Mr. W. R. TOMPSETT held his thirtieth annual sale. There was an enormous attendance of buyers from all parts, and the competition was almost unlimited. Some of the orchards realised from £50 to £60 per acre, while several large growths made £50. Mr. ISAAC READER's celebrated Old Hay growth again created great attraction, finally realising £2500. Almost every lot found a purchaser, making a grand total of £7000.

THE TRIANON.—The *Daily News* French correspondent says:—"I was sorry to hear that a short time since a magnificent Lombardy Poplar, planted 110 years ago by JUSSIEU, was blasted. It was the only survivor of the Poplars that he planted at the Trianon, in November, 1789. He and MARIE ANTOINETTE marked the spots destined for them on the very day that the market-women of Paris marched on Versailles to take the Royal Family to Paris as hostages. The heat was 104° F. just before the storm broke. In a few minutes the thermometer fell 15°."

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION IN BRISTOL.—Thanks to the kindness of Mr. FRANCIS TAGART in allowing his gardens at Old Sneed Park to be opened to the public on Wednesday afternoon and evening, August 10, the funds of the Gardeners' Royal Benevolent Institution will benefit appreciably. A small charge, in aid of the Institution, was made for the admittance of visitors to the grounds, which, in an unostentatious way, is doing a valuable work. During the sixty-one years the parent Institution has been in existence, it has distributed no less than £80,000 in the relief of distressed gardeners and the widows of gardeners. The Bristol Auxiliary was formed six years ago, and Mr. J. H. LOCKLEY is the president, Mr. GEORGE HARRIS (of the Zoological Gardens) being the secretary. Gatherings such as that of Wednesday not only have a value peculiarly gratifying to the Treasurer of the Society, but they afford the opportunity of viewing under pleasing conditions some of the most charming gardens in and around Bristol. This was the third time Mr. TAGART had thrown open his grounds, and, with brilliant weather prevailing, there was a large attendance. [The following letter is addressed to the craft and general public of Bristol and Bath and the neighbourhood, by Mr. W. A. GARAWAY, of the Durham Down Nurseries, Clifton, and chairman of the Bristol Auxiliary of the Gardeners' Royal Benevolent Institution:—

"GARDENERS' ROYAL BENEVOLENT INSTITUTION, BRISTOL AND BATH AUXILIARY.

I am desirous of calling your attention to the claims of the Gardeners' Royal Benevolent Institution. If you subscribe 21s. per year (5d. per week), for fifteen years to the Charity, you will at sixty years of age, if incapable through illness or accident, of earning your living, be eligible for a pension of £20 per annum, and if the funds of the Society permit, will be granted that amount without any election. You may say, "I cannot afford 21s. a year." Very well then; become a member of the Bristol Auxiliary, a subscription of only 2s. 6d. per annum. This Auxiliary has been in existence six years, it is the first that was founded, and during that time it has enabled over forty gardeners to become life-members of the parent society, and a life-member of fifteen years' standing is in the same position as an annual subscriber of 21s. for fifteen years. Our way of working is this: about October or November, when we think we can correctly estimate our income, we let all the subscribers know that we are ready to elect a certain number, those who wish to be candidates send in their names voting papers are sent

to all subscribers; those who receive the greatest number of votes are informed that if in two months' time they can find £5 5s., our Auxiliary will find the other £5 5s., and so make them life members of the Gardeners' Royal Benevolent Society. The subscription is not burdensome; if you do not think you are likely to want the Society's help, you will, if you subscribe, have the satisfaction of knowing that you have helped those who have needed it. I believe that if every gardener in England subscribed 21s. a year, all the candidates for the pension could be elected (this year there are thirty applicants waiting). It is too much to expect that all should subscribe this amount, but I do think that every gardener in this neighbourhood should pay his 2s. 6d. per year to the Auxiliary. Read Mr. OWEN THOMAS's letter to the *Gardeners' Chronicle*, which I enclose; and not only join the Society yourself, but try to get any of your friends who are not members to join too, and bring the Society's claims under the notice of your employer."

A GIGANTIC CARPET-BED.—A huge carpet-bed is the chief decorative feature of the lawn at Old Sneed Park, Bristol. The bed, 37 yards in circumference, contains about 20,000 plants, thirteen distinct species and varieties being used in outlining and shading an elaborate device, which includes the Tagart coat-of-arms; while over the centre of the bed towers a mass of flowering plants grouped within a huge vase.

LANDING OF DOGS FROM IRELAND.—The Board of Agriculture, 4, Whitehall Place, S.W., has lately issued a memorandum as to the conditions prescribed for landing dogs from Ireland in Great Britain to prevent the introduction of rabies. As these conditions "require the detention of the dog for a period of six months on some suitable private premises to be specified by the owner and approved by the Board," and further necessitate a certificate from a veterinary surgeon that the dog is not affected with or suspected of rabies, it is advisable that all persons purposing to travel with, or to send a dog from Ireland to Great Britain, should announce their intention to the Board early, that they may receive a copy of the regulations, and have time to comply with their requirements.

PARIS EXHIBITION.—The regulations and programme of the permanent and of the periodical horticultural shows to be held in connection with the Paris Exhibition in 1900 are now ready, and can be obtained on application at the offices of the Royal Commission, Paris Exhibition, 1900, St. Stephen's House, Westminster, S.W. The Secretary, Mr. HERBERT JEKYLL, announces a meeting to be held at the Crystal Palace on September 28, at 3 o'clock, with a view to further the success of the horticultural section, and to make its objects generally known.

M. MICHEL.—H. M. the King of the Belgians has conferred the honour of Chevalier of the Order of Leopold upon M. MARC MICHEL, a gentleman who is at once a learned botanist and a skilled cultivator. His garden at the Château du Crest, near Geneva, is known to many, and its treasures have been enumerated in an excellent catalogue arranged with scientific precision.

THE STAR ANISE.—Mr. FORD points out that Sir JOSEPH HOOKER's correction has not generally been attended to. The plant yielding the Star Anise of commerce is *Illicium verum*, Hooker f., not *I. religiosum*, Siebold. See *Bot. Mag.*, tab. 7500.

RHODOLEIA CHAMPIONI.—Until last year, says Mr. FORD in his Report for 1898 of the Hong-Kong Botanical Department, this tree was only known to grow on one of the hills in Hong-Kong. But among Dr. HENRY's specimens gathered near Mengtse, in Yunnan, are specimens of this beautiful tree, which is not so rare as it was supposed to be.

AN OLD SERVANT.—Mr. J. C. GOULD, director of CHARLES SHARPE & Co. (Limited), Sleaford, completed on the 8th inst. his fifty years of continuous association with the firm, having been apprenticed on August 8, 1849, to the founder of the business, the late Mr. CHARLES SHARPE's father, who commenced business in a small way in Sleaford in the early part of the century, and was succeeded in 1852 by his son the late Mr. CHARLES SHARPE,

whose business qualities, energy, and force of character raised the firm from the position of a small country house to that of one of the leading seed firms in the world. Mr. GOULD, who will be sixty-five in November, and who has just been through Canada and the United States on behalf of the firm, promises to have yet many more years of usefulness.

PUBLICATIONS RECEIVED.—*Catalogue of the African Plants collected by Dr. F. Welwitsch from 1853–61*, vol. II., part 1; Monocotyledons, and Gymnosperms, by Alfred Barton Rendle (London: Printed by order of the Trustees, British Museum, Cromwell Road).—*Anne Pratt's Flowering Plants*, vol. VII., Nos. 8 and 9. Edited and revised by Edward Step. (Warne & Co., Bedford Street, Strand).—*Bulletin of the Botanical Department, Jamaica*, July, includes communications respecting Rice in Jamaica, Sugar-cane industry, and supply of Cinchona-bark.—*Proceedings of the Academy of Natural Sciences of Philadelphia*, 1899, part 1, January to March. This includes a paper by Thomas Meehan on the Life-history of Plants, and dealing with Sex in Flowers; *Corylus rostrata*; *Clethra alnifolia*, in relation to its Morphology; *Sanicula*, a biological study; *Rosa rugosa* in connection with the evolution of form; *Viola*, in relation to pollinisation and fecundation; *Stipular glands of Isarda palustris*; *Parthenogenesis*; *Lactuca scariola*, variation and vertical position of its leaves; *Stigma of Asclepias*; Influence of Fungi on the forms and characters of plants, &c.—*Transactions of the Massachusetts Horticultural Society for 1898*, part 2. This contains the reports of various meetings, and of the committees on plants, flowers, fruit vegetables, and gardens.—*Phanerogama et pteridophyta Japonica iconibus illustrata* (Tokyo), June 8, and *Cryptogama Japonica iconibus illustrata* (Tokyo), June 10.—*Toogood's Vegetables out of Season in every Garden*, and *Toogood's Beautiful Beds for every Month*. These are two useful pamphlets, price 6d. and 2d. respectively, containing many valuable hints.—*Fruits suitable for the Low Country*, and *Moderate Elevations*, by H. F. Macmillan, Curator, Royal Botanic Gardens, Peradeniya, Ceylon, June, 1899.—Department of Agriculture, Sydney, New South Wales, Miscellaneous Publication, No. 301. *Weeds of New South Wales* (systematically arranged), by J. H. Maiden; and Miscellaneous Publication, No. 302. *A variety of Panicum decompositum*, by J. H. Maiden.—*Fifth Annual Report of the Fruit Experiment Stations of Ontario*, 1898 (Toronto).—*Thirtieth Annual Report of the Fruit-growers' Association of Ontario*, 1898 (Toronto).—*Kew Bulletin*, May and June.

PLANT PORTRAITS.

BIDENS CONNATA, *Mechan's Monthly*, t. 7, July, 1899.
DIMORPHOTHECA ECKLONI, *Revue de l'Horticulture Belge*, August.
IRIS BISMARCKIANA, hort. syn., J. Sari nazarena, *Tijdschrift voor Tuinbouw*, v., t. 22.
IRIS GATEII, Foster, *Tijdschrift voor Tuinbouw*, vol. v., t. 1. See Foster, in *Gard. Chron.*, 1890, II., p. 18, f. 3.
KEMPFERIA ROTUNDA, *Revue de l'Horticulture Belge*, August.
PHYLLOCACTUS TRIUMPHES DES AUTHIEUX.—A splendid variety of *C. apiculissimus*, raised by the late M. Schlumberger at Des Authieux, near Rouen. Flowers red and crimson. *Revue Horticole*, August 1.
TULIPA SAXATILIS, *Garden*, August 5.

HYBRIDS AND THEIR RAISERS.

(Continued from p. 128.)

LYCHNIS WALKERI.—In the interesting series of articles appearing in the *Gardeners' Chronicle*, the Rev. C. Wolley-Dod referred to this hybrid *Lychnis*, known to many as *Agrostemma Walkeri* ×. Although I have saved seed from it I have not flowered any seedlings, so that, like your contributor, I am unable to tell whether or not its seedlings come true, or revert to one or other of the parents—*L. coronaria* and *L. Flos-Jovis*. As a garden plant the hybrid is a very useful one, flowering as it does for a considerable time, and giving a number of its bright pink flowers. These are in general appearance very like *L. coronaria*, but the leaves are more woolly than that species, and more closely resemble those of *L. Flos-Jovis*. Mr. Wolley-Dod kindly sent me this plant several years ago, and recommended me to propagate it by cuttings, which I have done. These are usually easily obtained at the base of the plant. With me *L. Walkeri* is not quite so tall as *L. coronaria*. (See *Gardeners' Chronicle*, July 16, 1887, pp. 79 and 101.

MR. J. C. LEY'S HYBRID POPPY.

One often observes offered so-called hybrid Poppies, but these are generally either seedlings of *Papaver orientale*, or crosses with the variety *P. o. bracteatum* and thus not true hybrids, but cross-bred



FIG. 53.—THE TAMARISK AVENUE, ABBOTSBURY. (SEE P. 142.)



FIG. 56.—NEW ROCKERY, ABBOTSBURY, FIRST YEAR AFTER COMPLETION. (SEE P. 142.)

plants. This remark is not made with the intention of belittling these Poppies, many of which are not only beautiful, but are of great interest as showing the variations which may be raised by simple seedling-raising or cross-breeding. The Poppy raised by Mr. J. Carrington Ley, and which, so far as the writer is aware, has no other name than that which heads this note, is apparently a true hybrid. It was referred to by Mr. Wolley-Dod, who spoke favourably of it. Here it has that characteristic which was, erroneously, at one time said to be a mark of hybrid origin, i.e., it does not produce seeds; while the so-called hybrids do so with freedom. I have frequently examined the capsules, but have never seen fertile seeds. As Rev. C. Wolley-Dod has indicated, this *Papaver* is better when it has grown into good-sized plants. The first year it flowered here, one felt disappointment with regard to it, but now that the plant has grown to a good size, one appreciates it highly. The colouring is much like that of a light-coloured *P. orientale*, but its other parent, *P. rupifragum*, seems to have taken away the blotch at the base, which is nearly always apparent in the varieties of *P. orientale*. The habit is dwarf, and is, upon the whole, good.

MIMULUS BURNETI X.

This is a hybrid which I have not grown, but which I recently saw in the garden of Mr. Robert Lindsay, at Kaimes Lodge, Edinburgh. It was raised, I believe, by Dr. Burnet, of Aberdeen, and has for its parents the Chilean *Mimulus cupreus* and the North American *M. luteus*, which in some districts by escapes from gardens, has become quite naturalised. To the former, it seems to owe its dwarf habit and some of its colouring; while to the latter is due its greater hardiness. It apparently grows a little taller than *M. cupreus*, and the colour is a rather nice orange-yellow. In Mr. Lindsay's garden, *M. Burneti* looks a capital grower, and as if it would prove a plant of great value in the many gardens where the Chilean *Mimulus* is not hardy enough to stand the winter in the open.

VERONICA LINDSAYI X.

There are already several garden hybrids of the shrubby Veronics, but this, which was raised by Mr. Robert Lindsay, is of considerable interest by reason of a number of seedlings from it having retained the pink colour of their parent. The parentage of *Veronica Lindsayi* is not known with certainty; but Mr. Lindsay, who, as many are aware, has made a special study of the New Zealand Veronics, is of opinion that it is the result of a cross between *V. amplexicaulis* and *V. pimeleoides*. As indicated, *V. Lindsayi* is pink in colour, and from it a large batch of seedlings have been raised, with similarly-coloured flowers. There is some difference in habit, but not so much as might be expected. It looks as if the shrubby Veronics would, in course of time, give as much trouble in their nomenclature as the herbaceous species and their varieties have done. Several other hybrid hardy flowers have come under my observation from time to time; but probably I have said enough at present. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

(To be continued.)

NURSERY NOTES.

THE BRIGHTON AND SOUTH COAST HORTICULTURAL COMPANY.

THIS successful nursery may be described as a typical Worthing establishment, with the addition of good showy Orchids, devoted to fruits, of which Peaches are made a specialty, Tomatoes grown to perfection, Cucumbers which seem to come on in their season almost as fast as they are cut, showy flowers which can be produced in quantity, such as the Carnation, and some other hardy flowers

and Chrysanthemums, of which the white and yellow varieties of *C. Marie Desgranges* (principally white) are represented by some 37,000 fine specimens. Experience has taught Mr. Grogan, the clever and genial manager of the establishment, that these things well grown never fail to pay.

In the earlier days of the establishment, provision was made to give greater variety to the stock, and to introduce innovations in the Worthing culture, and other things were grown with varying success; but each in turn has been abandoned in favour of the old favourites, which produce "the nimble ninpence," except the showy Orchids, useful for cut flowers, and these, although tended in the manner usual with large batches of stock kept for market purposes, are in the finest condition possible, and promising a magnificent display of flowers, each in its season. The main house, a long, broad, span-roofed structure, contains principally *Cattleya Trianaei* for the greater part, and *C. labiata autumnalis* in smaller quantity. Both are pleasant to behold, and especially the great quantity of *Cattleya Trianaei*, with their stout pseudo-bulbs, and hard, thick leaves, each of the leading ones bearing a flower-sheath, the whole equal to anything of the kind in cultivation. Equally good are a smaller lot of *Cattleya Dowiana*, *C. aurea*, and other showy kinds, all of which are grown in comparatively small pots. The plants are closely arranged together, and so situated, one would hardly expect them to thrive so well; but Mr. Grogan finds no trouble from the close arrangement, as a clear light on all sides seems to counteract any bad results in that direction. The house is a large one, and airy in itself, but great care is taken in ventilating to avoid causing currents of air, consequently the top ventilators are seldom opened, and the lower ones very carefully adjusted. There is little doubt that a too free use of the ventilators, especially the top ones, causes the unsatisfactory state of things seen in some collections of Orchids. A fine batch of *Lælia purpurata* is also in grand condition; a quantity of varieties of *Lælia anceps* profusely sending up spikes. So also a batch of *L. albida*, *L. autumnalis*, *L. Perrini*.

In the cool-house is a good lot of *Odontoglossums*, the *O. crispum* contributing a number of good spikes.

LAW NOTES.

SALE OF PLANTS BY A GARDENER.

AT the Chichester County Court, on Wednesday, his Honour Judge Martineau had before him the case of Abraham v. Mrs. W. Cox, of Bognor, which was an action brought by a gardener for the recovery of the sum of £13 2s. 6d., made up as follows: Two weeks' wages, £2 10s.; month's wages in lieu of notice, £5; amount received by the defendant in respect of plants sold by plaintiff, £4 15s.; at half cost of removal of furniture from Runcton to Bognor, 17s. 6d.

In opening the case, Mr. Gregory, solicitor, stated that his client answered an advertisement, and was engaged by Mrs. Cox as gardener in September last. His weekly wages were to be 25s., with a month's notice on either side, and there was no agreement that plaintiff in his own time might not do business on his own account. It was also alleged that there was a promise on defendant's part to pay half the cost of removing the gardener's furniture when he went to Bognor. In April last, a gentleman named Rawson, who had recently come to reside at Bognor, went to Mrs. Cox's garden, and wished some plants to be supplied to him. He was seen by Abraham, who told him that Mrs. Cox had no such plants on hand. He undertook, however, to supply them privately on his own account, and, having received an order from the gentleman in question, procured the plants from a Chichester florist, and supplied them to Mr. Rawson for £4 15s.

Plaintiff bought the plants with his own money, but later on, when he sent in his bill, Mr. Rawson gave a cheque for the amount to Mrs. Cox.

The defence set up by Mr. Staffurth was that there was a deliberate breach of trust on the part of plaintiff. The gentleman (Mr. Rawson), to whom he supplied the plants, was a stranger to Bognor, and did not know what he was dealing with the proprietor of the gardens. When he found out that the plaintiff was merely a servant, he forwarded the cheque to the mistress for the plants, who had retained it, pending the decision of the Court. As to the removal of the goods, Mr. Staffurth altogether repudiated any agreement on the part of his client.

Mr. Rawson, a member of a firm of solicitors practising in London and Yorkshire, who had recently taken the residence known as Graigwell, Aldwich, was called to give his version of the affair, and said that at the time he bought the plants, he had no idea that he was dealing with a servant. Being a stranger, he did not know that Mrs. Cox was the proprietor of the gardens, and the plaintiff said nothing to him about Mrs. Cox. When he found out the true circumstances of the case, he came to the conclusion that it was a most improper thing for a man to do. He wished, emphatically, to state that he should not have given an order knowingly behind the back of a principal. He was entirely opposed to such a course. At the time he called at the garden he supposed that Abraham was the master. There was no name over the garden.

In giving his decision, the learned judge said he had no doubt whatever about the matter. It was the duty of the plaintiff, as a servant, to do the best for his employer, and, if possible, to expand the business, and not to enter into transactions which would interfere with, or deprive his employer, of business. When Mr. Rawson found out whom he had been really dealing with, he was perfectly justified in paying the money to the owner of the gardens where he had ordered the plants, and plaintiff's only claim against Mrs. Cox could be for the value of the plants, which he paid for out of his own pocket. He considered that plaintiff was entitled to no wages when he had been acting irregularly, and he disallowed entirely the claim for the month's notice. It was one of the worst kinds of misconduct for a person trusted to do business for his employer's benefit, to transact things on his own account, and deprive his employers of a customer. Indeed, he thought it was the worst sort of misconduct, short of actual dishonesty, that anyone could be guilty of. It was treachery. He had come to the conclusion that the plaintiff was properly dismissed, and he should disallow his claim from beginning to end. His Honour, however, intimated that plaintiff should have refunded to him the money he had paid out of pocket for the plants, &c., and it was understood that this would be done.

Judgment was then entered in favour of the defendant, with costs, the money in court to be retained until the costs had been taxed.

HOME CORRESPONDENCE.

APPLE GREENUP'S PIPPIN, OR YORKSHIRE BEAUTY.—Having seen how finely this Northern Apple fruits at Ruxley Lodge, Esher, on a stiff clay soil for the past three years, I have been surprised not to find it mentioned under either designation in either Messrs. Veitch's or Bunyard's lists. Yet such faith have I in the variety, as has also that fine old gardener, Mr. J. Miller, that were I putting down on stiff land Apples largely, I should certainly plant more of this variety than any other. The trees, some three or four dozen, planted some eight years since with several hundreds of others, in variety, are moderately high standards, healthy, but not strong growers. Every tree of the variety is fruiting well, some remarkably so; no other variety is fruiting so generally. Were this produce of one season only, less could be said; but after

seeing the trees for three years, I am assured that it is one of the best general main crop Apples in cultivation. In the *Fruit Manual*, Dr. Hogg refers to the variety as doing well on the Hastings sands, and from that fact draws the conclusion that it should be strongly recommended for light soils. The soil at Ruxley Lodge is of the stiffest clay in the county of Surrey, but is probably well drained, as all the varieties of Apples and Pears growing in the great orchard do well, the only evidence of canker being on a tree of Lord Suffield. But if Greenup's Pippin may be assumed, in a somewhat low-lying yet exposed position, to owe its fruitfulness during successive seasons to the hardiness of its blooms, how is it that so tender a variety as Cox's Orange Pippin is one of the next best croppers this season? However, I am assured that the Yorkshire Apple is a first-rate variety as a consistent cropper here in the South. A. D.

THE SPARSE FRUIT CROPS.—Those who undertake the labour of explaining the causes for the comparative thinness of our hardy fruit crops this year, will find they have a difficult task. On every hand one is met with variations and inconsistencies which baffle the best mind to explain. It is very easy to assume that some varieties of Apples, Pears, or Plums may have blossoms of a tenderer nature than those of other varieties. On the other hand, there is no proof whatever that one flower, or the flowers of any one variety, all being botanically and physically alike, are less hardy than those of another. If it can be shown that from some subtle cause—say from exceeding dryness at the roots, for instance—there is a great deficiency of pollen, then some good reason may be furnished. But when it is assumed that the flowers of some varieties are more tender than are those of others, how is it, for instance, explained that amidst the comparative dearth of Plums, Damsons, the hardiest of all the family as generally understood, have the poorest crop of all? Then, how is it that with both Apples and Pears, the heaviest crops generally are found on tall or old trees, standards especially? The absence of bees or other insects at flowering time does not explain that. Does it arise from the deeper rooting, enabling the trees to perfect the fertile organs of the flowers, producing pollen in abundance? or were the flowers less exposed to injury from frosts, or a long prevalent low temperature, because so elevated above the ground? But then again, why, with Pears, Plums and Cherries blooming simultaneously, were Cherries such a fine crop and the other fruits so poor? Again, has it ever been the case that a perfect mass of bloom, such as we have seen during two springs, and I fear will see again next spring, has been productive of a good crop of fruit? We ascribe the chief cause of our poor fruit crop to the spring. But if so, why have some trees a great crop and others beside them, usually well bloomed, have no fruit at all? A. D.

FINE PEACH, PRINCESS OF WALES.—I am sending two fruits of Princess of Wales taken from a tree carrying close upon 200 fruits, the smallest of which will weigh 9 oz. I sent four fruits into the house yesterday which weighed 3½ lb., the largest weighing 15 oz. I am having the tree photographed, and will send one on to you when I receive them. John Dinwoodie, Buckland Gardens, Betch. [Uncommonly fine fruits, of very fair flavour. Ed.]

MORISIA HYPOGÆA.—Your correspondent, Mr. W. Earley, at p. 135, conveys the impression that an early-flowering variety of this plant exists, which is probable. When I had charge of some gardens in the vicinity of Rugby, in which alpine were extensively grown, plants of this species used to flower during the months of February and March; and I have also seen it flowering as early as far north as Nottingham. It would be interesting to know at what month the plant commences to flower with Mr. T. Smith, of Newry. Having always increased my plants by division, I have not observed minutely the peculiarity of the plant. In burying its seeds in the earth, will Mr. W. Earley kindly explain the process shortly? Thos. Harris, Lower Graywood Gardens, Haslemere.

VERONICA ARMSTRONGI.—One is pleased to see that Mr. Lindsay has carried out his intention of sending you the flower of this pretty little New Zealand Veronica, which I had the pleasure of seeing when in bloom in Mr. Lindsay's garden. I have to thank you for giving so excellent an

engraving. Mr. Lindsay's collection of New Zealand Veronicas is unique, but it was with special pleasure that he pointed out *V. Armstrongi* in bloom. One only wishes that Mr. Lindsay would give some notes on his experience of these interesting shrubs. Since his paper on the shrubby Veronicas was contributed to the Edinburgh Botanical Society in 1891, he has, doubtless, learned something more about them. S. Arnott.

ASPIDISTRA IN FRUIT.—It may be of interest to recall the fact that an *Aspidistra* bore a single fruit at St. Andrews in 1891 (see *Gardeners' Chronicle*, January 2, 1892). This fruit split open transversely as shown in the enclosed drawing (fig. 57), nine or ten months after fertilisation, by the pressure of the swelling seeds, just before maturity was reached. At this stage it was, accidentally I understand, removed from the plant. It was no doubt the outcome of artificial fertilisation which was resorted to with the object of securing fruit; but unfortunately an exact account cannot be given of the case, because no notes relating to experiments with individual flowers were kept. Ten years ago, in *Trans. Bot. Soc. Edinb.*, vol. xvii., 1889, p. 495, I stated my belief, after a careful study of the structure of the flower, that small slugs are instrumental in fertilising *Aspidistras*. Perhaps Messrs. Stansfield will be able to throw light on this point? John H. Wilson, D.Sc., St. Andrews.

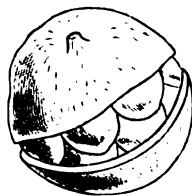


FIG. 57.—FRUIT OF *ASPIDISTRA* SCARCELY MATURE. (NAT. SIZE.)

VEITCH'S CLIMBING RUNNER BEAN.—Having tried this variety with the Mammoth Scarlet, and the Princess, we gathered the former a week before the others. Veitch's Climbing Runner developed fine long pods, while the others dropped off as they flowered, on account, probably, of the extreme drought and burning sun-heat, the temperature being more than once 134°. The plants did not appear to suffer in the slightest, while other varieties looked miserable, but kept up a vigorous growth. It is a reliable variety, a sure cropper, of excellent quality, and very prolific; also "tender and true," as described in the selection for the season. N. S., Hampton-in-Arden.

LADY HASTINGS' BLACK MUSCAT GRAPE.

The raising of new varieties of Grapes goes on but slowly, and it is seldom that we are enabled to chronicle any new comer which is as good in all points as those we already possess. In Lady Hastings' Muscat (fig. 58, p. 157), a sport from Muscat Hamburg, originated in Lord Hastings' garden at Melton Constable, we have a Grape which is a good setter, possesses a slight Muscat flavour with a pleasant sharpness; which will ripen as early as any variety in cultivation. The bunch is of a desirable form, and the bloom on the berries very dense—altogether a very desirable addition to table Grapes. The variety received a First-class certificate from the Royal Horticultural Society on July 25, last; see *Gardeners' Chronicle* for July 29, p. 97.

Vines are to be sent out by Messrs. Paul & Sons, Cheshunt.

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 15.—The Drill Hall, James Street, Westminster, on the last occasion of the meeting of the Committee, was filled almost to overflowing with plants, flowers, and fruit and was as much filled with colour as we remember it any time this year, herbaceous plants, Dahlias, Gladiolus, May's new *Campanula* and *Begonias*, as cut-flowers or plants, helping largely in the display.

ORCHIDS were shown in fair quantity for the season, and among them were several notable plants, to wit, a *Lælio-Cattleya*, with a magnificently coloured lip, &c.

FRUIT consisted of early Apples, Melons in quantity, Tomatoes, and a few Grapes of fair quality. Visitors were not so numerous as usual.

Floral Committee.

Present: W. Marshall, Esq., in the Chair; and Messrs. H. B. May, R. Dean, J. H. Fitt, W. Howe, C. E. Pearson, J. Walker, E. H. Jenkins, H. Cutbush, E. Cook, H. Turner, C. T. Drury, G. Paul, H. Selve Leonard, J. F. McLeod, and J. Fraser.

GROUPS OF FLOWERING AND FOLIAGE PLANTS GROWN WITHIN TWO MILES OF CHARIING CROSS.

Mrs. ABBOTT (gr., Mr. G. Kell), South Villa, Regent's Park, showed a group 3 yards wide, and extending half the length of the building; it was simple in arrangement, and consisted of plants of low growth, placed together in small masses, and topped with Palma, 5 to 10 feet in height; *Celaena plumosa*, together with *Dracenas*, *Lilies*, *Crotons*, and *Caladiums* in smaller numbers, afforded desirable colouring; small *Adiantums* and other Ferns, *Fittionias*, &c., forming the bordering along the front. It was extremely good for a London garden situated 2 miles from the heart of London (Silver-gilt Flora Medal).

A group of similar length and width, displayed by Messrs. J. LAING & SONS, Forest Hill, filled the remainder of the space facing against the wall on that side of the Hall; it consisted of *Caladiums* set off with Ferns, &c. We remarked several novelties in *Caladiums*, viz., M. Chaber, Golden Queen, both of yellow tints; Raymond Lemoine, Orphée, Madam Imbert Knechtlin, John Laing, and Lord Penrhyn, and as a bit of colouring well arranged in contrast, it was a success. The plants were of small size, and ranged from 1 foot to 3 feet in height (Silver Flora Medal).

PUKELL PUKELL, Esq., Woodlands, Heather Hill, displayed on a table a group of plants of tuberous-rooted *Begonias* and of *Fuchsias*, in bush form, set off by *Cocos*, several species of *Adiantum*, &c. As a group of mixed plants, it was effective (Bronze Banksian Medal).

PLANTS.

Mr. H. B. MAY, Dyson's Lane Nurseries, Edmonton, showed thirty plants of their new *Campanula leophylla* May! (figured in our last issue), in capital bloom. The plants have continued to produce hundreds of flowers for four months; and they formed a conspicuous feature. The same exhibitor had arranged underneath his pyramids of *Campanula* a fitting carpet of choice Ferns, that set off the former to perfection (Silver Banksian Medal).

MESSRS. J. HILL & SON, Barrowfield Nurseries, Lower Edmonton, exhibited a table of sixty *Adiantums*, consisting of many choice species and varieties, of which we specify *Adiantum reniforme*, A. Hendersoni, A. macrophyllum albo-striatum, A. Fergusoni, A. Baumei, A. excelsum, A. Pacotti, A. Besoniamum, A. curvatum, A. Henslovianum, A. Rochfordi, &c. The plants showed the perfection of good culture (Silver Flora Medal).

MESSRS. CANNELL & SONS, Swanley, exhibited a new variety of *Neimesia* named *compacta alba*, the plant dwarf, and extremely floriferous.

MESSRS. HILL & SON, Barrowfield Nursery, showed trained specimens of *Lygodium japonicum macrophyllum*, a graceful neat habited variety; well adapted for a number of purposes in decoration.

Mr. G. Reynolds, gr. to Messrs. DE ROTHSCHILD, Gunnersbury Park, Acton, showed a number of *Carnation* Mrs. Leopold de Rothschild, a free-flowering variety with cherry-red bloom. The height of the stems was 3 feet, and the grass of great vigour.

MESSRS. HUOH LOW & CO., Bush Hill, Enfield, showed a yellow-leaved *Acer*, named *Californicum aureum*, previously certificated this summer.

CUT-FLOWERS.

THOS. WARE, LTD., Hale Farm Nurseries, Tottenham, showed three stands containing 190 blooms of tuberous-rooted *Begonias*, both single and double, and in much variety, including some of wonderful beauty, but being unnamed we are unable to specify those that most pleased us. The same firm exhibited a large quantity of *Cactus*, and other varieties of the *Dahlia*, *Lilies*, *Galtonia candicans*, *Gladiolus Gandavensis* and *Lemoinei* varieties, and other flowers in season (Silver Banksian Medal).

MESSRS. BARR & SONS, 12 and 13, King Street, Covent Garden, showed likewise flowers in season, consisting, however, of different plants to those in Mr. WARE's lot. There were noted the pretty *Pentstemon barbatus* Torreyi, with tubular-shaped scarlet flowers; P. b. Scarlet Gem, a pale pink coloured P. The Lady; many bright-coloured *Phloxes*, mostly with massive corymbs of blossoms; *Gladiolus dracecephalus*, flowers of dull yellow tint, crimson spotted; forms of *Gladiolus Nanceianus*, *Phygellus capensis*, *Gaillardias*, and *Heli-anthus* in variety.

Mr. S. MORTIMER, nurseryman, Rowledge by Farnham, put up three effective stands of show, fancy, decorative and *Cactus* *Dahlias*. Of pleasing colour and desirable form among *Cactus* varieties, mention may be made of *Opsetan*, salmon-pink; *Arachne*, of a lighter tint; *Ebony*, a fine dark variety; John Goddard, Starfish, a brilliant scarlet; Earl of Pembroke, of a rich purple tint. The newest show *Dahlia* were Archie Mortimer and J. R. Tranter, the latter a flower of a reddish-terra-cotta tint; both were perfect in form. The

remainder of the Dahlias consisted of standard varieties (Silver Flora Medal).

Messrs. WEBB & BRAND (late Chater), Saffron Walden, showed seventy-two double-flowered Hollyhocks, very prim looking, but with full flowers, and furnished with, in most cases, those very desirable guard-petals which in others were sadly missing. There was a large range of colour in the collection (Silver Banksian Medal).

Messrs. J. CHEAL & SONS, Crawley, showed some useful decorative grasses, viz., *Elymus glaucescens*, which has blue-green foliage; *Glyceria spectabilis* fol. variegata, *G. japonica* zebrina, *Eulalia gracillima* and *E. variegata*. They showed also *Acacia Neo-mexicana*, in bloom; *A. semperflorens*, and *Colutea arborescens*, well furnished with its light, pink-tinted seed-pods; and a quantity of Dahlias.

Messrs. R. WALLACE & CO., Kilsfield Gardens, Colchester, exhibited *Gladiolus* in much variety, showing, as probably was intended, how this flower looks under ordinary cultivation. Many beautiful varieties were remarked, viz., *M. Leveque*, dark crimson; *Turicensis*, deep cherry-red, with a white flame on the lower segments; *Maque de Fer*, Captain Binger, Madame Desbordes Valmore, Silvio Pellico, Mrs. Beecher, a very fine soft shade of carmine; and besides these were *Lilium auratum* in variety, *Delphinium cardinale*, *Monthretias* in variety, *Tritomas*, and *Gaillardias* (Silver Banksian Medal).

F. W. CAMPION, Esq., Coley Manor, Reigate (gr., Mr. Pitt), showed a flowering branch of a single white-flowered Oleander, and double and single flowers of rose-coloured varieties (a Vote of Thanks).

Messrs. PAUL & SON, The Old Nurseries, Chesshant, exhibited an extensive group of *Phloxes* in fine varieties, some of the prettiest of which were Huxley, lilac, with a white starry eye; *Evenement*, of a cherry-red tint; *Eclairer*, purple; *Bayadere*, white; *Claudot*, pink, of a deeper colour in the eye; *W. Ramsay*, rich purple; *Regulus*, crimson; *Equilicot*, brilliant scarlet; and *Argon*, palest lilac (Silver Banksian Medal).

Messrs. KELWAY & SON, Langport, Somerset, had a very extensive array of spikes of seeping *Gladiolus*, of which few were furnished with names. Needless to remark, the spikes were large, and the blooms in fine condition; the total number amounted to sixteen dozen.

Messrs. W. PAUL & SON, Royal Nurseries, Waltham Cross, showed *Roses* flowering for the second time this season, such as *Marie Van Houthe*, *W. A. Richardson*, Mrs. Sandford, *Aurora*, *Panachee de Bordeaux*, Mrs. P. Oger, *Maman Cochet*. There were two show boxes full of blooms of *Marchal Niel*, a quantity of *Duke of York* (China), *G. Nabonnand*, one of the best of the Teas, and one that flowers freely at this date as well as earlier—the colour is delicate blush, with just a tinge of yellow; *Marquis of Salisbury* (H. T.), of a deep crimson tint; the new Tea, *Empress of Russia*, of a pleasing cherry-red colour; *Perle d'Or*, *Marie Lavalley*, *Souvenir de Catherine Guillot*, &c. The firm also showed *Phloxes* in fine varieties, of which were *Lord Rayleigh*, a blue purple; *Albatre*, white; *Fernand Cortez*, *Acropole*, &c. (Silver Flora Medal).

Mr. H. J. JONES, Ryecroft Nursery, Lewisham, exhibited a small collection of *Begonias*, in single and double-flowered varieties, some of which were named.

Messrs. J. VEITCH & SONS, LTD., Royal Exotic Nursery, Chelsea, showed a varied collection of named varieties of *Pentstemon*; but these, like many other flowers, showed the effects of the heat and drought. Noteworthy were the varieties *Pardusa*, crimson, with a throat striped with white; *Lord Cromer*, a similar flower; *Latona*, rosy-purple self; *Fabia*, crimson; *Minerva*, pale purple, and a white throat; *Flying Fox*, a white and pink bloom; and *Lord Kitchener*, rosy-purple. Messrs. VEITCH likewise showed a big branch of *Clerodendron trichotomum*, densely furnished with flowers; also plants of *Clematis Davidiana*, in bloom; *Vitis heterophylla variegata*; *Apera arundinacea*, well furnished with awns—a pretty grass, forming dense masses of brown stalks and awns, and slender green leaves; lastly, a plant of *Andromeda arborescens* in bloom.

This firm again afforded visitors a view of their beautiful *Rhododendron Javanico-jasminiflorum* hybrids; also showing several small-flowered *Begonias*, viz., *Boule de Neige*, *Gloire de Montit* and *Nancy*, all of which are equally good for pots or bedding; *Cupressus Lawsoniana* *Wissellii*, with light green foliage and compact growth; *Phaius guineensis albo-striata*, a plant previously shown; and *Rhapis flabellifolia* *variegata*.

AWARDS.

FIRST-CLASS CERTIFICATE.

The fine *Nepenthes Balfouriana*, a cross between *N. mixta* × and *N. Mastersiana* ×, was shown by Messrs. J. VEITCH & SONS, LTD.; its pitchers are about intermediate in colour, but they are larger than either. The colour is copper-red, splashed with crimson, the opercule unsplashed, and of a red-brown colour.

AWARDS OF MERIT.

Phlox Le Mahdi, a deep rich purple flower, good truss, circular flower. Shown by W. PAUL & SON, Waltham Cross.

Rose Grusse aus Töplitz, a hybrid Tea, of a deep crimson colour, flattish form, and a fairly full flower, is a very desirable novelty; it is evidently free flowering. Shown by W. PAUL & SON, Waltham Cross.

Messrs. J. VEITCH & SONS, LTD., showed *Gladiolus Henri Vandrier*, a flower of a purplish-crimson tint, and extra large size.

The following *Gladioli* were deemed worthy of an Award: *F. Poynter*, orange-scarlet, a large perfect bloom, and well finished spike; *Burne-Jones* possessed dark, tender, crimson-coloured flowers, of which a dozen were expanded; and *Lady*

Montague, a pale yellow, the lower segment flushed with crimson on bright canary yellow. The spike in this instance was short, but the flowers were large. Shown by Messrs. KELWAY & SONS.

Messrs. BEBELL & CO., Howe House Nurseries, Cambridge, exhibited a number of *Cactus Dahlias*, of which *Sylph*, an orange-scarlet; *Antler*, a rich crimson; and *Ajax*, orange-scarlet, received awards.

Messrs. WEBB & BRAND showed *Hollyhock Black Knight*, a flower of good size, and full, and of an intensely dark crimson tint.

Messrs. CANNELL & SONS, Swanley, showed flowers of *Centaurea americana alba*, *Sweet Sultan*, with creamy-white flowers, the plant evidently of vigorous, not to say coarse, habit of growth.

Gladiolus Lemoinei *Jane Dieulafoy*, rose-pink in colour, of fair size, the two lower segments having a scarlet flame on primrose-yellow ground. Shown by R. WALLACE & CO., Colchester.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair), and Messrs. Jas. O'Brien (Hon. Sec.), J. G. Fowler, W. H. Protheroe, De B. Crawshaw, J. Douglas, E. Hill, A. Outram, F. J. Thorne, W. H. Young, H. J. Chapman, A. H. Smea, H. Ballantine, H. M. Pollett, and T. B. Haywood.

The show of Orchids was not extensive, though some very interesting exhibits were staged. The largest group was staged by Messrs. HROS Low & Co., Bush Hill, Enfield, and in it was seen the usefulness, at this season of the year, of the showy and fragrant varieties of *Cattleya Eldorado* and *C. superba*. Of the former there was a good selection, varying from the white form with orange tube, and purple front to the lip, to the rose-pink variety with no other colour than orange on the lip. Also in the group was a splendid plant of *Cattleya Gaskelliana pallida*, with ten flowers. This variety opens pure white, with pale primrose disc to the lip, and matures with a slight blush tint. The back of the group had six fine varieties of *Vanda coerulea*, and one of the natural hybrids of it, named *V. × Charlesworthii*, a very pretty white flower, tinted with rose. With these were the pretty *Dendrobium × Leeanum enfieldense*, *Lelio-Cattleya × elegans* *Turneri*, *L. C. × Novelty*, *Cattleya Warszewiczii*, *Cypripedium × macropterum*, *C. × Schroederi*, *Odontoglossum Pescatorei*, *O. crispum*, *Oncidium Marshallianum*, &c. The group was awarded a Silver Flora Medal.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), showed *Cattleya Acklandia nigrescens*, a singular form with the sepals and petals almost wholly of a dark chocolate colour, with a narrow yellowish margin. The side lobes of the lip folding over the purple column were bluish-white, the front lobe dark rose-purple; also *Cattleya × Atlanta* (Leopoldi × Warszewiczii), a showy hybrid, bearing some resemblance to *Lelio-Cattleya × elegans*. The sepals and petals were greenish, tinged and veined with rose-purple; the base of the lip pale rose, the front lobe and tips of the side lobes bright purple. The plant had been excellently well grown, and a Cultural Commendation was awarded. Sir F. WIGAN also showed *Lelio-Cattleya × Aurora*, and the plants named in the list of Awards.

From the Marquis of SALISBURY'S gardens, Hatfield, Herts (gr., Mr. G. Norman), came a noble plant of *Acridas Sanderianum* (the yellow-tinted *A. Lawrencei*), with four spikes, each about 3 feet in length. The plant bore thirty-five leaves, and appeared never to have lost any since being in Mr. NORMAN'S hands (Cultural commendation).

The Rev. F. PAYNTER, Stoke Hill, Guildford (gr., Mr. Cooke), sent a pretty hybrid, said to be between *Lelia crispata* and *Cattleya Warneri*, but more probably between *C. velutina* and *C. labiata Warneri*. The flowers were of a delicate buff-tinted rose, with the orange blotch in the centre of the lip as in *C. velutina*, the rounded front lobe being pale rose of colour with purple veining. Mr. PAYNTER also sent cut spikes of *Lelio-Cattleya × Henry Greenwood*, *Cattleya Harrisoniana*, and *C. Gaskelliana virginiana*.

Mrs. MASON, The Firs, Warwick (gr., Mr. Lambert), sent cut spikes of *Cypripedium Curtisii superbum*, *C. × Frau Ida Brandt* (to grande ♀ *Youngianum* ♂), *Cattleya Warszewiczii*, *C. × Powelii*, *Dendrobium McCarthyi* and *Lelio-Cattleya × Berthe Fournier*.

M. JULES HYE-LEYSSEN, Coupure, Ghent, sent a spike of the fine *Cypripedium × Massianum* (superciliare × *Rothschildianum*), excellently grown.

DE B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed *Odontoglossum Uro-Skinneri* *Crawshawianum*, a fine flower with the large labellum beautifully spotted with dark rose colour; *Odontoglossum crispum*, Miss F. M. Bovill, a pretty variety with white flowers tinged with purple, the sepals bearing some showy brown blotches; and *O. crispum Trianae*, a sparsely blotched form.

C. E. CHIMES, Esq., Selwood, Rotherham (gr., Mr. Mark Watts), sent *Cattleya × Hardyana* Mrs. C. E. Chimes, a pretty form, with marbling of cream colour on its rose-coloured sepals and petals, the front lobe of the lip being of an intensely dark crimson.

W. MACDONALD, Esq., Atholl Hydropathic, Pitlochry, Aberdeen, sent a *Cypripedium* said to be between *C. Elliotianum* and *C. Godefroyi*, but in which there was no perceptible trace of *C. Godefroyi*.

Capt. THOS. A. JULIAN, Woodside, Plymouth, showed a spike of a very dark and brightly coloured *Cattleya Harrisoniana violacea*, and a large light form of *C. Eldorado*.

AWARDS.

FIRST-CLASS CERTIFICATE.

Lelio-Cattleya × Wiganiana, a hybrid supposed to be between a dark form of *L. purpurata* and *L. C. × Dominiana*.

One of the largest and most richly-coloured hybrids yet shown. The habit of the plant is that of a tall, slender *L. purpurata*. Flowers very large, the long, acuminate sepals and petals of a pale rosy-lilac hue. The fine lip is almost entirely of a dark claret-tinted purple down to the base, where a slight marbling of orange-colour appears. From Sir Frederick Wigan, Bart. (gr., Mr. W. H. Young).

AWARDS OF MERIT.

Schomburgkia Lyonsii.—A beautiful species, originally described by Dr. Lindley in the *Gardeners' Chronicle*, 1853, p. 615, but which has not before been shown before the Orchid Committee. The plant bore a tall scape of many white flowers, prettily spotted with purple, and each about 2 inches across. The flowers are borne on long foot-stalks, and each have a narrow lanceolate bract as long as the foot-stalk; it is the handsomest of its class. From the Rt. Hon. Lord ROTHSCHILD, Tring Park (gr., Mr. E. Hill).

Stauroplexis hispidoloides var.—A brilliantly coloured form of the old plant, known as *Vanda Batemanni*. The flowers were yellow, spotted with red, and the reverse of the younger flowers and buds was bright dark rose. From the Rt. Hon. Lord ROTHSCHILD (gr., Mr. E. Hill).

Cattleya × Whitei, Wigan's variety.—A natural hybrid between *C. labiata* *Warneri* and *C. Schilleriana* (Echb. f., *Gardeners' Chronicle*, 1882, p. 586). A very rare plant, in growth and flower intermediate between the parents stated. Flowers nearly as large as those of *Cattleya labiata*, but much firmer in texture, of a uniform warm rose tint, the rounded front lobe of the lip darker than the other parts, and well indicating *C. Schilleriana*. From Sir FRED. WIGAN (gr., Mr. W. H. Young).

Lelio-Cattleya × Berthe Fournier (L. C. × *elegans* var. × *C. Dowiana aurea*).—Raised by M. CHAS. MARON for M. L. FOURNIER, Marseilles. Sepals and petals cream white, with a lilac tint. Lip dark reddish-purple, with some fine orange lines at the base. The presence of *L. C. elegans* is doubtful, as the labellum indicates no departure from the *Cattleya* form. From Mrs. MASON, The Firs, Warwick (gr., Mr. Lambert).

Fruit Committee.

Present: Mr. P. Crowley, chairman; and Messrs. J. H. Veitch, J. Cheal, M. Gleeson, W. Pope, S. Mortimer, A. Dean, W. Bates, W. Farr, W. J. Empson, F. Q. Lane, G. Reynolds, G. Norman, and G. Bunyard.

There were more exhibits than usual at this season for this committee, including especially good mixed collections of fruit, and fine Apples. If the latter indicate what will be seen later, then the autumn samples should be very fine indeed.

Mr. G. Keif, gr. to Mrs. ASBOTT, South Villa, Regent's Park, staged a fine collection of fruit, remarkable because grown within two miles of Charing Cross. It comprised excellent Black Hamburgh and Buckland Sweetwater Grapes, fine Barrington Peaches, Green Gage, Jefferson, Kirk's, Coe's Golden Drop, Reine Claude, and Comte de Atthems; also fine and well-fruited pot-trees of Early Transparent, Jefferson, and Cox's Emperor Plums, all first-class fruits; several good Melons, Lord Suffield Apples, and numerous scarlet, red, and yellow Tomatos, Golden Queen and Chemin de Fer, being specially fine. A Silver-gilt Banksian Medal was awarded.

Mr. J. Miller, gr. to Lord FOLLY, Rusley Lodge, Esher, had a capital representative collection of eighteen dishes, including finely-coloured Alexander, and also good Violetta Hâtive, Alexandra Noblesse, and Royal George Peaches, superb Early Rivers' Nectarines from outside, Guigne de Wintoler, Bigarreau, Blanc d'Espagne (pure yellow), and fine Morello Cherries; Kirk's Plum; fine Yorkshire Beauty, Lord Suffield, and other Apples; several Pears, Figs, and some good Archie Henderson Melons (Silver Knightian Medal).

From Mr. Walters, gr. to Lord GERRARD, Eastwell Park, Ashford, Kent, came a good collection, inclusive of six bunches of Black Hamburgh, and the same of Foster's Seedling Grapes; seventeen diverse Melons, including Countess, Holborn Favourite, Hero of Lockinge, Frogmore Seedling, a Highcross Hybrid, and others; Sea Eagle, Gross Mignonne, and Violetta Hâtive Peaches, Pine-apples, Downton Nectarines, &c. (Silver Banksian Medal).

Messrs. G. BUNYARD & CO., Old Nurseries, Maidstone, put up a collection of twenty dishes of Apples, all beautiful samples, showing no evidence of stress of weather. Rich in colour, of desserts, were Beauty of Bath, Lady Sudeley, Red Quarrenden, Mr. Gladstone, Worcester Pearmain, and Red Juneating; also of kitchen varieties, very fine Stirling Castle, Lord Grosvenor, Gold Medal, Grenadier, White Transparent, Lord Suffield, Ecklinville, The Queen, and others (Silver Knightian Medal).

Messrs. JAS. VEITCH & SONS staged a fine collection of thirty dishes of Apples, four of Pears, one of fine Morello Cherries, one of that superb red Currant *La Versailles*, and one of Lee's Prolific Black Currant. The Pears were *Burré Giffard*, *Jargonelle*, *Colmar d'Ete*, &c.; and the Apples included very fine samples of Lord Grosvenor, Grenadier, Pott's Seedling, White Transparent, Stirling Castle, Lord Suffield, Domino, and Frogmore Prolific, kitchens; and Early Strawberry, Lady Sudeley, Beauty of Bath, Red Quarrenden, Red Astrachan, and Irish Peach, desserts (Silver Banksian Medal).

From Messrs. S. SPOONER & SONS, Hounslow, came a collection of thirty dishes of Apples, including good Gold Medal, Pott's Seedling, Grenadier, Kruger, Lord Suffield, Ecklinville, New Hawthornden, and Bismarck, kitchen varieties; Red Astrachan, Kerry Pippin, Beauty of Bath, Red Quarrenden, and Red Margaret, dessert varieties (Silver Banksian Medal).

A very interesting new fruit came from Messrs. JAS.

VEITCH & SONS, in the form of a hybrid Raspberry, the product of crossing Belle de Fontenay Raspberry with the common Blackberry; of ordinary Raspberry growth, a most prolific fruiter, ripening after ordinary Raspberries are over. This novelty has fruits about the size of those of good Baumforth's Seedling Raspberry, but of a deep purplish-red hue. They are very like Raspberries in flavour, and part freely from the stem. It should make a valuable variety for cooking and for dessert. An Award of Merit was unanimously granted.

Messrs. J. VEITCH & SONS, Ltd., sent sample plants in fruit of various Dwarf Kidney Beans grown on poor ground.

From the Royal Horticultural Gardens Chiswick, came Tomato Chiswick Peach, a lemon-coloured sport at the gardens from the Red Peach. It is very distinct, very free

of Merit" specially as a market variety was awarded, but it seems to be equally good for all ordinary purposes. Mr. S. LAMB, Forest Hill, sent several huge Californian Naval Oranges, like Citrons, thick of rind, and devoid of quality (Vote of Thanks).

From Mr. A. Corby, gr. to J. THOMPSON, Esq., Hawkhurst, Kent, came branches of Red and Black Currants, Raspberries, and some Gooseberries (Vote of Thanks).

Mr. G. Crook, gr. to Miss EVANS, Forde Abbey, Chard, sent up plants of both Veitch's Chelsonian and Ne Plus Ultra Peas, both tall, to show the effects of spraying with the insecticide, Improved Spiro. The lower portions of the plants had been eaten with thrips, whilst the upper portions where sprayed were quite green and vigorous (Vote of Thanks). This material merits a trial at Chiswick next year.

in the plant and cut-flower classes, had to be considerably crowded in order to find space—in fact, a sixth tent of large size could have been filled, and yet the others would have been well furnished. The exhibition took place as usual in Vivary Park. So far from the exhibition having lost any of its old prestige, there were twenty more exhibitors than last year, and 150 more entries.

The specimen stove and greenhouse plants shown by Mr. JAMES CYPHER, and the Orchids shown by the President, WILFRID MARSHALL, Esq., were the features of the show in the open classes. The exhibits of Vegetables made by cottagers were very numerous, and marvellously good in such a season.

SPECIMEN PLANTS, OPEN.

For twelve stove and greenhouse plants in flower, Mr. J. CYPHER, Cheltenham, was an easy 1st, staging superb examples of *Phenocoma prolifera* Barnesii, *Ericas Austiniana*, *cemula*, and *retorta* major; *Bougainvillea Sanderiana*, *Statice intermedia* and *profusa*, *Allamanda nobilis*, &c.; and Mr. W. FINCH, Coventry, was 2nd. Mr. CYPHER was also 1st with six very fine specimens. In the Amateurs' Division, Mr. ROWLAND was 1st with twelve specimens, consisting of *Bougainvillea glabra*, *Clerodendron Balfourianum*, *Dipladenia amabilis*, &c.; 2nd, W. MARSHALL, Esq., who staged a very fine example indeed of *Acalypha hispida*, finely-grown and bloomed, making a most effective exhibition specimen. Miss TODD, Shirley, Hants (gr., W. Peel), was 1st with six specimens, and they were also exhibited in fours. Some eight classes were set apart for specimen plants, but they contained nothing calling for special mention.

The best eight specimens of *Begonias* came from W. MARSHALL, Esq., finely-grown and flowered, even and of good quality. The Rev. J. D. PRING was a close 2nd. In the amateurs' division, the Rev. J. PRING was the leading prize-winner, with *Begonias*, *Pelargoniums*, single and double *Fuchsias*, *Cockscombs*, and *Lilies*; the latter shown in fours were good, the *Lilies* especially, being the type *L. speciosum*; while some good specimens of *L. auratum* were also staged. Some *Gloxinias* from Mr. W. MARSHALL were remarkably good; and it was pleasant to see some fine pans of *Achimenes* from Mr. STEPHEN BENNETT. *Petunias*, *Balsams*, and *Cockscombs*, were also good; and we find that these old-fashioned things are more cared for in the West of England than in other parts of the country.

FOLIAGE PLANTS, OPEN.

These were shown in eights. Mr. J. CYPHER was placed 1st with three magnificent *Kentias* and a large *Latania borbonica*, and the following brilliantly-coloured *Crotons*:—*Cheloni*, *Flambeau*, *Queen Victoria*, and *Montefontaineensis*. Mr. W. ROWLAND was 2nd. Miss TODD was 1st, with some good specimens, in the amateurs' class for six plants.

Ferns were a very good feature, and they came in useful as breaking up the banks of flowering plants. The best eight in the open division came from Mr. H. S. BAILEY, Glastonbury (gr., E. Merrett); Mr. ROWLAND was 2nd, the specimens in each case were freely grown.

Miss TODD had the best four, Mr. BAILEY taking the 2nd place. *Coleus* were in the form of attractive bushes.

The best four Orchids came from Mr. W. MARSHALL; they consisted of *Cattleya gigas* *Sanderiana*, *C. Leopoldi*, *Cypripedium Parishii*, and *Grammatophyllum multiflorum tigrinum*. Mr. CYPHER was 2nd; he had *Cattleya gigas* in good character, *Lælia crispa*, and two others.

In the amateurs' division for four plants, Mr. W. MARSHALL was again 1st; and Miss TODD 2nd.

GROUPS OF PLANTS ARRANGED FOR EFFECT

were shown in a tent by themselves, being placed down the centre. In the open classes, Mr. W. FINCH came 1st, with an effective arrangement, but confined to too restricted a space to do the exhibitor full justice; and Mr. ROWLAND was 2nd. In the amateurs' division Mr. ROWLAND and Miss TODD were 1st and 2nd. The space assigned to each of these groups might be enlarged with advantage.

CUT FLOWERS.

Roses, owing to the hot, dry weather, were small, but Mr. J. MATTOCK brought from Oxford some nice, bright flowers, taking the 1st prize in the class for thirty-six varieties; Maman Cochet, Maréchal Niel, Ernest Metz, Comte Rainband, Dupuy Jamain, Fisher Holmes, and Caroline Testout were among the best. Mr. G. GARRAWAY, Bath, was 2nd. Mr. MATTOCK was 1st with eighteen varieties; and Messrs. JARMAN & Co., 2nd, and also with eighteen Tea-scented Roses.

Dahlias were good considering the season, the best twelve show varieties coming from Messrs. J. CRAY & Co., Frome. The best twelve fancies were from Mr. G. HUMPHRIES, Chippenham. The Cactus varieties in bunches were very good for the season, the best coming from Messrs. J. CRAY & Son, who were also 1st with nine bunches of pretty Pompons; Mr. G. HUMPHRIES being a close 2nd.

Phloxes, Asters, Carnations, and Hollyhocks were in fair character. Collections of bunches of *Phlox Drummondii* were very pretty, and have quite displaced the *Verbena* on the exhibition-table. *Gladioli* were good, Messrs. F. H. FOX and J. MATTOCK showing good spikes. Mr. W. MARSHALL had the best twelve bunches of stove and greenhouse cut flowers. Cut *Begonias* from the Rev. J. D. PRING were very fine, and hardy perennials were a good feature. Mr. R. SYDENHAM's special prizes for Sweet Peas brought several very pretty collections.

In the amateurs' and gardeners' division there was a similar series of classes for cut blooms, and, on the whole, they were filled, and satisfactory subjects staged. Cut flowers are generally well shown in the West of England.



FIG. 58.—LADY HASTINGS BLACK MUSCAT GRAPE. (SEE P. 155.)

fruiting, and of the highest flavour, a capital dessert variety (First-class Certificate). A cultural commendation was given to Mr. A. H. GIBSON, gr. to J. RICKERT, Esq., Pinner, for good examples of Tomato A. H. GIBSON, very like Duke of York or Perfection, or numerous other varieties. Mr. E. SMILES, gr. to the Hon. E. HUBBARD, M.P., sent three Melon seedlings from Blenheim Orange × Dickson's Favourite, all scarlet flesh, and much alike. Flesh in all cases soft but lacked flavour. Mr. HARRISON, Merrow House Gardens, Guildford, sent a small scarlet flesh Melon, stated to have been grown quite outdoors, without protection, since June. This was delicious in flavour; an award of merit was granted subject to further information as to its culture, and a name being furnished. Mr. F. W. CROSS, Wisbech, sent a quantity of a fine conical kitchen Apple, Early Victoria, said to have originated by crossing Lord Grosvenor with Keaswick C din; the fruit resembles both parents, and is as branches sent to previous meetings have shown remarkably prolific, an "Award

The Lecture.

Mr. Brotherston's paper on "Pruning" was read by Mr. Douglas. It consisted of a general review of the reasons for pruning, the methods employed, and the time when the operation is best performed. Some comments were offered by the Chairman, W. MARSHALL, Esq., Mr. A. DEAR, Mr. GEORGE BANYARD, and Dr. MASTERS. The paper will be printed in the *Journal of the Society*.

TAUNTON DEANE HORTICULTURAL.

AUGUST 10.—This Society, which was established as far back as 1866, maintains both its vitality and also the high character of its exhibitions; and though on this occasion four very large tents were set up, and in addition two smaller ones for table decorations and groups, the exhibits, especially

TABLE DECORATIONS.

These filled a good-sized tent, and attracted much attention from the visitors. The best dinner-table of fruit and flowers came from Mr. J. CYPRER, lightly done with chaste Orchids and appropriate foliage, and greatly admired; Mr. T. Wilkins, gr. to Lady T. GUEST, Henstridge, Blandford, was 2nd, with a light combination of mauve and yellow. Mr. CYPRER had the best Espargne richly arranged, but closely followed by one from Mr. G. Sutton, gr. to Mr. W. A. TODD, Bristol. Hand-some bouquets, buttonholes, sprays, and charming baskets and bouquets of wild flowers were also shown. The President's special prizes for wild flowers in two classes brought good competitions, and that in which the competition was confined to twenty-four species found in Somerset or Devon was represented by interesting contributions.

FRUIT.

Fruit fell rather below the Taunton mark, but that appears to be the general experience. The best collection of eight dishes came from Mr. W. STACEY, The Gardens, Rood Ashton, and consisted of Muscat Hamburg and Madresfield Court Grapes, Goshawk Peaches, Hunt Tawny Nectarines, Moorpark Apricots, Figs, Melons, and Plums; 2nd, Mr. J. Lloyd, gr. to V. STRUCKEY, Esq., Langport, who had the same variety of Grapes, Humboldt Nectarines, Sea Eagle Peaches, &c. With six dishes, Mr. J. W. FLEMING, Romsey (gr., W. Mitchell), was 1st with good fruit. Mr. Mitchell had the best three bunches of Black Hamburg Grapes, well balanced and finished. Mrs. TALBOT GRAVES, Stoke Bishop (gr., T. Wilkinson), was 1st with three bunches of Muscat of Alexandria. The best three bunches of any other white, were Buckland Sweetwater, from Mr. W. A. TODD; and of any other black Madresfield Court from Mr. MITCHELL. Melons were numerous; the best Peaches were Stirling Castle and Hale's Early. Apricots, Moorpark, very fine from Mr. J. KENTISH; Nectarines Lord Napier and Pine Apple; Good Pears, represented by Jargonelle and Beurré Giffard; Dessert Apples by Beauty of Bath, Red Quarrenden, and Astrachan; culinary Apples by Peasgood's Nonsuch, Lord Suffield, and others; Plums, Cherries, Gooseberries, and Currants, were in good character.

VEGETABLES, &c.

The soil in the Taunton district is evidently favourable to the production of good vegetables, though owing to the drought, they generally fell somewhat below their usual quality in the open and amateurs' classes. The best collection of eight varieties came from Mr. T. WILKINS; Mr. T. Harrison, gr. to Major ALDORTH, was 2nd. Mr. JOHN BLACKMORE, The Gardens, Holnicote, had the best six dishes of Potatoes; and as round and kidney varieties are required, and there is room for suspicion that the same variety can be shown in both characters, it is becoming requisite the distinction be abolished. Potatoes were well shown in several classes. Special prizes were offered by several firms for vegetables; the most spirited competition being in the case of the handsome special prizes offered by Messrs. SUTTON & SONS. Mr. T. WILKINS being 1st, and Mr. W. MITCHELL 2nd.

One cannot speak too highly of the cottagers' productions; plants, cut flowers, fruits and vegetables. They filled a large tent, making a high-class show in themselves.

In the way of miscellaneous collections, Messrs. KELWAY & SONS, Langport, had one of their fine collections of Gladioli, embracing a few distinct and novel varieties; Messrs. W. TUPLIN & SONS, Newton Abbot, had Gladioli, Dahlias, and other subjects; Mr. JOHN MATTHEW had pretty Roses; Messrs. JARMAN & CO., Taunton and Chard, had Dahlias, Begonias, and other interesting flowers; Mr. W. J. GODFREY, Exmouth, had an imposing bank of Cannas, Dahlias, hardy flowers, zonal Pelargoniums, &c.; Messrs. CLARKE & SONS, Taunton, Gladioli, Sweet Peas, Roses, &c.; and Messrs. R. T. VITCH & SONS, Exeter, choice hardy plants, including Gerbera Jamesoni, and other novelties, Carnations, and other cut flowers, &c.

BRITISH PTERIDOLOGICAL.

AUGUST 14.—The annual meeting of this Society took place at the Institute, Bournemouth, on the above date, under the presidency of Mr. CHARLES T. DRURY, F.L.S., V.M.H., and both as regards numerical attendance and practical results may be chronicled as the most successful yet held.

After a short address from the president, the usual formal business was rapidly despatched. The secretary's and treasurer's reports were both highly satisfactory, and a hearty vote of thanks was accorded to them, and to the officials generally for their conduct of affairs. Several new members were proposed and elected, and the only sad note which was struck was the announcement of the death of one of the vice-presidents, Mr. G. B. Wollaston, who, as one of the foremost authorities on British Ferns, and the possessor of one of the finest collections existing, could ill be spared from the ranks of the pioneers of native Fern-culture.

A large number of very beautiful fronds were exhibited; and also some splendid photographs, simple and stereoscopic, were shown by Messrs. Gott, Edwards, Troughton, and Lovelady, with a view to perpetuating in pictorial form some of the best types of Ferns, old and new. A new and very beautiful variety of Lady Fern was produced by Mr. Garnett, the raiser, and the name of *Athyrium filix-femina* var. *fimbriata-cristatum* was given to it. [Five votes to a name!]

Subsequently the meeting practically resolved itself into a committee for the consideration of the best means of bringing the practical knowledge of the members into concrete record form in the shape of a list of the best varieties formulated under the auspices of the Society, and supplemented, as far

as possible, by reproductions of photos of selected forms. To this end, Messrs. Drury, Stansfield, Whitwell, Smithies, Forster, Phillips, Troughton, Wilson, and Edwards were elected as a committee; and Mr. C. T. Drury agreed to edit these fresh compilations, with a view to its issue to the members and others interested. The idea is to compile from all existing lists and catalogues a careful selection of really fine symmetrical forms, eliminating entirely those faulty ones which now constitute the majority in many collections and some lists; and the Secretary of the Society, Mr. Whitwell, of Serpentine Cottage, Kendal, or the President and Editor of the projected lists, Mr. C. T. Drury, 11, Shaa Road, Acton, London, W., would be happy to receive any contributions to this very desirable end.

Two very interesting papers were read by Mr. W. H. Phillips and Mr. C. T. Drury, on respectively "Lastrea filix-mas, its Past and Present Divisions," and "Own Finds and Specialities of British Ferns." An animated discussion followed their presentation, in which many of the members participated.

KIRKCUDBRIGHT HORTICULTURAL.

AUGUST 11.—The second annual show under the auspices of the Kirkcudbright Horticultural Society since its reconstitution was held in the Bourtrea Park, Kirkcudbright, the use of which was kindly granted by Captain John Hope, R.N.

The entries were so numerous that the committee, of which Mr. John Gibson, Town Clerk, was secretary, were obliged to extend their space beyond the limits provided. There was a fine floral display, and the effect was considerably increased by a choice selection of plants sent for exhibition from St. Mary's Isle, Balmoe, and The Grange. Messrs. SMITH & SONS, Stranraer, showed a fine collection of Rose blooms.

In the open class, Mr. W. MCGURROU, Balmoe, took 1st prize with a fine table of pot plants; Mr. A. MCHARRIE, Grange, being 2nd. Mr. JAMES ALLAN, Arndell House, Dumfries, was 1st for black and white Grapes; and Mr. W. THOMSON, Calby, 2nd.

ABBAY PARK FLOWER SHOW, LEICESTER.

AUGUST 8.—The executive of the Abbey Park Flower Show at Leicester did wisely when, instead of having their show on Bank Holiday, as last year, they, on this occasion, reverted to the old practice of holding it on Tuesday. Some who had entered did not put in an appearance, nor did they have the courtesy to inform the secretary they could not do so, hence empty tables were to be seen. This lack of courtesy, saying nothing about duty, appears, unfortunately, to be on the increase, and, as Mr. John Harrison observed at the luncheon to the judges, needs to be combated in some way.

Very large and roomy tents are needed at Leicester; there were some six in number, and despite the defect alluded to, they were generally well filled. Miscellaneous collections, which were both numerous and varied, occupied a great space.

GROUPS OF PLANTS (OPEN).

arranged for effect, were remarkably good; two of the best ever staged at Leicester competed. Mr. C. J. MEE of Nottingham was placed 1st, and Mr. ARTHUR DALL, Shelford, 2nd. Both were rich in *Codiums*, *Dracenas*, flowering-plants, &c., each having a central cone surmounted by a noble Palm, and then radiating to the four points of the compass.

SPECIMEN PLANTS.

These are never strong at Leicester; the prizes are too low to bring big plants from a distance. Mr. H. Blakeway, gr. to P. A. MUNTZ, Esq., had the best six; Mr. MEE was 2nd.

In the class for six Ferns the positions were reversed, some bold and striking specimens being staged. Tuberous-rooted Begonias were represented by fair specimens; single zonal Pelargoniums made a fine bank of colour, especially the plants shown by Mr. JAMES WRIGHT of Leicester. Coleus were bright; and Fuchsias consisted of small, well grown, and flowered specimens.

ROSES.

There is always a good Rose show at Leicester, and there were nine entries of thirty-six varieties, some seven putting in an appearance. It was the day of Messrs. ALEXANDER DICKSON & SONS, of Newtownards, Belfast, who descended upon the Midlands on an avalanche of success. They had good, clean, bright, well-developed blooms; Messrs. V. D. CROLL & SONS, representing Scotland, were 2nd. The same positions were observed in the class for twenty-four varieties: here again some brilliant red Roses and some glorious Teas were staged. The white *Maréchal Niel* was seen to the best advantage in one of the stands.

With twelve Teas or *Noisettes*, Messrs. DICKSON & SONS and CROLL again took leading honours. With twelve Roses of one variety, the Newtownards firm came in 1st with excellent *Her Majesty*. The best twelve Teas of one variety were Mrs. E. Mawley, also from Newtownards; Messrs. HARKNESS & SONS coming 2nd with *Maréchal Niel*. The best Rose in the show was a very fine one of *Maréchal Niel*, from Messrs. HARKNESS & SONS. Other cut-flowers comprised Begonias, Carnations. Messrs. CAMPBELL & SON, of Blantyre, being 1st with twelve Carnations, and also with twelve Picotees; and Mr. A. W. JONES, Handsworth, was 1st with twelve Fancy Yellows, which were so fine as to be a revelation to the Carnation growers of Leicester; Messrs. CAMPBELL & SON were 2nd. Carnations and Picotees were also shown as single blooms and in bunches.

TWELVE BUNCHES OF STOVE AND GREENHOUSE CUT-FLOWERS.

Mr. BROWN, Knighton Feth, Leicester, was 1st; and he also had the best twelve bunches of hardy annuals, placing a fairly wide interpretation upon the term, which the judges thought themselves justified in accepting. Fancy Pansies were shown in excellent character by Messrs. CAMPBELL & SON for the season of the year; and they also had a stand of twelve charming sprays of *Viola*, *Show* and *Fancy*, and *Cactus Dahlias* were also to be seen in good character.

One important feature was the huge bank of collections of hardy herbaceous flowers, each filling a space of 75 feet. There were five entries, Messrs. HARKNESS & SONS taking the 1st prize with a superb collection, only too much crowded to display the subjects to the best advantage; Messrs. J. COCKER & SONS, Aberdeen, were a good 2nd; but the others fell off somewhat in the matter of quality.

FRUIT AND VEGETABLES

was exhibited in some twenty classes. The best eight dishes came from Mr. Goodacre, gr. to the Earl of HARRINGTON, Elvaston, who had fine Black Hamburg, Muscat Hamburg, and Muscat of Alexandria Grapes, Princess of Wales Peach, Pine-apple Nectarine, an excellent Queen Pine, fine Pear, and exquisite Lady Sudeley Apples; and 2nd, Mr. J. READ The Gardens, Bretby Park, who had very good fruit.

In another class for the same number, Mr. GOODACRE was again 1st, having good Canon Hall Muscat and Black Hamburg Grapes, Peaches, Nectarines, &c., and a highly-finished dish of Lady Sudeley Apple; Mr. McCULLOCH was 2nd, and Mr. READ 3rd. The four best bunches of Grapes were from Mr. McCULLOCH, and consisted of good-finished examples of Gros Maroc, Gros Guillaume, Muscat of Alexandria, and Madresfield Court Grapes; the latter well-finished. We think it was Mr. GOODACRE who was a close 2nd.

There were classes for a Pine-apple; also for Grapes, four classes being devoted to them. Peaches, Nectarines, Melons, Cherries, &c., with Tomatoes, which is here included among the fruits; but the crowd was much too dense to ascertain particulars.

Vegetables were also shown in several classes, and generally in fine character; special prizes being offered by Messrs. SUTTON & SONS, HARRISON & SONS, C. WARNER, and others.

AMATEURS AND GENTLEMEN'S GARDENERS, AND FOR COTTAGERS.

Some very remarkable exhibits were staged in this section. There were prizes for plants, for fruit, for cut flowers, and for vegetables. It is doubtful if better vegetables are grown by cottagers in any other part of the country; and their bouquets of wild flowers were worthy of presentation to the female members of the Royal family.

MISCELLANEOUS.

Contributions were numerous and varied. Messrs. VEITCH & SONS sent from Chelsea a really superb collection of plants, which, though the limitation of space, was too much crowded; Messrs. W. CUTBUSH & SON, Highgate, had a delightful collection of Iris in baskets; Messrs. HARRISON & SONS had vegetables and cut flowers; Messrs. DOBBIE & CO., Rothesay, Dahlias, Galliards, Sweet Peas, Pansies, &c., all very attractive; Mr. MORTIMER, of Farnham, had superb Dahlias; Messrs. CHEAL & SON, of Crawley, had the same; Messrs. W. & J. BIRKENHEAD, Sale, had one of their extensive collections of Ferns; Messrs. R. WALLACE & CO., Colchester, a bank of rare hardy flowers; Messrs. KEYNES & CO., Salisbury, Dahlias; Mr. W. BENTLEY, Leicester, Roses; Mr. J. WRIGHT, Leicester, hardy cut flowers; Mr. A. W. JONES, about twenty bunches of charming yellow ground Carnations; Messrs. W. CLAPHAM & SON, portable rockwork, quite a useful object-lesson; Mr. G. H. ELLIS, Knighton Hayes, a charming group of plants, and probably others, unobserved through the crowded state of the tents. The weather being gloriously fine, the attendance was enormous.

SCOTTISH HORTICULTURAL.

JUDGING AND SHOWING GRAPES.

At the August meeting of the Scottish Horticultural Association, Mr. James Grieve presided, and there was a good attendance. The lecturer, a well-known expert in Grape-growing and judging, was present in person, and at once plunged into his double subject, either of which suggested topics enough for many lectures and discussions. Without going into many minute details, the lecturer touched on a few outstanding grievances which affect judges and exhibitors alike, and often force themselves into notice at our great shows. The exhibit at most of our shows have greatly improved of late years, while the classification and arrangement of the Grape classes have changed but little for twenty years, either in character or numbers. The Royal Caledonian, London, and nearly all other societies, adhere to their old rules, and it was left for Shropshire, at Shrewsbury, last year, to offer the largest prizes for Grapes, on the new plan of having these judged for the first time on the principle that every bunch is to be judged on its merits as a bunch of Grapes, irrespective of variety.

Mr. Buchanan's advice to all exhibitors was, always to show his very best Grapes. Never show a wretched bunch in the hope of picking up a 3rd prize. During the last twenty

* A paper read by Mr. D. Buchanan, Forth Vineyard, Kippin, August 1, 1899.

years he had seen many fine Grapes in the Waverley Market, and I had also seen some wretched examples in important classes. One of the first lessons exhibitors need to learn is the general appearance and features of a prize bunch. Once learn the lesson of ideal perfection, then might there be some chance of growing the bunches into prize form. As to mounting show bunches on boards, and carrying them safely long or short distances, choose firmly-built bunches to start with. Loose bunches are bound to sprawl about and get rubbed, bruised, or have their bloom swept off. The bunches should be placed at rather a steep angle on the boards, so that the weight of the bunch rests rather on the stem than on the shoulders. Then there is a right and a wrong way of placing the boxes in a railway-van. A railway-carriage moves and shakes sideways, rarely endways. If the boxes are placed so that the backs of the bunches are either to the engine or end of the train, the side-shaking of the carriage will set the bunches swinging like the pendulum of a clock, causing the side bunches to strike against the sides of the box, or otherwise damage them. The safest way to set the boxes is to put the backs of the bunches to the sides of the van.

We often see coloured paper put on the boards for yellow Grapes. This seldom does any good, and often gives the paper a greener shade than when pure white paper or cloth is used. White paper is the best ground colour for all Grapes. Yellow Grapes should never be placed at the end of a stand, but rather between two blacks.

Principles of Grape-judging.—These chiefly affect exhibitors, judges, and the manner of prize schedules. Many of our classes are a sadly mixed lot, and have been humorously compared to the pitting of race-horses against cart-horses. The highest quality Grapes can hardly compete fairly with those of larger size and deeper colour. Mr. Buchanan thinks that few judges can please themselves or do justice to the Grapes in these mixed collections; also that too much scope is left for the individual whims of judges. The judges are known to have antipathies to certain Grapes. Exhibitors despair of justice for such varieties. Judges are often named colour, size, finish, or flavour-judges, &c. Perhaps the greatest faddists are flavour-judges. He frequently gives 1st prizes to collections of Grapes beginning to shrivel, their footstalks already black, but being judged by quality-men; and Muscat Hamburg, they were placed first over fresh, highly-finished Alicante, Gros Maroc, Lady Downes, and others. Mere appearance is a lottery in regard to quality; such Grapes as Alnwick Seedling being often less ripe than appearance would warrant.

Mr. J. Wright, writing of the difficulties of judging the race-horse and cart-horse Grapes together, advises some equitable mode of getting out of the difficulty, that neither late Grapes, Apples, or Pears, can be judged by flavour at our late summer or early autumn shows. They can, however, be judged by cultural excellence, and those that have the fewest faults should win.

Societies should still encourage the growth of the best Grapes, while also bearing in mind that for every hundred-weight of these there is probably a ton of Gros Maroc grown, perhaps the worst-flavoured Grape in cultivation. Each two or more sections of Grapes might be judged by themselves, and compete with its peers.

Some years ago at the Caledonian Society's autumn show a prize was offered for a white Grape different from Muscat of Alexandria. A bunch of Bowood Muscat took the prize, which Mr. Buchanan and others say is the same as the Muscat of Alexandria. At the next show an exhibitor was disqualified for having the Muscat of Alexandria and Bowood Muscat in his stand for four bunches. All the so-called varieties of Muscats, and Hamburgs, and Gros Maroc, and Cooper's Black, are one and the same thing, or classes under different names. Some closer classification seems needful to prevent what seems like capricious disqualification.

Mr. Buchanan suggested the following changes in the chief classes of the Caledonian Society's chief Grape-classes:—

First, six bunches of Grapes, in not fewer than three varieties; and four bunches of distinct varieties. Now one of these collections should be shown and judged for quality only; and the other for appearance. Four distinct varieties for quality, and the other for appearance; or the flavour-class might be chosen from a list of eight or a dozen sorts well known for flavour. The quality, however, not to be determined by tasting, but through the special knowledge of the judges of the qualities of the flavour-classed Grapes. The six bunches class might be thus scheduled: For six bunches of Grapes not fewer than four varieties, superior cultivation and finish to be the first consideration.

This would still allow the quality Grapes to compete in this class, and enable such fine Grapes as Madresfield Court, Muscat of Alexandria, &c., to hold their own with the eye as well as palate class. Mr. Buchanan also suggested four varieties instead of not fewer than three, as at present. Also six bunches, three varieties, two of each, or eight bunches in four varieties. All these collections to be judged by points, for the education of young gardeners of the deeper interest of the public generally. Besides, the point method compels the judges to look more variously into the merits and demerits of each individual bunch. Where the point mode of judging is adopted, the maximum number of points allowed for the respective varieties should never be left to the judges to determine, but should be clearly stated in the schedule. Ten points ought to be allowed for Muscat of Alexandria, nine for several high-class varieties, such as Madresfield Court and Muscat Hamburg; while eight could be the highest for all others.

One advice as to the selection of judges. It may be thought this is not needed, as societies will surely select the best men. This is not always so. Judges are sometimes chosen

for the position they hold in their profession rather than for any merit or ability they have shown in the particular branch they are asked to judge. As well ask a man to judge your Chrysanthemums who has never grown one, as to judge Grapes who has never been known to grow or fruit a single perfect bunch in his life. The delicate art of Grape-judging can only be learned in the school of successful practice and ripe experience.

A most interesting discussion, and cordial vote of thanks, followed the reading of this fresh and informing lecture on Grape judging and showing, which may cause further discussion.

ANCIENT SOCIETY OF YORK FLORISTS.

UNDER the auspices of the above society, a floral service was held on Sunday evening, 13th inst., at Shipton. The church had been extensively and tastefully decorated with flowers and plants, kindly contributed by members of the society.

A large number of members and friends journeyed from York, and there was a crowded congregation. The pulpit was occupied by the Vicar, the Rev. Gordon Salmon, M.A., chaplain to the society, who preached an excellent sermon appropriate to the occasion, taking for his text, Isaiah, Chapter 61, verse 11—"For as the earth bringeth forth her bud, and as the garden causeth the things that are sown in it to spring forth, so the Lord God will cause righteousness and praise to spring forth before all the nations." He touchingly mentioned the sad loss the society had sustained through the terrible death of Mayor Barstow. The offertory was in aid of the Gardeners' Benevolent Institution. Flowers and other produce from the children and parishioners were given to the York County Hospital.



[The term "accumulated temperature indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Inch.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
	Above (+) or below (−) the Mean for the week ending August 12.	Above 45° for the Week.	Below 45° for the Week.	Above 45° difference from Mean since January 1, 1899.				
0	1 +	101	0	+ 228	6	10	128	25.6
10	aver.	106	0	+ 145	30	7	120	19.6
20	aver.	114	0	+ 278	98	6	111	14.3
30	1 +	139	0	+ 294	196	6	96	12.2
40	2 +	185	0	+ 302	141	5	95	14.6
50	3 +	165	0	+ 406	183	5	83	12.6
60	2 +	115	0	+ 176	49	9	126	28.7
70	1 +	132	0	+ 306	146	7	118	20.2
80	4 +	154	0	+ 410	121	4	104	22.7
90	2 +	125	0	+ 213	72	7	135	21.4
100	4 +	146	0	+ 243	54	4	114	25.2
110	5 +	173	0	+ 277	67	6	99	15.8

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London. Principal Graving, &c. Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending August 12, is furnished from the Meteorological Office:—

"The weather was rather disturbed over England and Ireland at the commencement of the period, some rain, thunder, and lightning occurring in the former country, and sharp thunderstorms and heavy local rains in the latter. After Monday, however, the conditions became fine and dry

in all parts of the kingdom and continued so throughout the week.

"The temperature was just equal to the mean in 'Scotland, E.' and 'England, N.E.', but above it again in all other districts, although the excess was much less striking than that of the preceding week. The highest of the maxima were recorded on varying dates in the different districts, and ranged from 88° in 'Scotland, E.' and 89° in 'Scotland, N.' and the 'Midland Counties,' to 76° in 'England, N.E.' The lowest of the minima were registered, as a rule, on the 10th, when they varied from 55° in 'Scotland, E.' (at Braemar), and 19° in 'England, N.E.' to 48° in 'England, S.' and to 60° in the 'Channel Islands.'

"The rainfall was again less than the normal, the fall being extremely slight except in 'England, S.W.' and over 'Ireland.'

"The bright sunshine was again very prevalent and much in excess of the normal, excepting in 'England, N.E.' The percentage of the possible duration ranged from 7½ in the 'Channel Islands,' to 9° in 'England, S.,' and 69° in 'Ireland S.,' to 41° in 'Scotland, W.,' and 31° in 'England, N.E.'"

MARKETS.

COVENT GARDEN, AUGUST 17.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Foliage plants, var., each	1 0-5 0
ArborVite, var. doz.	6 0-36 0	Fuchsias, per dozen	4 0-6 0
Aspidistra, p. doz.	18 0-36 0	Heliotropes, per dozen	6 0-8 0
— specimen, each	5 0-10 0	Hydrangeas, p. doz.	6 0-10 0
Crotons, per doz.	18 0-30 0	Lilium Harris, per dozen	18 0-24 0
Dracenas, var. doz.	12 0-30 0	Lycopodium, doz.	8 0-4 0
— viridis, per doz.	9 0-18 0	Marguerite Daisy, per dozen	6 0-9 0
Erica, var. per doz.	18 0-36 0	Myrtles, per dozen	6 0-9 0
Eucynymus, various, per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var., per dozen	4 0-18 0	— specimens, each	21 0-63 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, scarlet, per dozen	4 0-6 0
— small, per 100	4 0-6 0		
Ficus elastica, each	1 6-7 6		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	1 6-2 0	Mushrooms, house, per lb.	1 0
Beans, English, Dwarf, per sieve	1 6-2 0	Onions, Dutch, bags	4 0
— Scarlet Runners, per bush	1 6-2 6	— Onions, picklers, in bags	4 0
Beetroots, new, doz. bunches	3 0-4 0	— Oporto and Valencia, cases	4 6-5 0
— in bus.	3 0-3 6	— new, bunches	3 0
Cabbages, tally	4 0-8 0	Parley, new, dozen bunches	1 0-1 6
— dozen	1 0-2 0	— per sieve	1 0
Carrots, new English, per dozen	1 0-2 6	Peas, blue, per bushel	7 0
— good, cwt. bags	8 6	— bags	12 0-14 0
Cauliflowers, dozen	1 6-2 6	Potatoes, Hebrons, Snowdrops, &c.	80 0-100 0
Celery, new, per bundle	1 6	— per ton	80 0-100 0
Cress, per dozen punnets	1 6	Radishes, round, breakfast, per dozen bunches	1 6
Cucumbers, doz.	1 6-3 0	Salad, small, punnets, per dozen	1 8
— ridge in pots	8 0	Shallots, new, per sieve	1 6
Endive, new French, per dozen	1 9-2 0	Spinach, New Zealand, per peck	0 9
Garlic, new, per lb.	0 2	— land, per peck	0 9
Horseradish, English, bundle	3 0-3 6	— sieves	1 6
— foreign, per bundle	2 6	Tomatoes, new English, per lb.	0 3-0 4
Leeks, new, per doz. bunches	2 0	— Channel Islands, p. lb.	0 2½-0 3½
Lettuce, English, Cabbage, dozen	1 6-2 0	— French, in sieve, 20 lb.	2 8
Lettuce, Cos, doz.	1 6-3 0	— boxes	2 0
Marrows, Veg., doz.	1 0-1 6	Turnips, new, doz.	5 0
— tally	8 0-4 0	— cwt. bags	4 0
— in pads or pots	1 6-2 6	Watercress, p. doz. bunches	0 4-0 6
Mint, per doz. bnchs.	3 0-6 0		

POTATOES.

Hebron, Puritan, Snowdrop, Up-to-Date, &c., 80s. to 100s. John Bath, 32 & 34, Wellington Street, Covent Garden.

REMARKS.—A consignment of Californian Pears in cases, consisting of Bartlett (Williams' Bon Chrétien) and Beurré Hardy, met a ready sale. These fruits were packed separately in paper, and arrived in good condition. Raspberries and Currants are nearly over. Runner Beans are slow trade, and prices have a downward tendency; the same may be said of all sorts of fruit now coming in, the supplies of which are plentiful. Excepting Gages, all other Plums quoted are of English growth. There were a few punnets of nice bright Strawberries on sale on Tuesday last, but there was no demand for them; the Pine-apples come from Madeira.

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, dozen blooms ... 3 0-4 0	Mignonette, dozen bunches ... 4 0-6 0
Asparagus "Fern," bunch ... 2 0-2 6	Orchids, per dozen blooms ... 5 0-16 0
Carnations, per doz. blooms ... 1 6-3 0	Pelargoniums, doz. bunches ... 4 0-6 0
Chacharis, per dozen 4 0-6 0	Roses indoor, per dozen ... 2 0-3 0
Gardenias, per doz. 1 6-2 6	Red, per doz. 2 0-4 0
Lilium Harrisi, per dozen blooms ... 4 0-5 0	Tea, white, per dozen ... 2 0-3 0
Lilium longiflorum, per dozen ... 4 0-6 0	Yellow, Perles, per doz. ... 2 0-3 0
Marguerites, p. doz. bunches ... 3 0-4 0	Safrano, per doz. 2 0-2 0
Maidenhair Fern, per doz. bunches 4 0-6 0	Smilax, per bunch 3 0-4 6
	Tuberose, doz. blms. 0 18-0

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, all home-grown:	Lyches, Chinese, packet, 1 lb. ... 1 8 —
— Juneating, bus. 3 0-5 0	Melons, in cases 24 or 36 ... 8 6-11 0
— Julien, bushel 3 0-4 0	— each, English ... 1 0-1 9
— Keswick, bush. 2 6-4 0	— Foreign Rock ... 1 9-2 3
— Suffield, bushel 4 0-5 0	Nectarines, A., per dozen ... 6 0-9 0
— Quarrendon, bus. 8 0-13 0	— B., per doz. ... 8 0-5 0
— Various Cookers, per bushel ... 2 6-3 6	Oranges, Italian, case 100 or 200 ... 13 0-14 0
Bananas, per bunch 8 0-12 0	Peaches, A., doz. ... 6 0-9 0
Figs, per dozen ... 1 0-2 6	— B., per dozen ... 3 0-5 0
Currants, black, sieve ... 6 0-7 0	Pears, Californian, cases ... 6 6 —
— Red, sieve ... 3 0-4 0	— Williams, 36, 48, 56 case ... 3 9-5 0
— White, gallon ... 2 0 —	Pines, Madeira, each ... 2 0-4 6
Grapes, English, Hamburg, lb. 1 0-1 6	Plums, English, Gishorne, sieve ... 8 0-3 6
— Alicante, per lb. 1 0-1 6	— P. Wales ... 6 6 —
— Gros Colmar, per lb. ... 1 6-2 0	— Victoria ... 8 0 —
— Muscats, A., per lb. ... 2 0-3 6	— Violet ... 6 0 —
— B., per lb. 1 6-2 0	— Blue, sieve ... 6 0-7 0
— Belgian, per lb. new ... 0 7-1 0	— Orleans (English), per sieve ... 6 0-8 0
— Channel Islands 0 8-1 0	— Rivers (English), per sieve ... 5 0-6 0
— Muscats, lb. ... 1 2-2 6	— Gages, sieve ... 8 0 —
— Denia, White, barrel ... 8 0 —	— pecks ... 4 0 —
— Black, barrel 10 0 —	Raspberries, per cwt. ... 18 0-30 0
Lemons, Naples, per case of 420. 16 0 —	— punnets ... 10 0 —
— Messina, case of 14 0 —	

SEEDS.

LONDON: August 16.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report to-day's seed-market poorly attended, with but little business doing. Some general and copious rains are now greatly needed, to permit the sowing of catch-crops for forage. Mean-time, Trifolium continues in short supply, and firm in value. Full prices are asked for Mustard and Rape-seed. New Winter Tares and Giant Rye show good quality, and meet a fair inquiry. The Canary-seed market is firmer, whilst Hempseed keeps very scarce. Samples of new Blue Peas are now arriving. There is no change this week in either Spanish Lentils or Haricot Beans.

FRUIT AND VEGETABLES.

GLASGOW: August 16.—The following are the averages of the prices recorded since our last report:—Gooseberries, hard and green, 10s. to 14s. per cwt.; do., Sulphur, 8s. to 11s. do.; do., red, 14s. to 18s. do.; Grapes, Guernsey, 7d. to 9d. per lb.; do., English, 1s. 3d. to 1s. 6d. do.; Almonds, 9s. to 14s. 6d. per barrel; do., Denia, 4s. to 8s. do.; Plums, 7s. to 10s. per half-sieve; Melons, Valencia yellow, 24s. 3s. 9d. to 6s. 6d. per case; 36s. 9d. to 7s. 9d. do.; Apples, American, 20s. to 22s. per barrel; do., English, 15s. to 21s. per cwt.; do., 7s. to 9s. per bushel; Peaches, home, 4s. to 8s. per dozen; do., small, 1s. 3d. to 2s. do.; Currants, Scotch, Black, 4d. to 5d. per lb.; do., red, Dutch, 10s. 6d. to 18s. 6d. per cwt.; do., English, 3d. to 4d. lb.; Greening, quarters, 6s. to 7s.; and 5s. to 6s. per ad.; do., halves, 10s. to 12s. (d.); Tomatoes, Scotch, 6d. to 8d. per lb.; do., English, 4d. to 5d. do.; do., Guernsey, 3d. to 4d. do.; do., Valencia, 4s. to 5s. per case; do., French, 3s. 6d. per crate; Cucumbers, 2s. to 3s. 6d. per dozen; Pears, 2s. to 3s. per sieve; Bananas, 9s. to 14s. per bunch, good; Lemons, Palermo, selected, sound, 12s. to 15s. per case; Messina, 14s. to 16s. do.; Naples, sound, 24s. to 30s. do.; Carrots, Dutch, 3s. 6d. to 4s. 9d. per hamper; Onions, white, 2s. 9d. per bag; do., Valencia, 4s. 3s. 9d. to 4s. per case; do., 5s. 4s. 6d. to 5s. do.; Cabbages, 9d. to 1s. 8d. per dozen; Cauliflowers, Edinburgh, 2s. to 2s. 6d. per dozen; Parsley, 1s. to 1s. 6d. per stone; Lettuces, round, 1s. 3d. per dozen; do., Cos, do.; Horseradish, 3s. per bundle; Mushrooms, 9d. to 1s. per lb.; Beetroot, 6d. to 8d. per doz.; Peas, 1s. 6d. to 2s. per stone; Potatoes, 8s. to 12s. per cwt.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending August 12, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
s. d.	s. d.	s. d.	s. d.
Wheat	33 8	24 8	- 9 0
Barley	27 5	22 6	- 4 11
Oats	20 9	17 9	- 3 0

CRICKET: "GARDENERS' CHRONICLE" v. SYON HOUSE GARDENS.—The return match was played at Syon on Saturday, August 12, and resulted in a win for the Syon House Gardens team, the scores being respectively 71 and 30.

TRADE NOTICE.

TRANSFERENCE OF NURSERY BUSINESS.

THE nursery business carried on at Larchfield, Dumfries, by the trustees of the late Mr. William Learmont, has been transferred to Mr. Learmont's only son, Mr. John Learmont, who will continue to carry on the business under the name of William Learmont & Sons. R. J. Arnott, "Standard" Office, Dumfries.

VARIORUM.

We read that recently the lightning struck a rookery in Ireland, with the result that over 500 birds were killed.



ANEMONES: W. Price. If you mean A. coronaria—the Poppy Anemone, and A. hortensis a near ally, lift and divide the roots when the foliage dies down, and plant from September to February, if a succession be wanted.

BOOKS: S. W. Mr. Upcott Gill, 170, Strand, London, W.C., publishes a number of small manuals on the kinds of fruit usually grown on walls, at the price of 1s. each.

BOWLING GREEN: J. Harrison. The usual practice is to make the grass plot a dead level. We should think, that, with the "bias" always given the balls any deviation from the level would act injuriously on their intended course. The proposed hanging levels of 3 and 10 inches respectively, would certainly tend to make the bowling difficult.

CARNATION DISEASE: Brockley. The leaves are infested with eel worms which come from the soil. Another year sterilise the soil before using it by baking, or pouring boiling water upon it.

CARNATION ST. ANNIE: W. W. & Sons. We find little to admire in the colour of the flower, although ladies in search of a flower to harmonise with certain tints in dress materials might fancy it. The flower is full, and the petals are smooth and rounded, but in consequence of the heat its good points were not prominent.

DELPHINIUM PROPAGATION: Old Subscriber. Cuttings of the young shoots taken in spring or in autumn, after cutting down the old flower stems, and potted singly, will root freely if placed in a cold frame. The old plants may be cut down after flowering, when growths will proceed from the root stock; the whole may then be lifted and divided. Seeds may be sown in slight warmth in early spring, or in the open air in May.

FIGS DROPPING: D.M. The result probably of dryness at the root.

GAZANIA: F. H. Cuttings may be struck in pots of sandy soil placed in a close frame at this season, and in the spring in moderate top and bottom heat from soft cuttings taken from stock plants. For this latter, if no other exists, plants may be potted up from the flower beds.

GOOSEBERRIES WITH RED AND YELLOW BERRIES: R. Such sports are not uncommon. We frequently see black and white Grapes on the same cane.

INSECT ON CHRYSANTHEMUM: J. A. Only a fragment of your insect from Chrysanthemum arrived. It is some Hemipteron (plant-bug), in an immature state. Certainly more or less injurious, and may produce imperfectly formed leaves or flowers if it attacks buds.

INSECT: W. S. The caterpillar is that of one of the hawk moths. You can assure your lady that no harm will accrue from the presence of the creature on her arm.

IS LILIUM AURATUM AN HERBACEOUS PLANT? M. We have received a telegram which is, of itself, perfectly unintelligible. On further enquiry, we conjecture that the original question was as to whether Liliium auratum is an herbaceous plant. Our answer is that depends. We have not the schedule before us (if there was a schedule), but, speaking generally, we should say Liliium auratum is an herbaceous plant. The telegram in question, owing to the cause above mentioned, could not be answered at once as requested.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—F. F., The Gardens, Broomhill, Mount Park, Harrow. No numbers affixed to specimens. Centranthus ruber, red; ditto, white variety; Spiraea Douglasii, pink-flowered shrub; Eschscholzia californica, yellow annual; Monarda didyma, red flowers; Centaurea montana, blue; Tradescantia virginica, blue. Copy of paper sent, money returned.—J. B. A good ordinary form of Cattleya labiata, and Odontoglossum Halli.—J. E. H. Cattleya granulosa.—S. E. A., Yorks. 1, Ceanothus azureus; 2, Lycium barbarum (Tea Tree); 3, Clematis flammula; 4, Inula glandulosa.—W. D. 1, Dicksonia antarctica; 2, Adiantum formosum; 3, Adiantum trapeziforme; 4, Davallia hirta cristata; 5, Adiantum cardio chlensia; 6, Cyathea dealbata.—J. M. L. The garden names of the Begonias sent are: 1, B. Prince Wallenstein; 2, B. incarnata purpurea; 3, B. Dregei; 4, B. Digwelliana; 5, B. Ingrami; 6, B. ascutenaria. H. A. B. 1, Fuchsia coccinea; 2, Acer compestre; 3, a hybrid Berberis—perhaps Neuberti; 4, Syringa Josikea; 5, Populus tremula—the Aspen; 6, Populus.—G. P. 1, Koleruteria paniculata; 2, Spiraea Lindlei; no number, Gloriosa superba.—A. P. F. Anagallis cerulea.—R. K. Artemisia maritima, Hordeum maritimum.

ONIONS AND LEEKS IN COLLECTION OF SHOW VEGETABLES: P. W. These may be shown in the collection without risk of disqualification.

PAINT TO PRESERVE TOMATO AND CUCUMBER BENCHES OF WOOD: S. T. Gas-tar; anti-corrosion paint (Carson's), or red lead and boiled Linseed oil (no driers). Gas-tar is not injurious when mixed in the soil in which Melons are planted, and it was at one time in use in gardens, so that it is not likely to injure the roots of Cucumbers or Tomatoes.

ROSEMARY AND LAVENDER PROPAGATION: Old Subscriber. Cuttings of new growth taken off with a heel forthwith will root in sandy soil, under a hand-glass placed in a partially shady place, not, however, choosing the north side of a wall. The soil should be kept moderately moist, and no air should be afforded till the cuttings are rooted, unless there are indications of damping off, in which case wipe the glass and afford air for a quarter of an hour on dry days once or twice a week. The cuttings may remain in the hand-light till the spring, protecting them against hard frost, and affording plenty of air in mild weather; or they may be potted up as soon as well rooted, and kept in coal ashes in a cold frame. Young plants will not stand much frost.

SENECIO: Old Subscriber. Propagation by means of seeds, division of the root stock, and cuttings of the roots and shoots.

VERBENA VENOSA: F. H. The plant may be struck under cool close treatment under a frame or handlight, and from the young growth taken from old plants started in heat, and by division of the roots. It may be grown from seeds sown in early spring. For propagating purposes, and to ensure a stock of the plant, some of the roots should be taken up in October, and placed in soil in shallow boxes, keeping them in a cold pit.

COMMUNICATIONS RECEIVED.—A. H.—A. W. S.—D. T. F.—Andreas Voss.—F. W. B.—G. Schneider.—E. S.—C. R. F.—H. J. Jones.—Niel Sinclair.—W. L., Ayrshire.—C. A. S.—F. C. Prof. Cornu.—R. J. A.—J. J.—G. J. T.—A. Voss.—R. H. P.—J. O. B.—A. H.—S. A.—W. K.—F. S.—F. W. B.—R. P. B.—J. W. MCH.—C. T. D.—Jno. Knight.—Towler & Son.—T. B.—A. Bott.

SPECIMENS, PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—A. H.—R. C. H.



THE Gardeners' Chronicle

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"MIMICRY" IN PLANTS.

IT seems to me that scientists are trying to "put the cart before the horse," in looking at "Protection" as the *rationale* of mimetic resemblances in animals and plants (see p. 111). Such may be a result in some cases, as among insects; but the feature occurs to so great and wide an extent in the animal and vegetable kingdoms, where no protection is possible, that one must look for a far wider cause than the one usually assigned. To take an example from among animals. The Marsupials of Australia, having been the sole group in that island-continent, have become differentiated into carnivorous, insectivorous, graminivorous, "flying," and other kinds of quadrupeds, imitating groups which belong to quite separate types of mammalia in other countries. Thus, the tiny, insectivorous, and pouched "Kangaroo-mouse" is indistinguishable in outward appearance and form from a true mouse, which is a rodent.

The interpretation appears to be, generalising from a vast array of facts, that similar habits of life have produced similar results, within the capabilities of the creatures' typical structures. Thus, a slow-worm resembles a snake in form and method of progression, but it is a "lizard," and no true snake at all. Again, all animals of sandy deserts are sandy-coloured, as may be seen in the large glass case in the entrance-hall of the Natural History Museum. Another collection illustrates the prevalence of white in arctic animals. These are brown in summer, but lose their colour in winter, clearly a result of the lowering of temperature, &c. The white fur may be said to be a protection, as it resembles snow; but then it applies equally to the prey and its foe, so that it is not easy to see where protection favours one more than the other.

With regard to plants, a study of their habits soon proves that outward resemblances are merely due to their growing in similar conditions. This is best seen in plants inhabiting districts with very marked features, such as deserts, in water, the arctic and alpine regions, &c. Plants of such well-defined regions are often characterised by having a certain common *facies*, or superficial similarity, though they have no affinity between them. Thus alpine plants are dwarf, prostrate, or often tufted, &c.; and where lowland plants are grown in high alpine regions they soon acquire a similar habit of growth.

In deserts a succulent or spinescent character prevails. Thus, the stems of Cactaceæ of Mexico resemble the fleshy-stemmed Euphorbias of North Africa and the Stapelias of South Africa; while Agaves are like Aloes, &c.

In aquatic plants the finely-divided submerged leaf of the Water Crowfoot is imitated

by that of Cabomba, Myriophyllum, some aquatic Umbellifereæ, Ceratophyllum, &c.; but this is simply the result of living under water. Another aquatic type is ribbon-like. This is characteristic of Monocotyledons; it is really a phyllode or flattened petiole, as seen in the Arrow-head, which develops the sagittate blade on reaching the surface of the water. This type is seen in some Dicotyledons, as Lobelia Dortmanni and Hippuris.

In insectivorous plants the trap of Dionæa Muscipula, with the glands of Utricularia, are imitated in Aldrovanda; while the pitcher of Cephalotus, which is constructed out of the leaf-blade, is in outward appearance precisely like that of Nepenthes, which has issued out of an hypertrophied water-gland! There is apparently the same "lid," inrolled margin, fringed external "guides," and glands sunk in the tissue of the inner walls of the pitchers.

Similarly in climbing-plants, the tendril of a Pea looks like that of a Vine; but while the former is made out of a compound leaf, the latter is a metamorphosed flowering branch.

The grass-leaved type of foliage is common to many plants besides Grasses and Sedges. It is familiar to all in Pinks and Thrift, and is found in the grass-leaved Pea, &c. It is simply the result of the habit of growth. Being crowded, the leaves are compelled to grow erect, and the linear form and internal anatomical structure follows, and thus the natural resemblance results.

Again, the minute adpressed leaves of Thuya, Cupressus, &c., are "mimicked" by alpine Veronicas of New Zealand, as well as by plants of the antarctic regions. The cause is the similar climatic conditions supplied by the localities where they grow.

Floral imitations are not infrequent. These vary according to their own laws, and are more or less independent of climatal conditions; but the same principle applies, of similar external causes giving rise to similar effects, whatever they may be, since it is now believed that the forms of flowers have largely depended upon the visits of insects. If the insects visit different flowers, the latter will assume similar shapes within the limits of their structure. Thus, the Labiate resemble the Scrophularinæ; but the ovaries are so distinct in form, that this feature alone is sufficient to shut off any true affinity. The papilionaceous corolla of the Leguminosæ is more or less imitated by Polygala, the corolla of which has been styled "falsely papilionaceous." It is also seen in Collinsia bicolor, and Schizanthus, belonging to Scrophularinæ, and in some wild forms of Pelargonium.

Again, white or coloured bracts often do duty for a corolla; thus, species of Cornus with four large white bracts, having numerous minute flowers in the middle, look just like a Clematis; Darwinia tulipifera of similar structure, resembles Tulipe, as the name implies. Lastly, Euphorbia jacquiniæflora has an involucre cup, with five scarlet appendages, which can readily be taken for a corolla. So, too, in fruits. The deadly Manchineel resembles a Pear; the fruit of the Egg-plant, of a Passion-flower, and a yellow Plum, look just alike, &c.

One might multiply these resemblances *ad infinitum*, and call them "mimetic;" but it is obvious that any notion of one kind protecting another which it may resemble, is quite out of the question. *George Henslow.*

NEW OR NOTEWORTHY PLANTS.

STANHOPEA FUERSTENBERGIIÆ, Krzl.,
n. sp.*

A new Stanhopea is undoubtedly a matter to speak of. The new species is a sweet little thing, the flower being a little smaller than those of a medium-sized Stanhopea oculata. The whole flower is white, with only two rather large deep-crimson blotches at the very base of the lip. The two-flowered spikes and some other peculiarities put this plant very near to S. tigrina; but neither the overwhelming smell, nor the tiger-like colour, will attract attention. Being more showy than even the best forms of S. Martiana, the flower is perhaps the most attractive of all in this phantastic genus. The plant seems to be of free-flowering proclivities.

I received fresh materials from Baron Max von Fuerstenberg, Schloss-Hugenpoet, near Düsseldorf; and the head-gardener, Mr. Cremer, stated that the plant (and it is not a vigorous one) flowered several times successively in the months of May and June. Stanhopeas, speaking generally, are not in fashion, but that is not the case with a pure white-flowering species; and few persons will deny that this plant has its peculiar chaste charms. I dedicate this lovely plant to Baroness Mathilde von Fuerstenberg, the Baron's sister. *F. Kränzlin, Berlin.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA LABIATA GASKELLIANA.

A REMARKABLE form of Cattleya Gaskelliana, exhibiting peloria of a very marked kind, and which promises to prove constant, is sent by H. Cary Batten, Esq., Abbot's Leigh, Bristol, who says of it: "The flower I send is taken from a strong plant, imported by Messrs. Stanley-Mobbs & Ashton, of Southgate, and which has now produced ten flowers, all similar to that I send." The flower, which is large, has upper sepal and petals of the usual character, and of a bright, light rose colour. The lip, which is abnormal, is orange-coloured at the base, veined with white, and with the usual fimbriated purplish front. The lower sepals are each nearly as large as the lip, the upper halves of the usual character, and the lower halves orange and purple, and crimped like the labellum. Like all forms of the variety, it is very fragrant.

CATTLEYA LEOPOLDI.

A good example of the Pernambuco variety of this variable and floriferous species is forwarded by Mr. T. Parkin, Stackstead, near Manchester, who remarks that he obtained it as C. × Victoria Regina, the natural hybrid known to have been imported with this form of C. Leopoldi. It has large, showy, well-shaped flowers; and the sepals and petals of olive-green tint, rose-tinged, and spotted with dark-reddish chocolate. The front of the lip is of amethyst-purple colour, the side lobes paler on the outside, and bluish-white inside. The plant bears a long succession of flowers.

* *Stanhopea Fuerstenbergii*, Krzl., n. sp. (Eustanhopea).—Scapo bifloro, squamis et bracteis rachin et ovaria arctissime cingentibus; sepalis dorsali oblongo-ovato obtuso leviter concavo, laterali ovatis subobliquis acutis, petalis paulo brevioribus semi-alatis acutis margine undulatis; labelli hypochilii late cymbiformi pectore obtuso; carina per totam longitudinem utrinque addita una carina semilonga; margine superiore hypochilii arguto, his omnibus in apicem hypochilii convergentibus; canali amplo lamellula parva transversa in officina antice canalis; mesochilii brevis brachiis compressis aristatis; epichilio latissimo ovato-triangulo s. rhombeo medio excavato apice brevi triangulo deflexo; alis gynostemii late semilobis cum alulis triangularibus acutis continuis; anthera satis ampla antice apiculata.

Flores primum nivei deinde pallide straminei; hypochilium basi utrinque macula violacea ornatum; flores inter minores generis; sepalis 5.5 cm. longa, dorsale 2.5 cm., lateralia 3 cm. lata; petalis subaequilonga 2 cm. lata; cornu mesochilii 3 cm. longa; epichilium 2.5 m. longum et latum, hypochilium 2.5 cm. altum et latum. Patria?

ONCIDIUM DASYTYLE.

Although known in collections since 1872, when it was first imported from the Organ Mountains by Messrs. B. S. Williams & Son, of Holloway, this pretty species is seldom seen in as large numbers as the other species, such as *O. concolor*, &c., coming from the same region. It flowers at different times, but usually in the autumn and winter, at which season its graceful slender sprays of flowers are very serviceable. A fine example of it is sent by Mr. Wm. Murray, gr. to Norman C. Cookson, Esq., Oakwood, Wylam. The flowers in this example are about one and a half inch across; the sepals pale yellow barred with red-brown, the lip which is the prominent feature sulphur-yellow, with a prominent nearly black crest, giving a contrast which is very striking. The cool-house suits it best. J. O'B.

STRATHFIELDSAYE.

AMONG the numerous trees in the Park in which the Duke and Duchess of Wellington take great interest, there are some of such proportions and symmetry as to deserve mention, more particularly so as there is no record of the Conifers to be found in the report of the Conifer Conference.

Sequoia gigantea (*Wellingtonia*).—A noble specimen of the *Wellingtonia* is to be seen here. It was planted by the Duchess of Wellington on April 24, 1857. Measured in 1868, it had then attained the height of 24 feet 6 inches, with a spread of branches 44 feet in circumference, and a stem girthing 6 feet at 6 inches from the ground, and 4 feet 10 inches at 2 feet up. On January 12, 1872, it measured 30 feet in height, 8 feet 7 inches in girth at the base of stem, and 5 feet 4 inches at 4 feet from the ground, with a spread of branches 54 feet in circumference. It was measured in September, 1895, and found to be 71 feet 4 inches in height, 21 feet 6 inches in girth of stem at base, and 16 feet 5½ inches at 4 feet up, with a spread of branches 110 feet in circumference. Measured in August, 1899, it attained the height of 78 feet 10 inches, with a girth, at 4 feet up, of 19 feet 5 inches, with a spread of branches 115 feet in circumference. It is regularly pyramidal from the base. Some of the lower branches are bent downwards to the ground, and have taken root. In one or more instances the young layer has become detached from the parent trunk. It is to be hoped that these will be retained, as they add much to the beauty of the tree, and prevent it getting bare at the base. It is in the fitness of things that so noble a tree of this species should be flourishing at Strathfieldsaye. There is also a group of *Wellingtonias*, each about 25 to 30 feet high; as well as a fine avenue of these trees in other parts of the ground.

Cedar of Lebanon.—A fine Cedar in the pleasure-ground, much injured by storms, now measures 99 feet 11 inches in height, the girth of the stem at 3 feet from the soil being 17 feet 10 inches.

The Bentham Pine.—A noble specimen of the Bentham Pine, *P. ponderosa* (*Benthamiana*), is in general outline very like *P. macrocarpa*, but the foliage is, of course, quite different. It is 70 feet in height, with a girth at 3 feet up of 4 feet 11 inches. There are also fine specimens of the Scotch and Weymouth Pines, and Silver Firs.

Abies Nordmanniana.—Height 69 feet 10½ inches; girth 4 feet 1 inch.

Taxodium distichum (*deciduous Cypress*).—Height 70 feet 7 inches; girth, 3 feet up, 11 feet 4½ inches.

The Silver Lime.—Among the deciduous trees at Strathfieldsaye is a tree of *Tilia argentea*, of fine proportions and symmetry. It measures 69 feet 8 inches in height, and at 3 feet from the ground girths 6 feet 2 inches. The under surface of the leaves is covered densely with milky-white down, and the young seed vessels are distinctly ribbed. This is the tree often called *alba* or *Americana alba*, but none of the American forms of *Tilia* figured by Sargent correspond with this

species, which is a native of Eastern Europe. *T. petiolaris* (including as synonyms *T. alba pendula*, *T. americana pendula*, and *T. argentea pendula*), is distinguished, according to Nicholson, by its warted fruits.

The Tupelo (*Nyssa sylvatica* var. *biflora*).—This is a beautiful tree of 70 feet in height, with a circumference of 14 feet 10½ inches at 3 feet from the ground, with slender pendulous branches and glossy leaves, about 4 by 1½ inches, paler beneath. In form, they are broadly lanceolate, or tending to oblanceolate, acuminate, and gradually tapering to a slender stalk about half an inch long. In autumn the leaves assume a brilliant orange and crimson tint. Reference to Sargent's monumental *Sylva of North America*, t. 218, vol. v. (1893), shows, so far as the leaves go, that the Strathfieldsaye tree belongs to the variety known as *biflora*, the *Nyssa biflora* of some writers, such as Aiton and Loudon. Sargent thus speaks of it:—"This is a tree 30 to 40 feet in height, with a tree gradually tapering upwards from a swollen and much enlarged base, many erect thick roots rising above the surface of the water, smaller and usually narrow acute or obtuse leaves, and flattened stones, with more strongly-developed ridges than usually occur on plants growing further north. . . . In habit, the *Tupelo* is one of the most distinct, variable, and picturesque trees of eastern North America; the autumn colouring of its lustrous foliage equals in brilliancy that of the Scarlet Maple. . . . while its immunity from the attacks of disfiguring insects and serious fungoid diseases heightens its value for the decoration of parks." It flourishes in wet, undrained soil, and on well-drained uplands. The tree is known also as Sour-Gum, Black Gum, and Pepperidge.

Fagus sylvatica asplenifolia.—Height 49 feet, girth, 3 feet up, 6 feet 10 inches. Viewed from a little distance this tree, with its delicately-cut leafage, may be compared to a huge Maidenhair Fern.

White Poplar, in new grounds.—Height 122 feet; girth, 3 feet up, 14 feet 10½ inches.

For information relating to these trees, we are indebted to His Grace the Duke of Wellington; whilst the measurements have been kindly furnished to us by Mr. McHattie, His Grace's able gardener. The Duchess has an interesting series of photographs of the above-mentioned trees, as well as of many others. M. T. M.

DAVENHAM BANK, MALVERN.

ON visiting this place, the residence of C. Dyson Perrin, Esq., a short time ago, I observed a very fine group of *Souvenir de la Malmaison* Carnations arranged on the floor of the conservatory. The plants ranging from one year old with one flower, to three years old with upwards of thirty flowers; the group showing upwards of 570 expanded ones. The plants were the picture of good health, and they had been grown in a span-roofed house, which was formerly occupied by Azaleas, where during the winter, they get plenty of light and air. Adjoining the conservatory is a stove, with a well-arranged fernery, having a mirror at the back, and water falling over the stones. This house contained some capital plants of *Adiantum Farleyense*. Since Mr. Charlton became gardener at this place many changes have taken place, Mr. Perrin being much interested in his garden. The cultivation of Pine-apples has been discontinued, and the pineries planted with Figs, Nectarines, and Frontignan and Royal Muscadine Grapes; the berries of the first-named Grape are exceptionally large for the variety. Melons are largely grown. The Madresfield Court Vines showed large, well-coloured bunches, with big berries. Some new Muscat Vines that have taken the place of the worn-out Vines are this year affording some capital bunches of Grapes.

In the Peach-cases good crops were remarked on young trees which have been planted within the

last four years. Orchids, which at one time were largely grown at Davenham Bank, have been curtailed in numbers, those which are the most serviceable for cutting being retained; including Tree Carnations which were laden with bloom at the time, and had been in flower since the winter. In an adjoining house were remarked *Streptocarpus* and *Gloxinias*, and hanging from the roof some well-flowered plants of President Carnot Begonia. In the kitchen-garden, old or worthless varieties of fruit have been cleared away, and better substituted, many being cordons. A capital fruit-cage, in which Cherry-trees and bushes of Gooseberries and Currants are cultivated, was noted. The Cherries are cordons with two and three stems apiece, loaded with ripe fruit. The Gooseberries, likewise in cordon form, were loaded with fruit. In the cool fernery at the end of the lawn, some fine clumps of the Killarney Fern, *Trichomanes radicans*, grow like weeds under the shade of Tree Ferns.

This garden, situated as it is at the foot of the Malvern Hills, is a charming place, and the manner in which it is kept reflects much credit on Mr. Charlton and his assistants. W. S. H.

HYBRIDS AND THEIR RAISERS.

(Continued from p. 154.)

THE HERBACEOUS PHLOX.—It is perhaps not easy to accurately determine the parentage of the two races of herbaceous Phloxes found in our gardens—the early flowering and the late flowering. The late Mr. John Downie, of Edinburgh, held that the former, with their more spare growth and glistening foliage, came from *P. suffruticosa*, which the botanists declare to be a form of *P. glaberrima*, an American species, which has bright green leaves glossy on the surface; and *P. decussata*, which we are told is properly *P. maculata*, also from America. *P. ovata* and *P. paniculata*, also American species, were probably remote ancestors in some part of the fine Phloxes of our day. The supposed descendants of *P. maculata* are of taller and more robust growth; the leaves thicker and rougher, though there are signs in some of the modern seedlings that the two races have become much blended.

About fifty years ago, Mr. Thomas Rivers brought before the public two varieties of *P. suffruticosa*, raised on the continent, which were figured in the September number of the *Florist* for that year, quite small in size as compared with the splendid varieties of our time. Six years later, Messrs. E. G. Henderson & Son, St. John's Wood, and Downie & Laird of Edinburgh, were putting new varieties into commerce, and among those which came from the Edinburgh house was Countess of Howe, a charming white variety of the early flowering section, which made a great reputation, as did also another white variety named Beauty of Pilgrim.

From that time onward new herbaceous Phloxes have been constantly produced, mainly from abroad; and those who have had an opportunity of examining the collection in the Chiswick Gardens of the Royal Horticultural Society, cannot fail to be struck with the beauty of the new forms originated by M. Victor Lemoine, and others, and particularly to note the dwarf habit of growth of many of the later productions.

THE SWEET WILLIAM.

One can only imagine what *Dianthus barbatus* was like when introduced from South and Eastern Europe in 1573. Forty years ago, George Glenny said of the Sweet William grown in those days, that they had two faults—the flowers were mostly speckled all over, as though dusted with flour; and the edges of the petals were much serrated. More than sixty years ago Glenny published his properties of the Sweet William, but the florists of that time appeared to be of opinion that the flower was incapable of improvement.

Mr. Joseph Hunt, an amateur florist of High Wycombe, was one of the first to take in hand the

raising of improved varieties; and, adopting Glenny's properties as a basis, he originated the strain known as Hunt's. Some seed which Mr. Hunt gave to a neighbour, who was a cobbler, produced such fine varieties, that when shown by Mr. Hopwood at one of the meetings of the Royal Horticultural Society, they were awarded a Banksian Medal. This inspired Mr. Hunt with a desire to do something even better, and the result was Hunt's strain, with noble trusses, large smooth-edged pips, and the colours dense and pure. Later in time, the late Mr. William Dean introduced his Auricula-eyed strain, having the bold white centre peculiar to it. Since then improved strains have become common, and it is not difficult to meet with flowers of great size and substance, in a striking variety of colours. Messrs. James Carter & Co. have a very fine strain known as the Holborn Giant, and every seedsman of note has his peculiar productions also.

THE PENTSTEMON.

This fine plant, which for general garden purposes is more frequently treated as a biennial than it is as a perennial, has during the last quarter of a century been so greatly improved, that it is difficult to see wherein the present strains can be excelled, except in the direction of new colours and their combinations. The fine varieties of the present day represent the improved progeny of P. Hartwegi (gentianoides) and P. Cobaea. Fifty years ago, P. Hartwegi and its varieties were popular plants in gardens; but it is difficult to say who first commenced to improve the forms then grown. The Scotch florists have been active for years past in improving the strains, and M. Lemoine, Messrs. Vilmorin, Andrieux & Co., and others at home and abroad, have been equally active in the work, which improvements have, no doubt, resulted more from selection than from cross-breeding. P. speciosus, probably a form of P. azureus, which is blue-flowered, may, perhaps, be appropriately crossed on to the finer forms which are now to be found in gardens with advantage, only that the more tender character of the former might affect the constitutional vigour of the offspring. Strains of seed are now so high in quality, and the seedlings so fine, that naming in the case of English-raised seedlings is rarely resorted to. In Scotland, some of the leading raisers still name their seedlings, but in fewer numbers than formerly. R. D.

CH. VUYLSTEKE.

THERE are no keener cross-breeders than our Belgian friends, and no better judges of the merits or demerits of cross-bred products.

Among the more distinguished raisers, we may mention the name of M. Ch. Vuylsteke as one always to the fore. Crosses between Azalea mollis and the hardy Ghent Azalea, crosses between Rhododendrons in abundance; hybrid Cypripediums, such as "Zampa," raised between C. Leeaenum superbum and C. hirsutissimum; "Jupiter," between C. Boxalli atratum and hirsutissimum; "Erato," between C. Sallieri and C. hirsutissimum; "Eucharis," between C. insigne Chantini and C. Lawrenceanum; C. villosum violaceum, between C. villosum and C. hirsutissimum; C. "Murillo," between C. Boxalli atratum and C. Argus; C. loochristiense, probably between C. Harrisianum superbum and C. Hookeri; "Zephyr," between C. barbatum and C. Spicerianum, these and many others, including a novelty named Talma, seen at the great show at St. Amand, Ghent, this year, testify to his zeal and industry.

Among Odontoglossums may be mentioned O. loochristiense, Rolfe, between O. crispum and O. triumphans. Of this there are many varieties, varying much in colour, and some very beautiful. Odontoglossum Rolfeæ was raised between O. Pescatorei and O. Harryanum; O. crispum-Harryanum, between O. crispum and O. Harryanum, which obtained a First-class Certificate at the Temple Show in 1898.

A series of very fine varieties, differing in colour and form, raised between O. crispum and Harryanum, and the inverse cross; O. Pescatorei and O. Harryanum, and inversely, may also be mentioned. Among these varieties may be named O. spectabile X, grandiceps X, bellatulum, magnificum, zebrinum, cariasimum?, urophyllum, reginum, salmoneum, vivicans, corallinum, dipladenium, eximium, hirsutum, graciosum, præstans, summum, supremum. Many hybrid Cattleyas are about to flower, &c.

We only regret that M. Vuylsteke did not honour us with his presence at the Conference, nor enrich its records with the details of his experience.

TREE CARNATIONS.

IN this section are included all the varieties most suitable for winter flowering. The term "tree" is rather misleading, as many of the varieties are of dwarf habit, and some of them are so nearly allied to the ordinary border Carnations that it is difficult to draw the line between them. I believe the varieties formerly grown were all of very tall



M. C. VUYLSTEKE
LOO-CHRISTI, GHENT.

growth, branching freely up the stems. In selecting the most distinct types, there is a wide difference; the border varieties, though they may have long flower-stems, produce the side-shoots from the base of the plant only, and under ordinary conditions these side-shoots do not flower until the following season, while those of the "tree" section branch out all up the stems, and throw up flower-stems much sooner, the side-shoots being produced in succession, a longer flowering period is kept up. Even in the dwarfier sorts this characteristic is noticeable. They are sometimes called perpetual, and though some flower for a long period, and by growing a succession of young plants of the same varieties, they may be made to flower throughout the year, but a succession of bloom from the same plants cannot be expected.

Some reference was made in the *Gardeners' Chronicle* a short time ago as to the origin. I believe that formerly the two sections were more distinct than those grown at the present time; and I find that those with the branching habit may often be found among seedlings from the

border varieties. I have also found many with exactly the border habit among seedlings raised from the tree section. Within the last few years a considerable number of new varieties have been added, yet it seems difficult to supplant some of the old varieties, particularly the useful pink variety, Miss Joliffe; this does not always prove satisfactory, but with a clean, healthy stock to work from, there is no other variety of the same shade of colour that gives such a long succession of flowers. Mdlle. Thérèse Franco is perhaps the next best of the same shade. Some growers have discarded the first named in favour of this, and I have seen it doing very well, but it does not produce so long a succession of bloom, and some who have grown it have now discarded it.

Of scarlet varieties there are a great number, out of which it will be quite safe to recommend Winter Cheer and W. Robinson. Winter Scarlet is very free and bright in colour, but the flowers are small. Of whites, it seems difficult to get a variety that will last many seasons. When Mrs. Moore came out, it appeared a promising variety, but after about three years it gradually weakened, and I have not seen it good now for several years. La Neige is a very free-flowering variety, but the flowers are small, and I find the plants are much inclined to die off, especially after heavy rains. Deutsche Brant, a newer variety, appears to have a better constitution.

Crimsons.—Since the introduction of Uriah Pike, a number of others have been added, the above being the pollen-parent of many of them. Countess of Warwick I should place first, the flowers being of a rich clear claret-crimson, with growth similar, though a little taller than Winter Cheer.

Yellow Varieties.—It is more difficult to recommend a good yellow than any other colour. When I first grew Andalusia nothing could have been more satisfactory, but it is now a long time since I saw it in good condition. Pride of Penhurst, though more nearly allied to the border section, is often grown for winter flowering, and I have seen it do well, and flower in mid-winter. I have also seen Primrose Day do well; and I thought when it was raised that it would prove the best yellow. I find, however, that many growers who gave it a trial soon discarded it. I find with all the varieties that they vary in different localities, and all are inclined to get weaker. The only way to keep up a vigorous and healthy stock, is to select the strongest and best for propagating from; and these should be grown out-of-doors through the summer, but taken under glass before the heavy rains come on in the autumn; and after they are taken indoors, plenty of air should be afforded, plenty of light and air, with just sufficient fire-heat to keep out frost, or to dry the atmosphere in wet weather, is all that is wanted. The only time a little extra warmth may be given is just before taking the cuttings (or pipings as they are usually called). Any that are not branching out may be stopped back; and a little heat will ensure some good pipings later on.

Propagation.—This section may be propagated February, as doing so affords time to establish at any season of the year, the chief thing being to get good pipings. I prefer to propagate early in good plants for flowering the following autumn and winter; and they usually root well at that season, as bottom heat can be given and the surface kept cool; but with care they may be done with equal success at midsummer. I have just had a batch potted off, it was not a very large batch, but almost every cutting had rooted. In one instance I find over 160 young ones from three stock plants (this was Mdlle. T. Franco). Although not the best time to start propagating, it is by looking after the stock at this season that good cuttings are obtained early in the year.

Success in propagating Tree Carnations depends in a great measure on paying attention to small details. Before starting to take cuttings, I like to have the house thoroughly fumigated, for if insects infest the cuttings, the latter are weakened very

much; care should also be taken that the plants are not dry at the roots; for if only slightly withered before they are put in, the cuttings take much longer to root, even if they root at all. I have always made a practice of using 48-size pots, and put twenty cuttings in each pot. I like to fill the pots nearly half full with drainage, and then fill them up with fibrous loam, peat, and sand in equal parts, with a little extra sand on the surface; the compost should be passed through a small-meshed sieve, and pressed moderately firm. If the soil is pressed too firmly, or it is used in a coarse state, the roots are liable to be broken off when potting off singly, which should always be done before the roots get matted together. The cuttings root best where there is a moist, cool atmosphere and a moderate bottom heat. For winter propagating, the ordinary indoor propagating-pit may be used, but during the summer a hot-bed is best, and if this can be placed under a north wall all the better. The frame should always be opened, and left open for a little while early in the morning, but must be closed and shaded before the sun gets on it.

Potting is a great item; the cutting-pots should be moist, but not too wet. When too wet the roots are liable to be broken off, and if very dry, the soil will all fall off. After being potted-off, they require to be kept close and shaded for a few days, after which air may be afforded, and after they are well established the more light the better. When repotting, a good, rich, loamy compost may be used; if the loam is devoid of fibre, a little peat may be added, but this is only necessary where the loam is close and heavy. In potting, care should be taken that the soil is pressed equally firmly from top to bottom of the pots, and left rough on the surface. I find there are many who, when potting plants, press the surface down firm, while underneath it is loose. It would be much better to reverse this, for pressing the surface firm prevents water and air passing freely. I may here add, that when using liquid-manure, it should be clear; one of the greatest difficulties I have ever had is to get men to use manure-water in a clear state. After taking care that it has been made long enough to settle down, I have found someone has been stirring it up before taking it for use. The harm the thick matter does is to form a coating on the surface of the soil, which effectually prevents air and water entering freely.

During the summer the plants should be grown in the open, but if provision can be made to protect them from heavy rains, it will be all that is necessary. Clear soot-water may be used frequently for syringing with; this will go a great way towards keeping the plants free from insects, and also strengthen them; the evening is the best time to use this.

By growing successive batches of plants, or stopping them at various intervals, Carnations may be had in flower throughout the year, but it is a mistake to suppose they can be forced into bloom. They may be hurried on a little by giving extra heat when they are in bud, but this weakens the plants very much. *A. Hensley.*

REMARKS ON THE FRUIT CROPS.

(See Tables, ante, pp. 103 to 109).

(Continued from p. 147.)

5, SOUTHERN COUNTIES.

BERKSHIRE.—The Strawberry crop has not been such a poor one for many years; this is due, I believe, to the severe drought of last summer and autumn. The plants were on this account unable to make growth till very late in the autumn. I also think the scarcity of Apples, Plums, and Pears is due more to the drought than to frost. *A. J. Long, Wyfold Court Gardens, Reading.*

— Apples average crop, some trees heavy, others scarcely any; same applies to Pears. Many fell off during drought and great heat from May 24

to June 18. Cherries very heavy crop, clean, and of fine quality. I commenced picking outdoors June 10. Peaches and Nectarines heavy crops. I ought to state that my Peach-walls are covered with dafvas blids on rollers; this protection from spring frosts and wet invariably ensures a good set of fruit. Apricots rather thin—they were in full flower early in March; 10° of frost on two nights thinned them considerably. Raspberries a heavy crop, and finest fruit I have seen, "Hornet" and "Superlative" especially; these have been much appreciated this season for dessert. Strawberries generally a poor crop; this I conclude is owing to the dry season last year, the foliage being almost burnt up, and crowns failing to mature. Royal Sovereign and Noble were valuable as early crops, and being a dry time (middle of June), the flavour was delicious. Many of the newer varieties were very poor; and in making new plantations, I would advise that only proved sorts should be planted to any extent—Waterloo, Aromatic, Countess, and V. Héricart du Thury have done best here. St. Joseph is now (July 26) very useful; fair flavour and size. Bush fruits in abundance. Filberts rather thin; Walnuts cropping heavily. *O. Thomas, Royal Gardens, Windsor.*

— The present season has again proved disappointing in regard to the fruit crop. Of Apples we have a complete failure on orchard trees, but have a fair crop on small espaliers in gardens. Pears and Plums showed abundant promise, but were cut off by late frosts, as also were the earlier flowers of the Strawberry. Apricots are the worst crop that we have had for the past ten years, but they showed but little flower. Among small fruits, Raspberries were a heavy crop, but of short duration, owing to the drought. *J. Howard, Benham Park Gardens.*

DORSET.—Apples which at one time had the appearance of being a very light crop will, after all, prove to be an average one; whilst such free-bearing sorts as Prince Albert, Frogmore Prolific, Lord Suffield, &c., have required hard thinning. Pears on walls on warm aspects have a sprinkling, but scarcely any are to be found on pyramids and bushes. Victoria Plums on north walls are bearing good crops, but other varieties on all kinds of aspects are very scanty, and on trees in the open the crop is quite a failure. Sweet Cherries are but little grown, but Morellos are an average crop, and the fruits very fine. Peaches and Nectarines are a light crop, the strongest blossom being killed in March; and the same remark applies to Apricots. Gooseberries are the worst failure I have ever experienced. Strawberries were good, but required heavy root waterings. Cobs and Filberts good, and the bushes are very healthy. *T. Turton, Castle Gardens, Sherborne.*

HANTS.—The Apple crop in this district is a very good one. Trees clean, and not so many caterpillars as usual. Pears and Plums are much under average, owing to the cold winds and rain prevalent during the flowering period. Peaches and Nectarines very good here on open wall, and free from fly. We gathered the Waterloo Peach in the middle of the month of July. Now, as I write, Hales' Early are coming in fine fruit, measuring 9 inches; this is a grand Peach. *Arthur Lee, Palace House Gardens, Brockenhurst.*

KENT.—The feature of the year in this district is the Cherry crop, which has been magnificent. Apples are perhaps thin, but they promise to grow out and colour up, making excellent quality. Plums are nearly a failure, and Damsons will be very short; probably the shortest crops on record. *B. Champion, Mereworth, Maidstone.*

MIDDLESEX.—Apples and Pears are very good crops in places, while in others there are scarcely any. The late frosts we had in this neighbourhood may account for the failure in places, but I attribute the greater part to the crippling the trees had last season through the excessive drought. Most trees bloomed well, but the flowers were not perfect; in the Pears especially, a great many of the

flowers had no pistils. The failure of the Strawberry crop may be put down to the same cause. Trees and bush-fruits are making good, healthy growth, that augur well for another season. Heavy crops of Walnuts everywhere about here. *W. Watson, Harefield Place, Uxbridge.*

— Peaches and Nectarines never showed for flower better than this year; many blossoms, however, were imperfect, being void of the female portions, and to add to this failure, the severe frosts did great damage. Plums also showed well, but frosts again did the work of destruction. Cherries on our walls were never finer than this year, both in crops and quality. Pears again showed well, but were cut off; Apples, however, escaped. A very trying season on the whole. *James Hudson, Gunnersbury House, Acton, W.*

SURREY.—Although the bloom-promise on all fruit-trees was so great in the spring, yet again, as so often has been the case in the past, the fruit result is relatively poor. But because we have now a very good Apple crop, it seems right to assume that the primary cause of the poverty of the crop on Pears and Plums in particular was the exceeding coldness of the spring and many sharp frosts—weather which less affected Apples and bush fruits. Of the latter, there has been a fine crop, and Apples are fairly abundant and good. The Strawberry crop suffered first from spring frosts, and later from heat and drought, which cut it short. Raspberries have been abundant. Wall fruits are a very sparse crop generally, but there are some good exceptions. Small nuts are thin, but Walnuts are plentiful. *A. Dean, Kingston-on-Thames.*

— The fruit-crops in this district looked very good at one time, but the frosts in April and May ruined our hopes, Peaches, Nectarines, Pears, and Apples all being more or less in bloom at the time. Small fruits were a good crop. Of varieties of Apples which have good crops with me are Red Juneating, Lady Henniker, King Pippin, Grenadier, Fletcher's Prolific, Keswick Codlin, Lane's Prince Albert, Astrachan Red, Schoolmaster, Lord Suffield, Mr. Gladstone, Cox's Pomona, and Annie Elizabeth; others are more or less bare. *T. Osman, Ottershaw Park Gardens, Chertsey.*

— Pears are a very middling crop, whereas Apples are cropping fairly well, viz., the varieties Stone's or Loddington, which has never missed here, and is a grand autumn Apple; Wellington, Stirling Castle, Manx Codlin, Lord Suffield, Tower of Glamis, Lord Derby, Warner's King, Hornead's Pearmain, Golden Noble, Prince Albert, Allen's Everlasting, Bess Pool, Blenheim Orange Pippin, and Duchess of Oldenburg. *C. J. Salis, Reigate.*

— Apples, some trees loaded, others have not a fruit. The best are King of the Pippins and Codlins; Wellington, Sandringham, Lord Suffield, Bedfordshire Foundling, Prince Albert, Tower of Glamis, Gloria Mundi, Cellini, Duchess of Oldenburg, and Yorkshire Beauty extra loaded (same cropped heavily last year); both new and old Hawthornden, old trees of Blenheim Orange, Claygate Pearmain, an old stump, loaded. Orchard Pears a bad crop; cordons good, on walls extra; Durondeau, Pitmaston Duchess, Knight's Monarch, Winter Nelis, Josephine de Malines, Beurré Rance, Beurré Diel, Doyenné du Comice, Beurré d'Arenberg, Baronne de Mello, Louise Bonne of Jersey, Bergamotte d'Espérance, Beurré Duval, Fondante de Cuern, Vicar of Winkfield, including other sorts. *J. W. Miller, Ruxley Lodge Gardens, Esher.*

— Apples are clean and good. Pears made a good show of flower, but weather partly ruined them at setting time. Plums showed flower in great abundance, but now there is scarcely a fruit to be seen. Gooseberries were frozen when the size of Peas. Currants of all sorts about average. Raspberries more abundant than usual, but flavour poor. Everything suffering for want of rain. Orchard trees are flagging in some instances. *W. E. Humphreys, The Grange Gardens, Hackbridge.*

— There was an abundant show of all kinds of hardy fruits, but the late frosts proved most

disastrous. May 20 the thermometer registered 97°, 97°, 95°, 93°, 27°, 20°, 27°; this destroyed all the first flowers of Strawberries, and on June 10 the thermometer registered 27°; this destroyed the prospect of an average Strawberry crop. Orchard Apples are very good, the fruit being evenly distributed accounts for this, especially Wellingtons, Blenheim, Warner's King, Keswick Codling, Duchess of Oldenburg, &c. *George Kent, Norbury Park Gardens, Mickleham, Dorking.*

SUSSEX.—Apple trees are more than usually clean, and the fruit good; many varieties are carrying a heavy crop. Pears—Trees clean, and crop of fruit clean and good. Plums—Trees far from clean, and many are fruitless. Cherries—Standard trees have carried a capital crop. Peaches and Nectarines—where kept clean, are a good crop. Apricots—Crop spoilt by frost when in bloom. Early Strawberries—Early blooms spoilt; and later, the dry weather has rendered the fruit small. Bush-fruit—Good and clean crop. *F. Geeson, Midhurst.*

—The scarcity of fruit in this district is the result of repeated frosts during the time the trees were in flower, together with the dry time which followed. The same remarks apply to Strawberries, but undoubtedly the plantations suffered severely by the excessive drought of last summer. Young plants growing on deeply-cultivated land have done very well indeed. We never had a finer lot of outdoor Peaches, they, too, being clean and healthy. *Richard Parker, Goodwood Gardens.*

WILTSHIRE.—Apples and Plums here, though the trees blossomed well, are quite a failure, the blooms being killed by frost. Strawberries, Gooseberries, Raspberries and Currants were an abundant crop. Peaches that were in full flower, and had 13° and 14° of frost for a week, have a fair average crop, and yet they had no protection whatever. Stone fruit-trees are making a strong healthy growth. *J. Trollope, Longleat Gardens, Warminster.*

—The prospects of the fruit crops generally in the beginning of March, were exceedingly fine; but the severe and ungenial weather, which set in on the 14th of that month, and continued till the 23th, the thermometer on several occasions indicating 17° and 18° Fah. Again, from the 16th to the 20th of April, the temperature receded to 25°. And again on the 5th, 6th, 27th, 28th and 29th of May (when the temperature declined to 27°), quite destroying all hopes of a prolific fruit year. The kinds which suffered most in this locality, were Plums, Strawberries, Apricots, Pears, and Apples. The trees of some of the more tender kinds of Apples and Pears were injured to such an extent as to become now almost leafless; and a great portion of the fruit that remains on some of the trees, is much disfigured. The cause of the crop of Apricots suffering more than that of Peaches, although equally protected, would appear to be due to the different stages of growth at the period of the inclement weather. The former had just set their fruit, and were consequently more susceptible to injury; while the latter had scarcely unfolded their blossoms. *T. Challis, Wilton House Gardens, near Salisbury.*

7, ENGLAND, N.W.

LANCASHIRE.—Strawberries as usual with us have been a heavy crop, and the fruit fine, the plants not having been affected by frost or drought. The first Royal Sovereign were gathered June 16, and the last of the same variety on July 26 under a north wall. This, Latest-of-All, and a local variety (Barne's Prolific), are the only sorts grown this year. Some large market growers complain sadly of the state of their crops. *Wm. P. Roberts, Guerdon Hall Gardens, Preston.*

WESTMORELAND.—Apples of the following kinds are good, viz., Stirling Castle, Annie Elizabeth, King of the Pippins, Northern Greening, Keswick Codling. Shy-bearing sorts have very few fruits. Small-fruits and Plums are a failure, owing to the bullfinches; nets are no use against these vermin.

Strawberries were very fine, particularly Royal Sovereign, Empress of India, and Dr. Hogg. *W. A. Miller, Underley Gardens, Kirby Lonsdale.*

8, ENGLAND, S.W.

CORNWALL.—The cold winds and late frosts during May did great damage to the Apple and Pear crops in East Cornwall. The promise was good, trees in many cases being well flowered, but blasting winds by day and frost by night spoiled what otherwise would have been a good crop. Amongst the varieties here carrying crops are Manx Codlin, one of the best; Blenheim Orange Pippin, King of the Pippins, a heavy crop. Cider Apples scarce. Strawberries have been good, especially Royal Sovereign. *Chas. Page, Boconnoc Gardens, Lostwithiel.*

DEVONSHIRE.—The promise of a fine fruit crop was destroyed by severe frost; on March 22 my thermometer registered 14° of frost. The first Strawberry bloom, Pear, and Peach, suffered alike; the Peach-tree leaves also suffered from blister. No doubt, the light crops are in some way due to unripened buds, and to two years of heavy cropping. The Gooseberry crop was an absolute failure in this part. Raspberries, Red and Black Currants are abundant, and good. *Geo. Baker, Membrand Hall Gardens.*

—With the exception of Strawberries, all kinds of fruit are plentiful with us and around the locality. The first-named kind of fruit was seriously injured by keen, cutting winds and frosty nights, and not more than one-third of a crop set. Royal Sovereign Strawberry is again fruiting nicely with me, after being forced, hardened, and planted out 2 feet apart each way. I have noticed this tendency the past three years, but not to so great an extent as this season. It is here a most remunerative Strawberry for forcing or outdoor cultivation, and I intend to increase the stock considerably. I have given Sir Joseph Paxton a fair trial, but it has proved a poor cropper, and I shall discard it, though in pots it is all that can be desired; President is a standard variety that never fails, and the flavour is excellent. Apple-trees are remarkably clean this year. Plums on walls are laden with fruit, and the trees free from spider, even on south walls. The same applies to Peaches and Nectarines on an east wall, from which I gathered ripe fruits of Alexander on July 13. *James Mayne, Bickton Gardens.*

—There was abundance of bloom, but a stormy day while the trees, &c., were in flower, followed by 10° of frost, almost spoilt the crop, and only trees in sheltered positions are carrying fruit. Peaches have suffered badly from blister, and some varieties from mildew—Dymond very badly; Royal George outside here is worthless, owing to mildew. *T. H. Slade, Poltimore Gardens, Exeter.*

GLOUCESTERSHIRE.—The fruit crop in this locality is only a partial one, owing mainly to the late frosts, and continued cold east winds. Apples are on the whole satisfactory, both in quantity and quality, our best are Keswick Codlin, Ecklinville Seedling, Hawthornden, Warner's King, King of the Pippins, Cox's Orange Pippin, Court Pendu Plat. Pears are in our own garden poor, but I have seen some fairly good crops in neighbouring gardens. Plums are nearly a failure in the open, and bad reports reach us from Pershore. Jefferson Gages, and Cox's Golden Drop on trees and walls are good. Peaches are a better crop than for some years past. The bloom was subject to 22° of frost on March 22, but the trees were protected by tiffany. *Geo. W. Marsh, Arle Court Gardens, Cheltenham.*

—I have had charge of these gardens for twenty years. The fruit promise this season was excellent—quite a good bloom in every respect, but the continued sharp frosts and cold winds have made it quite a short crop. The best Apples this season are—Blenheims, Flanders Pippin, Stirling Castle, Lord Suffield, Lord Grosvenor, the old Keswick Codling, Potts' Seedling, and Northern

Dampling, Desert—King of the Pippins, Worcester Pearmain, Early Margaret, Irish Peach, Tewkesbury Barron. Pears—Beurré Diel, Knight's Monarch, Chaumontel, Heathcote, Bon Chrétien. In the villages round here, there is an average crop of cider and perry fruit. *Alfred James, Woolstone Rectory Gardens, Cheltenham.*

HEREFORDSHIRE.—The outlook in these gardens and about here for a general good all-round fruit crop is very good, especially so with regard to cider Apples in the orchards, notwithstanding that most of the trees are very old and very uncared for, Cordon Pears on south walls are a heavy crop, but are not so good in the open. Nuts, and especially Walnuts, are abundant. Early kinds of Strawberries were a fortnight later than for the past three years. Gooseberries and black Currants carried exceptionally heavy crops. *Thos. Plumb, Shobdon Court Gardens.*

MONMOUTHSHIRE.—Fruit-trees of all kinds blossomed abundantly, but the unfavourable weather experienced at that time crippled the bloom on Apple-trees in exposed places, and the greater part fell off. Such varieties of Apples as Duchess of Oldenburg, Mère de Ménage, Yellow Ingestra, Hawthornden, Cox's Orange Pippin, and Ecklinville Seedling are carrying heavy crops. Upon pyramid Pear-trees there are good crops of the following: Louise Bonne of Jersey, Easter Beurré, Williams' Bon Chrétien, Beurré Rance, and Beurré Diel. Peaches, Nectarines, and Apricots are very good, and required much thinning of fruit; trees clean and healthy. Plums have a fair crop on walls. Small fruits have been plentiful. Strawberries were excellent in every way. *W. F. Woods, Llanfrechfa Grange Gardens, Caerleon.*

—Most of the blossoms of Apricots and Peaches were destroyed by 16° of frost, although protected with fish-netting. Plums upon walls are almost a complete failure, but as bushes, Victoria, Early Prolific, Early Transparent, and Jefferson carry good crops, while some others have fair crops. Pears are best upon walls, although some pyramid trees have good crops, viz., Bellissime d'Hiver, Beurré d'Amanlia, Beurré Fonqueray, Beurré Hardy, Emile d'Heyst, and Conseiller de la Cour. Apples in orchards are plentiful, and as pyramids the following are the most heavily loaded, Cox's Orange Pippin, King of the Pippins, Sturmer Pippin, Duchess of Oldenburg, Wealthy, Worcester Pearmain, Belle Pontoise, Bismarck, Bramley's Seedling, Cellini, Dunselow's Seedling, Grenadier, New Hawthornden, Lane's Prince Albert, Lord Derby, Lord Grosvenor, Niton House, Sandringham, Scheolmaster, The Queen, and Warner's King. Bushes of May Duke Cherry have heavy crops of fine fruit, some other kinds being thin. Strawberries were not so good as usual, doubtless owing to drought last season; Royal Sovereign, Leader, Gunton Park, and Latest-of-All were the best. Bush fruits are abundant; Superlative Raspberry and Gooseberries being exceedingly fine. *Thos. Coomber, The Hendre Gardens, Monmouth.*

SOMERSETSHIRE.—In early spring there was a good promise of all kinds of fruit; the cold and severe frost destroyed Apricots to a large degree. Pears appeared to set when the fruit attained a fair size; a large portion dropped off, and now there is a very small crop. The same may be said of Plums. It is strange to say we have the best crops of both these fruits on our north walls. Strawberries suffered from last season's drought. *J. Crook, Forde Abbey Gardens, Chard.*

WORCESTERSHIRE.—The Apple-crop is somewhat partial—heavily-laden trees in many places, in others none. Pears are a fair, clean, healthy crop, but now suffering from drought, and will probably be small. Apricot trees healthy, and fruit clean and good. Outdoor Peaches and Nectarines are a full average, with good foliage, and very satisfactory. Cherries have immense crops, of good quality—Morellos abundant. Strawberries the

worst crop for years past, chiefly owing to the drought of last season interfering with the development of the plant. Small fruits average crop and quality, but Raspberries soon over. The Loganberry and the Japanese Wineberry bid fair to be real acquisitions. *Wm. Crump, Madresfield Court Gardens.*

— It is many years since all kinds of fruit-trees were so healthy in growth. Apples are a good average crop generally, and the quality good. Some varieties are short of fruit, but others make up for any deficiency. The severe weather in March is accountable for the shortness of the Pear and Peach crops. Here, again, some varieties are carrying fine crops. Alexander Peach was gathered on July 12; Bellegarde and Dymond set splendid crops, although the weather was so unfavourable. Plums are variable, some of the varieties being laden, whilst others are carrying very few. Cherries and Strawberries, also all kinds of small fruits, are excellent. *A. Young, Willey Court Gardens, Stourport.*

WALES.

GLAMORGANSHIRE.—The fruit crop in this district is quite up to the average. Apples are very partial. In some gardens the crop is very poor, and in others it is over the average; moreover, the trees are clean. Pears looked very promising when in bloom, but owing to the cold winds prevailing at the time, a large quantity failed to set, and the crop as a consequence is under the average. *Richard Milner, Penrice Castle.*

— Most kinds of fruit-trees flowered well this year, but the cold winds and frosts prevailing at the time injured the Pear and Plum blossoms, and the crops of these are almost a failure. Apples, which were later in coming into flower, set well, and the crop is good in this district. Strawberries were good; but the season, owing to the drought, was much shorter than usual. *A. Pettigrew, Castle Gardens, Cardiff.*

MONTGOMERYSHIRE.—All fruit-trees are very free of blight. The fruit crop promised in the spring to be very heavy, but Pears and Plums are very thin. Peaches and Nectarines are the best crop outside I have known for years, and yet we had very sharp frosts at the flowering season. *Jno. Lambert, Pwlls Castle Gardens, Welshpool.*

PEMBROKESHIRE.—Apples are a splendid crop here this season, all varieties alike. The Pear crop was ruined by a sharp frost of 11° when the trees were in bloom, and but a few of the best-protected trees set an under-average crop. Plums are a failure from the same cause. Small fruits were also much injured by the sharp spring frosts. Black Currants were a very heavy crop. *Geo. Griffin, Slebeck Park Gardens.*

9, IRELAND.

DERRY CO.—We expected a good crop this year, as the season was rather late; but the frosts in May injured the flowers of both Pears and Apples. On some trees there are none, while on others there is an average crop; and I fear the quality will be but middling, as the spring was very unseasonable, with frosts and hail showers. *Jas. Lindsay, Drummond Gardens, Ballykelly.*

DUBLIN CO.—Very poor crop of all kinds of fruit in this neighbourhood except Peaches, which are plentiful, and promise well. The crops of Strawberries were good, especially such varieties as Royal Sovereign and Leader; the latter is an abundant bearer, splendid in size, and finely coloured. *James Doran, Clontarf Castle Gardens.*

KILDARE CO.—The worst fruit year here for seventeen years. Apples, Pears, and Plums are almost a complete failure; and what fruit there is, is of poor quality. The continued east winds during May constituted the whole cause of failure here. Strawberries were ruined by rain, 4 inches of which fell in the first twenty days of July. *Frederick Bedford, Straffan House.*

LIMERICK CO.—Severe late spring frosts spoiled our good show for stone fruits as well as Pears. On March 22, 23, and 24, we had 11°, 14°, and 15° of frost respectively; also on April 16 and 18 we had 5° and 7°, with the wind N.W.; and on May 5, 6, 7, and 8, 2°, 4°, 4°, and 3° respectively, with the wind S.E. Much of the growth was injured by these frosts, and in many cases it was out back; this was very marked in the case of Raspberries, whose canes were damaged at the tips, but the bottom growth escaped, and threw grand fruit. *W. A. Bowles, Adare Manor Gardens.*

TYRONE CO.—The fruit crops in this neighbourhood have been disappointing on the whole. In the early part of the season the prospect was very promising, the quantity and strength of blossom buds giving hopes of a heavy crop. This however has not been realised, owing principally to the inclement weather experienced during the following period. Early varieties of Apples, such as Duchess of Oldenburg, Stirling Castle, and the Codlin family, are carrying excellent crops; the same applies to a few early varieties of Pears, but the later varieties are not carrying more than half a crop. Plums and Cherries are only grown in small quantity. *Fred. W. Walker, Sion House Gardens, Strabane.*

WESTMEATH CO.—So far as the Apple crop in this district is concerned, it may be said to be almost a total failure, all standard trees are barren, a few dwarf trees on Paradise-stocks are however an exception, and promise to have an average crop of good fruit; Cox's Pomona, and Cox's Orange Pippin, being exceptionally good. All small fruits with exception of Gooseberries, are well over average, and are very good. *R. Anderson, Waters-town Gardens, Athlone.*

WICKLOW CO.—Such varieties of the Apple as Ecklinville, Lord Suffield, Warner's King, Tower of Glamis, Golden Spire, Mère de Ménage, and other standard varieties, are carrying good crops of fruit. Plums, especially Victoria, Kirke's, and Dennistoun's Superb, are a good crop, but some of the newer varieties are sparsely fruited. All small fruits were abundant, and good. *D. Crombie, Powerscourt Gardens.*

CHANNEL ISLANDS.

GUERNSEY.—The past season was not a good one generally for fruit, and many trees which showed abundance of bloom have scarcely any fruit. There has been a great lack of good growing conditions, and as a consequence, insect pests have had a much better innings than would otherwise have been the case. The land was dry and unkindly for a long time, till good rains fell, which produced a good effect on vegetation. *G. Smith & Son, Caledonia Nursery, Guernsey.*

JERSEY.—The trees in the spring produced one of the finest shows of blossoms I have observed for some years, but a very scanty setting resulted; partly owing to the very cold nights with easterly winds prevailing at the time; and probably, also, owing to the effect of the dry season of last year upon the development of the fruit-buds. *H. Becker, Jersey.*

FOREIGN VEGETABLE PRODUCTS.

(Continued from p. 187.)

PAKHOI, CHINA.—*Liquid Indigo* is said to have been an important article of export during the year, amounting to 4,085 tons, valued at £40,610. The following is given as the mode adopted in the preparation of indigo in China, which is practically the same as the Indian practice. The plants, stems, leaves, and twigs, are thrown into tanks, which are filled up with water; in five days partial decomposition takes place, and they are all removed. About thirty cathees of lime are now put into the green-coloured water, and mixed by means of brooms. Four men, now with rakes, begin to beat the liquid very gently for about half-an-hour, and as it goes on the colour changes

to a dingy yellow; but the froth, which thickly coats the tank, is bluish. A few drops of Cabbage-oil are poured into it, and the froth disappears on stirring. After standing a few hours, about two-thirds of the liquid is drawn off as useless, and the rest decanted into a smaller tank, where it settles in three or four days, till the colouring-matter is left at the bottom in the form of a thick paste of a beautiful blue colour. It is sold in jars containing 90½ lb. each, and fetches from 11s. to 13s. per cwt., according to quality. It goes chiefly to Shanghai.

CURAÇOA AND DEPENDENCIES.

ALOES.—A trifling quantity of Aloes came from the island of Aruba, and was re-shipped to New York, the only market where anything near the cost price of manufacturing could be obtained for the indifferent quality. Aruba, Bonaire, and Curaçoa could produce very clean and high grade Aloes were the price for such quality any better than that obtainable at present on foreign markets, where buyers give preference to the dirty or low grades on account of cheapness, and because those who handle this article abroad are able to obtain, by means of suitable machinery and process, the exact grade desired at a far lower cost than is possible in these islands. The low prices for this article have been yielding less, owing to the higher duties levied by the Curaçoa Government, and the producers and exporters have suffered greatly. In the island of Bonaire, where there are large tracts of land planted only with Aloes, the producers are unable to export any quantity for the above reasons, and the same is to be said as to Curaçoa. *J. R. Jackson.*

(To be continued.)

THE HOT-WATER CURE.

As occasion offered, I have experimented with heated water on a variety of plants, and have been able to determine the safe and efficient degree of heat for many kinds of plants. The degrees of heated water given below may be accepted as the lowest killing power at close quarters; the degree to be raised in proportion to the distance the operator stands from the subject under treatment. The water has been applied with a syringe fitted with a fine rose. The temperature given is that of the water in bulk.

AS AN INSECTICIDE.

American-blight on Apples	150°
Red-spider on Peaches and Nectarines	140°
Black aphid on Peaches and Nectarines	140°
Black aphid on Chrysanthemums	140°
White-fly on Tomatoes	130°
Green-fly on Roses	130°
Caterpillars of sorts on Brassicas	140°
Blight on Brassicas	130°
Asparagus-beetle on Asparagus	150°
Larve and eggs of same on Asparagus	140°
Blight on Beeches	140°
Hop-louse on Humulus	135°

STOVE AND GREENHOUSE PLANTS.

For thrips on Crinum, Eucharis, Alocasias, Hippeastrums, and numerous hard-wooded plants	140°
White-scale and other examples of scale insects in a young state on Phaius grandifolius, Lælia purpurata, Palms of sorts, and numerous hard-wooded plants	140°
Green-fly on Melons (mature plants), Cyphomandras, Withanias, and Mandevillas	130°
Mealy-bug on Mandevillas and Plumbagos	145°

The only insect I have not succeeded in killing is the "Blue Flea," infesting Brassicas; this pest, being provided with wings, and possessing extraordinary jumping powers, does not wait long enough for the spray to reach it.

AS A CURE FOR MILDEW ON VINES.

A slight attack of mildew was totally destroyed on a two-year-old seedling Vine growing on an open wall, with water heated to 180° F. The leaves and berries, which had just stoned, were quite free from injury. The berries are swelling freely. Some Muscat Vines, raised from last season's eyes, were syringed with water heated to 180° as a preventative of mildew, and they are also uninjured.

The killing degree of heated water for Vine mildew is far too high for most plants to bear unharmed; there is still what I may term a stopping degree, which, applied several times at intervals of a few days, may prove equally effectual in killing mildew on other plants by cutting off the means of propagation by spores. This, however, is only surmising. Notwithstanding the weighty opinions of many correspondents that hot-water (say 180° to 190°), is dangerous to Vines, I must establish the fact that that is not so, and this

GROOTFONTEIN.

I AM sending you several photographs which I have taken in the neighbourhood of Grootfontein, where I have been staying for five weeks. Although Grootfontein is situated under 19½° S. Lat., it is very cool now here; yesterday morning the grass was white with frost, and no wonder, as the whole district is situated 1200 mètres above the sea-level. I hope, therefore, that all the plants I send to Europe from here will succeed well in the open air in the warmer

Melhanie, the wonderful *Sclerocarya Schweinfurtiana* [Anacardiaceae], *Olea* species (I cannot distinguish it from *O. europæa*), *Laportea* sp., an enormous *Ficus*, *Erythrina*, *Cissus Cramerianus*, a large *Euphorbia*, very closely allied to *E. canariensis*, and several shrubs and fine trees, which I cannot determine, because I do not possess a single publication on the flora except Harvey & Sonder's *Flora Capensis*, which is, of course, no use here. The most interesting plants in this district are *Hyphene ventricosa*, which wonderful Palm forms a large forest three hours south of Grootfontein; *Cissus Cramerianus*, a vegetable monster, which not even the most learned botanist would recognise as a *Cissus* without seeing its flowers or fruits. The stem has often a diameter of 2 feet, and is 8 feet high, and as soft as a Beet-root. The third plant is the subject of photo No. 1. It has a soft stem 18 feet high, and is armed with brown spines, three together; the sparse branches look almost like those of *Euphorbia splendens*, and the leaves also are the same. The plant has no milky juice, neither flowers nor fruits are to be seen. No. 2 shows a group of *Sansevieria* sp., an excellent and the only fibre plant of the whole country; it is especially common in Otjozondjupa, but the longest and best leaves are yielded by those plants that grow in the half shade of bushes. Under cultivation, in fields properly worked, I dare say they would exceed 4 feet; a ton of clean fibre is worth £12 to £15, as a London house informed Missionary Eich in Otjozondjupa. The fibre is much easier to extract than that of *Agave rigida* (sisalana). I am sure that the production of this fibre will become a very important industry. No. 3 represents the above-mentioned *Ficus*, with a Termite building on the ground to the right of the stem. This *Ficus* always grows upon a dead tree, and is especially frequent upon *Combretum primigenium* (?). When young, it is completely parasitic. I found here an *Acacia*, which at 4 feet from the ground bears about a dozen *Ficus* suckers, which have evidently broken through the bark of the *Acacia* (as small offshoots of *Viscum* do when an old plant is removed without cutting also the branch upon which it lived). I never heard of or saw an example of parasitism of *Ficus* before, but I have not the slightest doubt that this is true parasitism.

The fourth object is a very hard-wooded tree, the *Omomborombonga* of the Hereró, *Combretum primigenium*, a sacred but most common tree, from which the Hereró nation and their oxen are derived, as they believe.

The fifth picture shows a group of the beautiful Fan Palm, *Hyphene ventricosa*, which forms an extensive wood, that necessitates twelve hours to traverse in its length, and six or seven hours in its breadth. The soil in which the Palm grows is a deep sandy soil. I believe that it will stand the mild winter of the Riviera if thorough drainage is provided. I have sent a great quantity of seeds, some in their shells, some without them, to Messrs. Haage & Schmidt, Erfurt, for sale. I wish to add only, that the five subjects of the photos are all plants characteristic of the flora of the Hereróland. There are several others (*Birchemia discolor*, *Copaifera Mopane*, *Diospyros mespiliformis*) which I have not seen yet; they grow further north, and you shall receive photos of them later. I intend to go before the beginning of the summer in a north-easterly direction over the Okavango, and to accompany one of our elephant-hunters, Mr. Erikson, to a district in the interior, where a *Kautschouk* plant is growing. *Karl Dinter*. [We greatly regret that the photographs alluded to are not suitable for reproduction. ED.]

ABUTILON VITIFOLIUM.

In the spring of the year, Mr. Hartland, of Cork, sent us, as has been his wont in former years, specimens of this beautiful shrub. It is a native of Chile, but is hardy enough in the south-west of Ireland, as it forms a bush 30 feet in height and

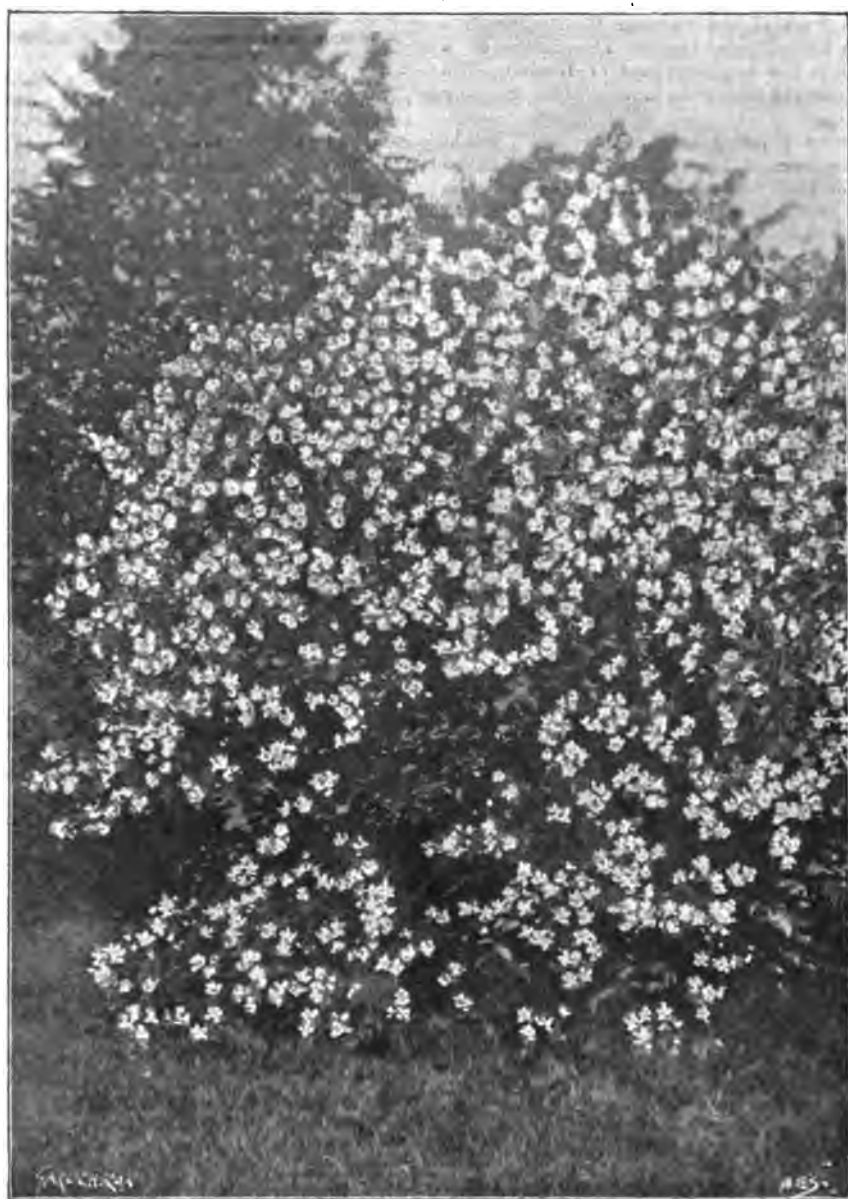


FIG. 60.—ABUTILON VITIFOLIUM, IN MR. HARTLAND'S GARDEN, AT CORK.

matter can be proved by anyone who cares to experiment upon a Vine or any portion of one.

Since the above was written, I have copiously syringed some Roses with water heated to 160° on three occasions. The mildew has ceased to spread, but I am not sure that it is quite dead. I enclose some of the leaves of Roses thus treated, apparently uninjured. Perhaps the Editor will venture an opinion upon them? [Slightly injured. ED.] The mildew has not turned brown and black, as was the case with the Vine-mildew. Should the mildew prove to be dead, it may be hoped that others will be induced to conduct further experiments. *G. B. Mallett, Isleworth.*

spots of the Riviera. This country, the Hereróland, is one of the most excellent in South Africa for cattle-farming and agriculture; in comparison with it, the central and southern Namaland is a desert. Here all cereals can be grown in the rainy summer season, and to any extent, because the average rainfall is 450 mm. (in Namaland 180 mm.), and consequently sufficient to ripen even Kaffir-corn (*Sorghum*), without any artificial watering. Almost the whole country consists of flat, grassy plains of deep sandy humus soil, and here and there are ranges of densely-wooded limestone hills. The forest vegetation is a most interesting one. It consists of three species of *Combretum*, *Terminalia prunioides*,

25 feet in diameter. The whole plant is covered with soft velvety down, as is the case with so many of the Malvaceæ, and the leaves are deeply and sharply lobed, whence the specific name. The flowers are lavender-blue, very freely produced, as our illustration shows (fig. 61); so that the shrub is one of the most desirable for sheltered localities in the western and southern counties. We have no experience of it near London.

DIANTHUS KNAPPI.

Of recent introduction to our gardens, this little species will rank as a welcome addition to the rockery. Being of dwarf habit, and scarcely ever exceeding nine inches in height, it is admirably adapted for small rockeries, for which its unusual colour and free-flowering habit are sufficient recommendation. The individual flowers, which are about $\frac{1}{4}$ inch in diameter, are in colour of a clear sulphur-yellow, slightly fringed, and possessing an agreeable fragrance. They are borne in terminal clusters of from five to nine flowers, on long slender stems. Its leaves are linear lanceolate, and of a glaucous green colour. The plant can be grown in any good garden soil, and be readily increased by means of cuttings or from seeds. *E. S., Woking.*

HERESIES.

(Continued from p. 128.)

I wish, Mr. Editor, you would have put forward the little fiction, "Space is very scarce this week" [It always is, Ed.], when I might have rested, at least for a time, from heresy-hunting. What lots of old-fashioned varieties of vegetables, fruits, &c., we have put away in our lumber-rooms never to be brought out again—no, never; and yet their ghosts, or the memory of the things themselves haunt us interminably as the seasons come round. Concerning Potatoes, many persons whose memories are, unfortunately, portentously lengthy, who go back to the forties and fifties more readily than to the day before yesterday, can call to remembrance the true Ashleaf Kidney and the next best, the Walnut-leaved or Egyptian Kidney, a little less early than the first-named, with foliage resembling the Walnut, glossy and bright green, whose tubers were "knobly," a variety that very certainly knew not Egypt. For flavour and nice firm consistency, the true Ashleaf tops the list. Somebody said at last, as a new discovery of course, that it was a "light cropper," and light cropping in Potatoes had begun to be looked upon in much the same way as original sin, only with more immediate consequence, and in the course of a few years the gardener who grew the Ashleaf was dubbed a person incapable of properly appreciating the grand qualities of the new race of Potatoes then coming along to supply the markets. These last were certainly sadly needed in those days, in view of the increased consumption of the tuber, and the disease-resisting constitutions of the new varieties. But why cast out of the private garden our tried friends, the varieties I have named, and others besides almost as excellent, namely, the Lapstone Kidney, Early Shaw, York Regent, and, I might add, Hundredfold, a productive variety, coming into use in September, keeping well, with flowery, rather firm flesh, of good quality? Some of my critics will say that the colour of the skin is against it, and the eyes are deep; but as we do not eat the skin, or even serve up the tubers unpeeled, and as a handy maid can clean out the eyes of a tuber without much loss of its flesh, these things are of no account. Some of us who confess to a liking for Potato-salad, as made in Germany, which is a more wholesome way of consuming cold Potatoes than frying them, should obtain the Vitelotte Potato, or the Fir cone, a violet-coloured cylindrical tuber with very deeply-set eyes, that rather detract from its usefulness. The flesh is firm when cooked, and a tuber may be cut up in thin slices like a Cucumber. The white Sausage-potato of the French, has flattened tubers,

sometimes broader at the base than at the top; flesh yellow and firm, and equally useful for making salad. It is good from September onwards, and is more economical in use than the preceding one. These varieties, where Potato salads are enjoyed, might be grown in moderate quantities in any private garden.

Raspberries.—Almost everyone is fond of Raspberries as dessert, and those who can afford the space should grow the fine yellow-fruited varieties, Sweet Yellow Antwerp (not Yellow Antwerp), and October Yellow (Merveille de Quatre Saisons Jaune). There are other very fine Raspberries, but they are inferior to these two.

Apples.—It is many a year since the writer tasted a fruit of the Summer Golden Pippin, a delicious little Apple, bearing abundantly as a standard in the neighbourhood of London. The variety does not seem to be much cultivated. Why is this?

If I were planting an Apple-orchard I would plant two trees of Keswick or of Manx Codlins for one of Lord Suffield and Lord Grosvenor, the first two being the more regular bearers, although they are probably not such great fillibaskets as those. In my opinion, no orchard of any size should be without a tree or two of the Margaret Apple (early Red Margaret, Striped Juneating, &c.). It is a first-rate dessert fruit, ripe in the beginning of August. It is not to be confused with the Joaneting. The tree is quite hardy, and crops well. Many persons would prefer the fruit to that of the showier, but more acid Worcester Pearmain. *Growler.*

(To be continued.)

THE WEEK'S WORK.

PLANTS UNDER GLASS.

By C. R. FIELDER, Gardener, St. James's House, Malvern.

Hippeastrums (Amaryllis).—Plants that flowered early will now have completed their growth, and shading should be discontinued, and the plants exposed to the full sunshine in order to mature and ripen the bulbs. Although the bulbs should not be prematurely dried off, it is necessary to note at once when a plant has quite completed its growth, and is preparing to go to rest. This is indicated by the absence of young leaves in the centre of the plant, and by the oldest leaves beginning to turn yellow, and when this is seen, the amount of water should be gradually reduced, and ultimately withheld altogether until the plants are started into growth again. Later plants which are still in full growth should be afforded plentiful supplies of water, and an occasional application of liquid manure. A good syringing morning and evening will help to keep Thrips in check, and afford the necessary atmospheric moisture.

Carnations.—The earliest plants which were layered in frames in accordance with instructions given in a previous calendar, should be examined, and if the layers are found to be sufficiently well rooted, they should first be severed from the plant with a sharp knife, and then carefully lifted and potted into small pots, affording them a compost consisting of two parts good turfy loam, one part flakey leaf soil, and some sharp silver sand. After potting, the plants should be afforded water, and be placed in a cold frame, and kept somewhat close until they begin to make roots in the soil, when the shading may be discontinued and the lights removed.

Richardia africana.—Plants which have been dried off and rested out-of-doors, should be re-potted forthwith. In doing this, turn them out of the pots, shake the soil from the roots, and re-pot the largest rhizomes singly in 6-inch pots in a compost consisting of three parts loam, and one part rotted manure. The smaller offsets must be removed, and if necessary, may be utilised to increase the stock, either by potting them singly in small pots, or placing three or four in a 6-inch pot. After being potted, place them in a cold frame or pit, and afford sufficient water to keep the soil moist till the plants are rooting well, after which they may receive water more freely.

Euphorbia (Poinsettia) pulcherrima and E. Jacquiniflora.—These plants should be fully exposed to the sunshine from the present time onwards, in order to mature the growth. Poinsettias should be turned round occasionally, in order to prevent the plants growing in one direction only, which would compel stakes to be employed. The latest plants should be placed in their flowering-pots which for the largest plants need not exceed 6 or 7 inches in diameter; while useful decorative plants may be grown in 5-inch pots. Euphorbia Jacquiniflora is most useful and floriferous when in small pots, and need not be grown in larger than 48's; or several cuttings may be struck in an 8-inch pot, and treated as one plant, not separating them.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Mushrooms.—Any beds made in a cool-shed, or on the north-sides of walls and buildings, should be examined three times a week, and the useable esculents gathered, leaving none at this season to grow to a large size, as these are sure to get fly-blown. The beds should be afforded plenty of tepid water, and the place, (or at the least the beds) darkened. With these attentions good crops may be grown, in and out of doors, during the warm weather. After this date, a quantity of stable-dung should be thrown into a heap, which must be turned over several times in order to allow some of the ammonia to escape, but by no means all, and then a bed or beds may be made up in the Mushroom-house. It is very necessary that the materials should not get dry and mouldy, but these should be made into a bed whilst they are still fresh and capable of becoming heated to 98°. That point being reached, but not exceeded, the beds may be spawned and covered over with loamy soil, a thermometer being inserted for ascertaining the temperature. If the heat should rise above 98° after spawning, no covering should be placed on the bed, but a few holes should be made with a smooth stake all over the bed at about $1\frac{1}{2}$ ft. apart. The heat will then decline to a safe point, and that stage reached the holes must be plugged up again with horse-dung quite to the bottom, and if necessary some clean straw may be laid on the bed. The warmth of the house ought to be kept under 60°.

Growing Crops.—The only thing which the gardener can do whilst the drought lasts, is to afford as much water to the crops as time and labour will allow. The plants most in need of water are Lettuce, Endive, Cabbage, Celery, Celariac, Cauliflowers, plants whose roots do not go far down in the soil; Dwarf Beans not being overlooked. Late sowings of these should be heavily mulched, and occasionally afforded liquid manure. Autumn Giant and self-protecting Cauliflowers are standing the dry weather very well, but early varieties have suffered greatly.

Potatoes.—All early crops should now be lifted and stored in a dark, cool cellar, or in a shed in a shady place. The sets should be laid out thinly for the time-being in any cool place, not omitting to label each lot correctly, and to make notes of the best varieties, having regard to cropping and flavour.

Peas.—All spent crops should be cleared off, and the sticks packed away if possible in a dry shed.

Salading.—Seeds of Corn-salad, Mustard, Cress, and Radishes may still be sown weekly, first affording water copiously to the soil, and again when the seeds are sown, covering the beds with mats till germination takes place. Chervil is a herb much in demand in some gardens, and a bed may now be sown on a warm border, the soil being kept moist. It is advisable to sow in drills at 9 inches apart, and not very thickly. Of Corn-salad, a good breadth should be sown forthwith; it will prove a useful addition to the salad next spring. The drills should be drawn 8 inches apart, and the seedlings thinned to a distance of 6 inches apart.

FRUITS UNDER GLASS.

By W. STRAUWELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

Peach-Trees in Pots.—Where convenience exists for forcing Peach-trees in pots, such trees afford an easy means of securing an early crop of fruits—more easy, in fact, than from trees planted in borders. Those trees which fruited last spring, and are now maturing their fruited outdoors, will

soon be in a condition to be re-potted if necessary. It is better for the repotting to be carried out while the foliage still remains on the trees, as then early re-establishment is certain. The first thing to do is to remove the crocks, and disentangle as many of the roots as possible without bruising or breaking them, shortening any that are long and thong-like. The new pots should be large enough to permit of a lining of new soil of about 1 inch in thickness all round, which should be made very compact with the potting-stick as the work of filling proceeds. The best kind of soil for this purpose is turfy-loam, with a small proportion of charred garden-refuse and old plaster broken into small pieces. After potting the trees, syringe them every day once or twice for a month. These, as well as others not requiring to be potted, should be carefully afforded water in accordance with their needs. The trees should be turned round once weekly, to prevent the roots that may have penetrated the soil, or the coal-ashes on which the plants stand, from getting a strong hold of the same. Let sufficient space be afforded for the sun to reach every part, therefore do not place them in shady places, or under trees, but in the open.

Trees standing in Borders that have ceased to grow, must still be kept clean by frequent syringings, applying dressings of flowers-of-sulphur, as a remedy of use against red-spider and mildew. If scale infests the trees, water heated to 140° with a small quantity of petroleum added, will annihilate the pests, and by destroying them at this season, nothing further will be needed in the winter. Before syringing the trees, let all superfluous shoots which may have escaped the earlier pruning be removed forthwith. Unless the syringing of the foliage is well directed, red-spider congregates on the upper surface of the leaves, and some force is necessary to dislodge it, and this is an important matter. If on examination the border is found to lack moisture, afford clear water copiously, as a good deal of root-growth takes place at this season; moreover, a dry soil favours the spread of red-spider and mildew on the foliage.

The Grape room.—The bottles used to keep bunches of Grapes in should be cleaned and got in readiness, and the racks on which they are placed rendered clean and sweet. A Grape-room is handy even at this date for storing the remains of an early crop of Grapes when a partial pruning of the Vine is called for, or wasps are troublesome in the viney.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt Tisbury, Gloucester.

Propagation of Trees and Shrubs.—From the middle to the latter end of this month is the best time for the propagation of trees and shrubs from cuttings and layers; and if the former method is adopted, young shoots about 1 foot long of the current year's growth should be made and placed in beds or borders which have previously been well dug over; some leaf-mould and sharp sand being worked in during the digging. The cuttings may be placed rather closely together, and plenty of sharp sand strown along the drills. It will be advisable to afford the beds a slight sprinkling of water occasionally, and they will then root freely, and will, in consequence, withstand the severities of the winter well; most cuttings should be taken off at a joint, or with a heel of older wood. The golden, silver, and variegated forms of most of these are too delicate in constitution to winter in borders, and should be struck in boxes or under hand-glasses, and protected in some manner, or be placed in cold frames. Cuttings of Juniperus, Retinosporas, Thuyas, Thuypais, Cryptomerias, and other evergreen species, should be taken from last year's growth, with a small portion of the previous year's wood, and they should come from the outer branches of the trees, or the wood will not be sufficiently mature, and will damp-off or die. A cool position, or a north border, suits Conifers; but for greater safety, they should be put into cold-frames or hand-glasses, frosts heaving the cuttings out of the ground. Magnolias, Cotonasters, Berberis, Dogwood (Cornus), &c., are easily propagated by layering shoots growing conveniently near the ground, all buds being removed excepting a few near the top of the stem. Tongueing these layers on the under-part helps the rooting, as does a sharp twist; and this operation being carried out, peg down the layers firmly, and cover with soil to the depth of 3 or 4 inches.

Pentstemons.—As those varieties that possess the prettiest colours are not capable of standing much frost, it is advisable to take cuttings not later than the end of this month, these being struck under hand-glasses or cold frames, remaining undisturbed therein till March. A good compost for the cutting-bed consists of rich loam, leaf-mould, and sand, which should be mixed altogether, and passed through a sieve having an inch mesh. Let this soil when put into the frame, &c., be pressed firmly, and made smooth, and over all sprinkle some sharp sand. Take cuttings of the short side-shoots which possess no bloom-spikes, and make them 4 to 6 inches in length. Let the cuttings stand 2 to 3 inches apart, and when the frame is filled, afford water to moisten the entire bed of soil, and put on the lights. During the heat of the day, shade from the sun is required. The lights must be kept close till rooting has taken place generally, when air may be admitted gradually to harden them off.

Carnations and Pinks that were layered or struck from pipings last month, will require daily sprinklings to encourage growth, so that at the end of this month or the beginning of the next they may be separated from the parent plants. The old double crimson and white varieties of Cloves are hardy and vigorous in growth, and therefore they do not require to be layered and replanted so often, but may remain in the same spot for three years; they will then flower freely, form fine plants, and the calyx of the flower will not be so apt to burst as in the case of younger plants.

Miscellaneous.—The weather has occasioned much labour to be expended in affording water to herbaceous and other ornamental plants, and the borders still require to be well looked over, and such plants as Sweet Peas, Mignonette, Dahlias, Salpiglossis, Malvas, Scabiosa, &c., should have their seed-pods removed, in order to prolong the flowering season. Take the first opportunity after rain falls to plant Wallflowers, Sweet Williams, Brompton and other Stocks, so that they may become well established before the winter. All spring-flowering plants should be kept well watered; and if red-spider is making its appearance, a wine-glassful of petroleum mixed thoroughly with 4 gals. of water heated to a temperature of 90° will, if occasionally syringed on the plants, exterminate the spider.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Drogheda, Maldenhead.

Peach-Trees of the early fruiting varieties, Waterloo, Amsden June, and Condor, being cleared of fruit, may have the fruiting-shoots of this year, not required for another year, removed; and this year's shoots laid in thinly. I would lay stress on this operation being done thinly, seeing that it favours the better ripening of the wood, and consequently tends to the formation of large numbers of flower-buds. The trees should be afforded an occasional syringing with the garden-engine or the water-hose, and the border should have an application of clean water, sufficient in quantity to penetrate to the lowermost roots. Should red-spider be detected on the foliage, apply Gishurst Compound-soap, or other insecticide, applying it to both sides the leaves, and syringing it off a day or two later. Although the weather has been hot and dry, the out-of-doors Peach-trees look well, and where the syringing of the foliage with clear water has been carried out systematically, they are very free from red-spider and other pests.

Apricots.—The crops having generally been very light, a good deal of wood has been made, and on which the sublateral shoots should be kept pinched back to one leaf each. Old wood, which, in the ordinary course would have to be removed at the winter pruning, may be cut away now, and young growths fastened in thinly, to cover the otherwise blank spaces; the doing of this now makes gumming and loss of branches much less probable than if the pruning were carried out in the winter. See that the borders receive sufficient moisture to prevent the foliage drooping, or much injury to the trees will accrue. In other particulars, the treatment of the Apricot is identical with that required by the Peach.

Apples and Prars.—Such early Apples as Mr. Gladstone, Beauty of Bath, and Irish Peach, now in use, being eaten direct from the trees, need little or no storing. Devonshire Quarrenden is a

favourite variety that may be kept in season for several weeks. This is usually seen in the best condition in the south-western counties, where the pulp and rind becomes of rich red colour, and the flavour finer than in other parts of the country. In the midlands it does best grown as a bush on the paradise stock.

Pears.—Of these, Jargonelle is a variety that keeps but a very short time after being gathered, and is often found to be decayed at the core when apparently sound. A fine all-round early Pear is Williams' Bon Chrétien, which, by growing the tree on various aspects and at a standard, and gathering a few at a time as they become fit, may be had in season for a month. Fruits from bushes of standards possess the highest degree of flavour.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Sobralias.—Of late years the members of this genus have become more popular than was formerly the case, owing to the introduction of varieties differing from *S. macrantha*, though they are probably natural crosses between it and other species of *Sobralias*. The flowering season extends from April to October, so that where a collection of these plants exists, one or other may be found in flower during that period. The first one to flower is *S. macrantha*, a strong-growing, easily-cultivated plant; then follow the albino forms of that species, and after them the yellow-flowered *S. leucoxantha* and *xantholeuca*, and the hybrid named *Veitchi*; and still later in blooming are *S. Wiganii*, *S. Sanderiana*, *S. Lucasiana*, *S. Lowii*, *S. Hoffordii*, *S. sanguinea*, and *S. virginalis*. With one or two exceptions the different species require similarity of treatment, viz., to be planted in large, well-drained pots or pans, in a mixture of one part fibry loam, one part lumpy peat, and one part sphagnum-moss, small crocks, sand, and a very small quantity of dry cow-dung, broken to a fine condition. They all produce, more or less, a matted mass of fleshy roots, which, if they do not find space to extend themselves, form a complete covering on the soil, hindering the young growths from making their way through, and as a consequence these often-times come out through the lower perforations of the pot, the majority getting injured and lost in the process. The cure for this mishap is large pots or pans, these being about half filled with drainage, and over this a layer of rough sphagnum-moss, to prevent the percolation into the crocks of the fine particles of soil. The Cattleya-house is the best place for most of the species, though, where possible, a separate compartment should be devoted to them, so that during the summer months more air may be afforded, and a lower temperature maintained. Any necessary repotting may be performed in September, and October, first taking in hand those which have been longest out of flower. After root-disturbance, water must be withheld for a week or longer; and afterwards, for some considerable period of time, it should be given very sparingly. Undisturbed plants, on the contrary, should receive frequent and copious applications, and occasionally liquid farmyard manure in a much-diluted state. In order to admit light into the middle parts of large plants, the old reed-like stems which have borne flowers should be removed.

Pleiones will now, as the leaves decay, need much less water, and to be exposed fully to sunlight in a cool-house, excepting *P. maculata*, which grows best in the Cattleya-house. It will improve the appearance of the plants that are in flower if small spore-raised Ferns be inserted amongst the pseudo-bulbs.

Cycnoches chlorochilon, *Mormodes*, and *Catasartum*.—These different species, as the pseudo-bulbs reach full size, and the leaves show signs of decay, should be afforded water in gradually diminishing quantity, and be exposed to full sunshine.

Chysis aurea, *C. bracteata*, and other Species, growing at the present time in the warm-house, having finished their growth, should be removed to a cooler and less moist house, or to the Cattleya-house, otherwise a second growth will start, which will have no chance of developing properly. The supply of water at the root must be gradually diminished until the pseudo-bulbs are quite mature, when only a very small quantity will be needed to keep them in a firm condition.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.
Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY,	Aug. 28	National Chrysanthemum Society's Executive Committee.
TUESDAY,	Aug. 29	Royal Horticultural Society's Committee.
SATURDAY,	Sept. 2	Isle of Wight Horticultural Improvement Association. Worsley and District Horticultural Improvement Association.

SHOWS.

WEDNESDAY,	Aug. 30	Dumfriesshire and Galloway Horticultural Society's Show in the Drill Hall, Dumfries.
FRIDAY,	Sept. 1	National Dahlia Society's Show at the Crystal Palace (2 days).

SALES.

MONDAY,	Aug. 28	Great Trade Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
THURSDAY,	Aug. 31	Great Trade Sale of Dutch Bulbs, at Protheroe & Morris' Rooms.
FRIDAY,	Sept. 1	Imported and Established Orchids, and Cacti, at Protheroe & Morris' Rooms. Sale of Dutch Bulbs, at Protheroe & Morris' Rooms

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period August 13 to August 19, 1899. Height above sea-level 24 feet.

1899.	AUGUST 13 TO AUGUST 19.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			AT 9 A.M.		DAY.	NIGHT.	RAINFALL.	At 1-foot deep.	At 2-feet deep.	At 4-feet deep.
			Dry Bulb.	Wet Bulb.						
SUN. 13	E.N.E.	66.7	60.0	74.3	53.2	...	65.8	64.5	61.8	48.4
MON. 14	E.N.E.	64.9	61.1	75.1	57.1	...	66.1	64.5	61.8	50.6
TUES. 15	E.N.E.	73.5	67.2	88.2	61.0	...	66.9	64.5	61.8	53.9
WED. 16	N.N.E.	66.5	59.9	76.8	57.1	...	67.5	64.9	61.8	50.9
THU. 17	W.N.W.	65.8	57.4	73.9	55.2	...	67.5	65.2	61.9	46.4
FRI. 18	W.N.W.	67.6	59.7	70.6	54.1	...	68.1	65.3	61.9	47.0
SAT. 19	W.N.W.	65.6	62.5	73.9	61.6	...	67.6	65.3	61.9	57.9
MEANS...	...	67.2	61.1	76.1	57.0	Tot.	67.1	64.9	61.8	50.7

Remarks.—The weather continues very hot and dry, the temperature (88.2°) on the 15th inst. being the highest recorded this year, the next highest being 82.7° on June 5. No rain has fallen since the 6th inst.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—80.4°.

ACTUAL TEMPERATURES:—

LONDON.—August 23: Max. 78°; Min. 57°.

PROVINCES.—August 23 (6 P.M.): Max. 75°, Bournemouth; Min. 55°, Sainsburg Head.

The One-and-All Flower Show, August 18 & 19, 1899.

NOTWITHSTANDING the trying character of the season for many horticultural products, it is pleasing to note that the great show that has recently closed was by far the biggest and the best that has yet been held. We have already referred to some of the more important new educational and artistic features that claimed the attention and excited the admiration of so many visitors to the Palace during the festival week. The lectures by Mr. SNOWDEN WARD on photographic art, several times repeated, and illustrating through lantern slides,

the latest developments of lovely gardens and plant forms, and colours of Crotons, Caladiums, Cinerarias, &c., excited much interest, and drew good audiences as they proceeded. Samples from those exhibited in the Palace induced many to have another look at the twelve hundred photos shown for their horticultural or photographic merit. Already horticulture is feeling the stimulus of fresh inspiration through photography.

Not a few, especially in crowded towns, cannot as yet find room for living trees, shrubs, fruits, or flowers; but all may find space on their bare walls for one or more photos of all that is beautiful in nature. And it is to be hoped that the pictures that are already to be seen in some houses and gardens will create and strengthen a laudable ambition among thousands more of the masses through co-operation or otherwise, not to rest content until they have filled their gardens with richer plenty, and wreathed their dwellings with higher beauty.

Another general and very pleasing feature of this great annual show and other exhibits near, or in the heart of our great towns, is the distinguished place held in the prize-lists by town growers. Physicians tell us, that with a healthy, vigorous circulation of the blood, or, as Dr. EDWARD JOHNSON puts it "vigorous contractility," the human body is in the best condition to be disease-proof. So it would appear that armed with skill, the water-pot, or, better still, the hose or spray attached to the water-pipe, the town cultivator within some of our densest metropolitan areas can, does, and has within the last two days competed successfully against his rivals through a season of most severe drought. As to the latter, we have known the Crystal Palace from its formation, and have never before seen the grass so wholly burned up as during the week ending August 19, 1899. And yet we are assured, on the highest authority, and found out for ourselves by visiting the residences of the prize-winners, that a very creditable proportion of them grew their winning productions within the metropolitan area, smuts, dust, and yellow fogs above, the riddling of the earth with sewerage, water, and gas-pipes beneath notwithstanding. Fired with a good stock of enthusiasm, no grower need despair of winning prizes. An union of skill, perseverance, patience and love is bound to conquer in the end. The exhibition, however, is large, covering a mile in length of tables, and the competition wide and keen, the prize Potatoes alone, neatly dished on plates of nine tubers each, nearly weighing a ton. The Show, which occupied a single table some fourteen years ago, with some three hundred entries, has expanded this year into five thousand two hundred entries, in addition to late arrivals not counted.

The character and quality of the Show has improved in as great or greater ratio than its growth in quantity. At first it was mainly a show for the utilitarian side of horticulture for the working classes—Potatoes, Cabbages, Broad Beans, Parsnips, Onions, Carrots. While not neglecting these, Peas, Runner Beans, French Beans, Tomatos, fruits and flowers of all sorts, dinner-table decoration, bouquets, tasteful arrangements of flowers are now shown, and specially liberal, and numerous special prizes have also been offered to women and children competitors. In fact, nothing seems to have been omitted that could stimulate the interest or foster the taste of the industrial masses. There are prizes galore—Silver Cups, Medals, Certificates, &c., apparently for all. In the crowded state of our columns it would be as

impossible as unfair to enter into any particulars of prizes or merits of management; the latter under the able Secretary, Mr. EDWARD OWEN GREENING, his son, Mr. WAUGH, Mr. BELL, and others, is as perfect and smooth as can be, considering its magnitude. Alike in the quality and quantity of the show, it is the finest the Society has yet brought together, notwithstanding the frost-bites of last May, and the prolonged drought of the summer.

Two of the most important lessons of the season most heard of at this show, are the necessity of availing oneself of the supplies of water in the soil by means of capillary attraction, produced by deep tillage during long and severe droughts; and the husbanding these supplies for their proper work of affording water to the roots through a surface-mulch of loose soil, which prevents much loss of water through evaporation.

We cannot conclude without expressing our regret, which will be generally shared by our readers, at the absence, through illness, of the well-known and greatly-respected horticulturists, Mr. JOHN WRIGHT, of the *Journal of Horticulture*; and of Mr. A. F. BARRON, late of Chiswick. We can ill spare such men from our ranks, even temporarily.

Our latest news of the great people's show on Saturday, Aug. 19, was, that up to 2 o'clock the turnstile records of admissions were fourteen thousand five hundred and thirty-four, as against thirteen thousand six hundred and twenty-five last year. Of course, many more entered for the concert of seven thousand voices, conducted by Mr. G. W. WILLIAMS.

At the great closing open-air demonstrations on the terrace on Saturday evening, the following resolution, in which justice was done to horticulture, was moved by Mr. MADDISON, M.P., and seconded by Mr. COOK, of the Banbury Co-operative Society:—

"Resolved, that this final meeting expresses its gratification at the distinction which has again attended the festival. We recognise that the Rev. Dr. LORRIMER's three speeches were a triple benediction; while the presence and address of the Right Hon. GERALD BALFOUR, gave added prestige to the co-operative movement, which, we are glad to know, is extending in the form of co-operative dairies. To all the eminent workers in science and horticulture, and those who have made brilliant and useful our six days' festival, we tender the best thanks in our power. That of resolving that the co-operative principle of equity and industry shall attain yet more diversified, influential, and progressive development in the future before us."

In passing from this meeting, we found that the greatest and best One-and-All Flower Show had already vanished, and the tables were being piled out of the way for the next event at the Palace, which seems growing in interest and popularity.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will take place on Tuesday, August 29, in the Drill Hall, James Street, Westminster, from 1 to 5 P.M. At 3 o'clock a lecture on "The Soil considered as Plant-Food, and its Exhaustion," by M. GEORGES TRUFFAUT, will be read.

SHROPSHIRE HORTICULTURAL SOCIETY.—Some very striking figures for the years 1875—1893 inclusive, relating to this great show which is in progress as we write, are now before us, from which we may take a few extracts. In 1876 the annual subscriptions were at their lowest, £259 10s. 6d. In 1895 they were at a maximum of £449 2s. 6d., and

they have kept near to that sum in succeeding years. The receipts from cheap tickets varied from £77 10s. in 1875 to £667 4s. 8d. in 1892, and are quoted at £478 5s. 9d. in 1898. The takings at the gates on the first day have fluctuated from £65 8s. 2d. in 1879 (a very wet year) to £852 11s. 9d. in 1898. On the second day, the gate-money has

ROYAL GARDENS, WINDSOR.—During the past week the Royal Gardens and Park of Windsor have been quite besieged by horticultural societies. On Monday, the 14th, the members of the Cardiff Gardeners' Association, numbering over eighty, journeyed from South Wales for their annual outing for the purpose of visiting the Castle and its

enjoyable way of spending the evening. The 17th witnessed the arrival of the president, vice-president, and members of the English Arboricultural Society, more particularly for the purpose of visiting the Parks and Forest. After having been conducted through the Castle, they proceeded by way of the Slopes and Home Park to Frogmore



FIG. 61.—ABUTILON VITIFOLIUM: FLOWERS LAVENDER-BLUE, ANTHERS YELLOW. (SEE P. 167.)

varied from £107 9s. 8d. in 1875 to £1825 in 1897. "Sundry receipts" vary from 19s. 3d. in 1875 to £1007 19s. 5d. in 1898. The total receipts 1875–1898 amount to £60,458 0s. 9d., an average of about £2519 per annum. The proceeds have enabled the Society to help forward various local undertakings with substantial donations—in particular, the Darwin Statue—and to contribute small amounts to one of the gardening charities,

gardens, as mentioned on p. 174. On the same day the Lee and District and West Kent Horticultural Society also visited the Royal domain, the members first making their way through the slopes, flower-garden, Home Park, and Frogmore; the Castle and its surroundings were reserved for the afternoon. Some of the members took advantage of the opportunity which offered itself of going for a trip on the Thames by steam-launch—a most

where luncheon was provided for them by H.M. The QUEEN. In the afternoon brakes were commissioned for a drive of quite 30 miles, in the course of which the arboriculturists were taken through Windsor Great Park and Forest, past Ascot race-course, by Bagshot Park, and back again by way of Virginia Water. Mr. O. THOMAS, Capt. SIMMONDS (deputy-surveyor), and other officials, kindly acted as guides over their several departments.

WELWITSCH'S AFRICAN PLANTS.—The first part of the second volume of the catalogue of Dr. WELWITSCH'S plants collected in western and south-western tropical Africa, has just been published under the authority of the Trustees of the British Museum by Messrs. LONGMANS & Co., and other publishers. It comprises the Monocotyledons and the Gymnosperms elaborated by Dr. RENDLE. The Orchids occupy only about sixteen pages, including the magnificent *Lissochilus giganteus*. Grasses are largely represented, occupying no fewer than one hundred and twenty pages, which indicates the nature of the country, and the patient industry of the compiler. For the now universally recognised name *Welwitschia*, Dr. RENDLE substitutes the name of *Tumboa*, *Welwitsch*, in *Gardeners' Chronicle*, January 26, 1861, p. 75, in a Report of the meeting of the Linnean Society. It would have been better in the circumstances to have considered this as a mere provisional name, a *nomen nudum* in fact, though there is little chance of any mistake in identification being made. Moreover, the plant is not to be called *Welwitschia mirabilis*, Hook. f., see *Gardeners' Chronicle*, 1862, p. 1194, but *Tumboa Bainesii*, Hook. f., in *Gardeners' Chronicle*, November 16, 1891, p. 1008. It results that the name given in the splendid monograph of Sir JOSEPH HOOKER, and taken up in the whole or almost the whole of the literature pertaining to the plant is to be set aside in favour of one which it would, in our opinion, have been better to have left as a synonym. "*Id facere laus est quod deest non quod licet.*" In any case, botanists will cordially welcome this new instalment of a most carefully completed volume.

PHENOLOGICAL OBSERVATIONS FOR 1898.—We suspect—indeed, we know—that many people are of opinion that the letter "r" should be inserted before the "e" in the above title; but the phenomena of climate, as they affect animals and vegetables, are not quite the same as the investigation of the prominences of the skull, supposed to indicate similar projections from the brain, to each of which a special office is assigned. Plant cultivators are under great obligations to Mr. MAWLEY for the pains he takes to record and classify the reports he gets from numerous stations (127) in Great Britain. The winter was mild as a whole, and it was not till Feb. 21 that snow fell to any extent. Owing to this mildness, the early-flowering plants came into blossom much in advance of their usual time. The following spring was cold, and north-easterly winds and frosts injured the fruit blossoms. The summer was of an average character, but the rainfall was everywhere deficient, especially in the south-west and south of England, conditions unfavourable to the gardener. The autumn was unusually warm and dry, the drought roughly speaking having extended from the beginning of June till the middle of October. The record of this present year, it would seem, will not be unlike that of 1898. These incidental comments will, we hope, convey at least some notion of the scope of Mr. MAWLEY'S most useful labours, and induce some who have the opportunity, to assist him in his work.

DELPHINIUM STAPHISAGRIA.—Mr. E. M. HOLMES directs attention to the fact that the true *Delphinium staphisagria* is practically unknown in botanic gardens in this country, and that the plant which passes under that name is in reality another species—viz., *D. pictum*, Willd. The two species are distinguished as follows:—*D. staphisagria* has very hairy stems, glandular hairs being mixed with the long spreading soft hairs, flowers that when well developed have an ultramarine blue tint, and a calyx with a very short or almost obsolete spur, and carpels containing only four or five large seeds. *D. pictum*, Willd., has shorter soft hairs, but no glandular hairs on the stems, and the flowers are of a pale lilac colour, the spur is as long as the calyx segments, and there are in each carpel ten or twelve seeds, which are only half the size of those of *D. staphisagria*, Linn. His experience in growing

the plants showed that it is almost impossible to grow the true plant from the Stavesacre seeds of commerce, which will not germinate, or only very rarely indeed, and that the plant requires shade and warmth and a damp atmosphere; whilst *D. pictum* grows well in sunlight and in the open air, and in the south of England, at all events, is quite hardy. He recommends that in the next Pharmacopœia the figure given by NEES VON ESENBECK, *Pl. Med.*, tab. 39f, should be referred to, unless a better one be published before the appearance of the next edition. *Pharmaceutical Journal*.

HALF-A-TON OF HONEY.—The Ardmore Estate at Parkstone, near Bournemouth, which was the residence of the late Dr. J. G. ALLMAN, has just been sold by auction, and a curious fact was mentioned by the auctioneer. Some ten years ago a swarm of bees settled in the roof, and Dr. ALLMAN would not have them disturbed. It is estimated that there is now an accumulation of half-a-ton of honey there.

JAMAICA FRUIT TRADE.—A correspondent in Jamaica remarks of the increasing fruit trade of the island. The fruit trade of Jamaica is assuming immense proportions. It is nearly all in the hands of the Americans, and the bulk of the profit I suspect falls into their hands. They give 6d. up to a 1s. per 100 for oranges, and on an average 1s. per bunch for Bananas. It is not much, but it is a good deal more than nothing at all, and that is all our Oranges brought before the fruit trade sprang up. Most of the money goes into the hands of our peasantry, and the Jamaica negro can do what few others can—it matters not how small his income is, he can generally manage to live on it, and put something by. In this respect, at least European working men might well imitate him with advantage. I have taken much pains in endeavouring to find out the best kinds of Grapes for our climate, and some of my experience proves that not all the kinds considered good in Europe, are of any use here. Gros Colmar is worthless here; it bears freely, sets its fruits well, and winds up by bursting every berry. Gros Guillaume is barren; so is White Tokay. Muscat Hamburg makes splendid canes, puts out fine blossom, and plenty of it, but the bunches are skeletons of a few straggling berries, no larger than Peas. The Frontignan and Chasselas kinds do fairly well, but no one here cares for small Grapes, no matter how good the quality. Royal Ascot does grandly with me; the clusters are small; never much over half-a-pound each, but the Vine when in fruit looks like a solid mass of Grapes, and when well thinned, and well ripened, are all that could be desired.

A GARDENERS' OUTING.—At the invitation of LEOPOLD SALAMONS, Esq., and Mrs. SALAMONS, about forty gardeners belonging to the well-known districts of Leatherhead, Ashted, Fetcham, Mickleham, Box Hill, and Dorking, assembled together on the 16th inst., at the beautiful mansion in Norbury Park, Mickleham, the residence of that gentleman. Under the guidance of Mr. KENT, the head gardener, the company were conducted through the picturesque, extensive, and well-kept grounds. The lawns and terraces being at a considerable elevation above sea-level, grand views were obtained of Box Hill and the surrounding neighbourhood. Although no rain has fallen here for an unusually long period, the skilfully designed flower-beds and herbaceous borders were exceedingly gay and fresh-looking. To have attained such healthy growth and floriferousness, a great amount of time and labour must have been spent in affording water, and in other ways. It is well worth climbing up the slopes leading to Norbury, if only to see the splendid old Beeches, Oaks, and Cedar-trees which offer such an admirable background to the scenery around the estate. During the afternoon a cricket-match was arranged between some of the gardeners present, several of whom showed exceptional skill in that pastime. Mr. and Mrs. SALAMONS kindly provided high tea for the

visitors at the mansion, and before the party separated, Mr. MEASE, the head gardener at Downside, Leatherhead, desired Mr. KENT to convey their best thanks to Mr. and Mrs. SALAMONS for the many acts of kindness the gardeners of the locality had received at their hands.

"THE CENTURY BOOK OF GARDENING."—The conductors of *Country Life* announce that they are about to produce immediately the first part of the *Century Book of Gardening*, which is to come out in twenty-six parts. The present work is practical, and, it is believed, complete; it is written entirely by experts and specialists, and, to a large extent, by specialists who are acknowledged also to be skilled writers. Its numerous illustrations are in that beautiful style which excites admiration in *Country Life*.

HOME CORRESPONDENCE.

GRAPE JUDGING.—Mr. Buchanan seems to be a stickler for the old doctrine, that no man can be a proper judge of anything he has not grown. His proposition is very much like the old saying, "He who would breed fat oxen should himself be fat." It far from follows that because a man is a grower, good or indifferent, that he is therefore the best judge of the merits of the thing as presented in competition. One of the great needs for a judge is a capacity to determine merits readily—in fact, to have a thoroughly judicial mind. Then he should have no bias, and none is so likely to have bias for or against certain products, kinds or varieties, as a grower of them. How many of our best judges are there who are other than growers; or if they have been growers, have not been so for years, yet have judicial capacity to determine merit in the highest degree? Why, in the case of Grapes, growers like to surround the question of judgment with a halo of sacred limitation, but the man in the street, in this case the crowds in the tents, are as keen to distinguish points as are the smartest of growers. If there are judges who entertain such egotistic notions with respect to their own exclusive capacity, let them mix, when a show is thrown open, with the crowd, and listen to the people's comments. It will do much good in helping to tone down complacency. I have, in a wide experience of shows, extending over some forty years, found more mistakes of judgment made by pure growers than by those not so, and having far wider general knowledge and more liberal ideas. After all, it is the general and not the specific judge who brings to the consideration of his labours, as such, the least biassed mind. A. D.

FLAVOUR IN POTATOS.—I have read Mr. Harrison Weir's growl about Potatoes with amused interest. All readers of the *Gardeners' Chronicle* who have been privileged to know the famous artist, must be pleased to learn that, though now seldom seen at the Drill Hall, he is yet very much alive. But whilst I have some sympathy with him over his craving for higher flavour in Potatoes, I have all the same some doubts as to whether his experience of varieties, in a cooked or uncooked state, has been large enough to render him an impartial critic. That there are numerous good-flavoured Potatoes in commerce I am assured, but then none of them belong to the great cropping section, and hence they do not get the cultivation they deserve. Without doubt, the Ashleaf Kidney owes its wide popularity yet to its great earliness primarily, but still largely to its undoubted high flavour, in regard to which no other variety has excelled it. But then even the Ashleaf is generally a somewhat close-eating Potato, a feature which Mr. Harrison Weir delights in, but which the many Potato consumers object to, just as they object to its yellow flesh, and yet that coloration and flavour seems to be in the Potato indissolubly associated. Of all the old Potatoes, none are better remembered for flavour than Patterson's Victoria, which had flesh strongly tinged with yellow. Nearly all modern Potatoes have quite white flesh, obtained in so large a degree from American parentage; but a few which gave some nice flavour and some yellow flesh—Woodstock Kidney, Reading Russet, Radstock Beauty, The Dean, and a few others—are very little grown, because not abundant croppers. Even in connection with varieties in general cultivation, it must not be overlooked that it

is very rare a person enables the tops of the plants to endure sufficiently long to cause the tubers to finish or entirely mature; and where such is the case, flavour is not created after all. With the majority of Potato consumers a pinch of salt supplies their desired flavour, and generally they have a great preference for flaky over solid flesh. A. D.

— Yes, many will endorse all that Mr. Harrison Weir has stated on page 142 of the *Gardeners' Chronicle*. How very frequently do we hear the remark, "When young we used to look forward to the coming of the 'new' Potatoes, but 'new' Potatoes now-a-days do not seem to have a bit of the same flavour"! The introduction of the American varieties is responsible for the present lack of flavour. Some twenty years ago, when the Yankee introductions were in the height of their

Both are heavy croppers under indifferent cultivation, but it would be difficult to name two varieties more deficient in flavour. Eclipse is soft, spongy, and very seedy; whilst the other is hard, seedy, and flavourless, in fact all that a Tomato should not be. Why are not the flavour and texture of Cucumbers considered more than they are? Firm and cropping qualities are the chief points, flavour going for nothing, but there is more difference in the flavour and texture of Cucumbers than many think. W. J. Godfrey, Exmouth.

— What Mr. Harrison Weir says of Potatoes, at p. 142, and the Editor of Tomatoes, is perfectly true, for though you can still get good Potatoes if you grow them yourself, you can hardly find such a thing in England now as a Tomato with real Tomato flavour. Most of the growers do not know

cropper, and liable to disease. As for Tomatoes, I should be glad if someone can tell me of a good sort which will ripen in England under glass. H. J. Elwes, Colesborne, Gloucestershire.

CAMPANULA MIRABILIS.—The Rev. Wolley Dod may console himself about the caprices of this prehistoric plant by the information that others have not fared better. I was instrumental in its distribution, but I had this season out of 120 strong plants only three which flowered, and two of these were planted horizontally in my rock-garden, a position which the plant very much prefers. Its counterpart, *C. betulifolia* is easier of cultivation, and has white flowers. Max Leichtlin, Baden-Baden.

FLOWERING OF MORISIA HYPOGÆA.—Mr. W. Earley appears in a note on p. 135, to question the early flowering of this plant, suggesting that Mr. T. Harris, who has contributed to the same subject, may be the possessor of an early flowering form of this plant. The chief value of many hardy flowering plants is their earliness to show flower, and it will doubtless interest Mr. Earley to learn that for several years past the plant has been in good flower by the middle of the month of February. If it were necessary to stretch a point as to earliness, I might add that at Kew for some past seasons it has begun to flower even earlier than this; and I have noted it flowering at such time as *Galanthus Elwesii*, *Anemone blanda*, the earliest of the *Hepaticas* (*Anemone hepatica*), and other such well-known subjects. I believe it is now two years ago that I noted the earliest flowers, even before January was out; and, of course, it is well known that this *Morisia* is in flower as soon as it moves at all. At Kew, there is certainly nothing in the open in winter-time to incite earliness to flowering—rather the reverse; and if Mr. Earley's plants do not flower till so much later in the year, something must be wrong. Near London the plant may be seen in fine condition in the open nearly two months earlier than the date given by your correspondent, viz., the middle of May. At this time flowering-plants are legion; and though *Morisia* may still be found in flower, being indeed one of the most profuse in this respect, it is certainly a long way from being in its prime, or even good representative form. At Kew, quite early in the year, it is ever a most charming thing in the rock-garden, before scores of May-flowering plants have made a move at all. E. H. Jenkins, Hampton Hill.

— Both Mr. Earley and Mr. Harris are correct in their apparently conflicting statements regarding the time of flowering of *Morisia hypogæa*. Before reading Mr. Earley's note in your issue of August 12, it had occurred to me that there might be two varieties. That I have here does not bloom until May, but I know of several gardens in which the *Morisia* is one of the earliest plants of the year to flower. I have been inclined to attribute this to a difference in the soil or other conditions, but this may not be the cause, and it may be that there are two varieties. One cannot detect any difference in the appearance of the plants which one sees early in bloom. A rather moist soil is that in which it blooms most freely. I may say that I have grown it now for several years, and have not had it in bloom until long after Mr. Harris notes as its flowering time. It can be readily grown from root cuttings as well as by division. S. Arnott, Carsethorn by Dumfries, N.B.

HYBRID BEGONIAS.—In your interesting article on this subject on p. 84, I see it is stated that Mr. O'Brien failed to obtain any successful cross between flowers of the Rex type and the tuberous-rooted kinds. It may interest you to learn that some years ago (about 1884) I succeeded in obtaining fertile seed by inoculating a red-flowered (seedling) tuberous-rooted variety with the pollen of the ordinary form of Rex, which was grown so extensively about that time, or rather before, for the Covent Garden and other markets. I obtained, I believe, five plants from the one small pod of seed, and there could be no doubt of a true cross having been effected. One plant had beautifully-marked leaves, with a distinct zone of silver, and intermediate in form and size between the two parents, with nice blooms of a deep scarlet or light crimson colour, and 2 to 3 inches in diameter. Another promised to prove better still, but dropped its first flowers, and I never saw it in character. Another pushed up a number of small variegated leaves



MR. WALTER W. NAUNTON.

(Joint-Secretary of the Shropshire Horticultural Society. See p. 176.)

popularity, I was much struck with the system of judging Potatoes then in vogue. The tubers were cut in halves, and only the very whitest stood the least chance of being a prize winner. A variety known as Climax—a very insipid thing—was the favourite in these parts, and I have known the more globular tubers take "first" as "white round," and the tapering or oblong shape the same position among "white kidneys." One of the best shaped finest flavoured varieties in those days was the yellow fleshed Emperor. Unfortunately—although a model in form, this seems to be lost, no doubt owing to its liability to the disease. The editorial footnote to Mr. Weir's article on Tomatoes is also to the point, and the Royal Horticultural Society would do well to take flavour into consideration when making its awards. Some two or three years ago a trial of Tomatoes was held at Chiswick, and two varieties out of the very few which were awarded the maximum number of marks were Eclipse, and All-the-year-Round.

what it is, as it has been sacrificed to appearance, like so many other things. We are always told that the public will not buy anything that does not look pretty, but I cannot believe that the public are all fools, and I for one am ready to give a prize for Tomatoes for flavour only, if I was sure that there were among the members of the committee any judges who know what the little rough corrugated Tomatoes you get in India, Mexico, or Turkey, taste like. I do not say that it is necessary they should be small or rough looking, but I say that flavour is the first quality in fruit or vegetables, and that they are often judged as though they were not meant to be eaten at all. I would recommend Mr. Weir to grow the old English Ashleaf Kidney, for his main crop, which, if planted at intervals, will last him from June to January; and for a late crop, the Old Fluke, the Skerry Blue, and dark skinned Irish variety, which was brought over here by Irish labourers many years ago, and is still one of the best late Potatoes I know, though a bad

from the base, but no flowers, and the rest appeared to be not very good growers. Unfortunately, the place had to be disposed of the succeeding autumn, and the above plants, with some other promising stock, passed into the hands of one "who cared for none of these things." You do not notice the *B. discolor-Rex* hybrids produced by a continental firm. From what I have seen of these, I should consider them to be a decided acquisition. *B. C. Ravenscroft, Lazey, Isle of Man.*

A NEW SALADING.—I shall be glad if you can obtain information for me regarding a new salad, because when travelling in the South of Europe I partook of a salad, a specimen of which I send you in the size in which it is used. On my return I planted the young plants, and I send you specimens showing the size to which it has grown, but I have not had time yet to flower it. On looking over my notes when I returned, I sent off specimens of this salad to Messrs. Vilmorin, Andrieux & Co., also to Messrs. Carter, and to other houses, but up to the present time I have not found anyone who can recognise it, or who knows anything about it. As far as the salad is concerned, I may say that I thought it was rather insipid, but it is greatly improved by the addition of the blue flower pinched from the stem of *Borago officinalis*, which is the common borage found in gardens and on commons. This has a very pleasing appearance in the salad, and greatly adds to the pleasure of eating it, owing to the sweet flavour imparted to the salad. I need hardly say that this borage flower is also used with Lettuce-salad, and improves it. I sought to account for the use of this grassy-looking plant as salad, and I attributed it to the fact that Mustard-and-Cress was very little used, and the English call for salad with their food in the large hotels they frequent. *Thos. Christy.* [The plant sent is not a bit like Purslane, has the appearance of a flattened tuft of leaves, such as is formed in a coarse-growing grass, like *Dactylis glomerata*, but it is evidently not a grass; the sample of "salad" is not more than 1 or 2 inches in height, and correspondingly slight. Ed.]

THE TOMATO UNDER GLASS.—It is quite true what your correspondent, "Growler," says about the want of flavour in our present-day Tomatoes, and they are all alike in private and in market gardens. The stupid plan has made its way everywhere of reducing the plant to a single stem, by removing its lateral shoots; and, to make matters worse, the leaves as well, thus a few clusters of fruits are forced to attain to a large size by means of abundance of water and liquid or other manures being applied at the root. Now, I have grown the Tomato on outside walls facing west and south in a country with a much warmer and longer summer than ours, and my practice was to train the main shoots, say, to the number of six to ten per plant, in fan-shape, suppressing only the secondary laterals. Such plants set capital clusters of fruits in long succession, and afforded half a bushel per plant; and because the plant was allowed to carry plenty of foliage, the sap became properly elaborated, and the flavour in consequence was excellent. I will give examples in other plants. We know what happens to a field Vine when the frost destroys the leaves, say, in the early half of September, that is, before the fruit is quite ripe—the Grapes are uneatable, and will not make a palatable wine, although they may be perfectly coloured, each according to its kind. The same lack of flavour occurs in Melons when the foliage, or most of it, dies before the fruit is ripe, or the plant is deprived of much of it; and so with many other kinds of fruits. It may suit the man who grows out-of-door Tomatoes to denude the plant of its leaves, and then feed it inordinately; but that only helps to prove that the existing varieties of Tomatoes do not suit our climate, or that he is blindly following somebody's dictum instead of bringing his own common sense to bear on his practice. When the plant is cultivated under glass in this country, it is under the same conditions as my plants against a wall, only rather more favourable. The methods of culture appear to me to have more to do with flavour than has variety. Then why, I ask, should not the gardener allow the plant to extend in a manner consonant with its habit, and why confine it to a single stem, and cultivate five plants where one would suffice? The benefits to be derived from a change to more natural methods are too obvious to mention here. The best flavoured Tomato that I know of is Hathaway's Excelsior, *A Traveller*,

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

GRAFTED POTATOS.

AUGUST 15.—Mr. A. W. Sutton sent up to the Royal Horticultural Society, on the above date, some specimens of the haulm and tubers of various Potatoes upon which he had been experimenting. Unfortunately, the Committee was not sitting, but the specimens were examined, and the following notes are placed on record. It will be remembered that Mr. Sutton, on January 31, 1899, exhibited numerous tubers, the character of which appeared to have been modified in consequence of the plants from which they were grown having been grafted with Tomatoes, &c. The plants now exhibited show that the modifications alluded to were not confined to the tubers alone, but were noticeable in the plants generally, and that there had been no reversion to the original form. The specimens exhibited were the following:—

No. 1.—Potato "Victoria," typical plant, showing normal growth and produce.

No. 2.—Plant grown from tubers which were the result of grafting, in 1895, Tomato "Maincrop" on Potato "Victoria." Each year since 1895 a crop has been grown and tubers saved (resulting from this graft).

Notes.—All the plants in this row are alike, but the growth is only about one-third the height of No. 1, and the tubers few and small. (Haulm much dwarfed and produce diminished, form of leaf not altered.)

No. 3.—A similar experiment to last, except that in 1895 another variety of Tomato, viz., Sutton's "Perfection," was grafted on to "Victoria" Potato.

Notes.—All the plants in this trial are also very uniform, exactly corresponding with one another, but they are rather stronger than No. 2, and more bushy, and yet quite distinct from No. 1. N.B. No. 3 is the produce of one set only.

No. 4.—A similar experiment to Nos. 2 and 3, but in this case, instead of a Tomato, the common garden weed, *Solanum nigrum*, which produces seed-berries so plentifully, was grafted on the Potato "Victoria," in 1895.

Notes.—The plants in this row correspond more nearly to those in No. 1, but whereas in neither No. 1, 2, nor 3, are there any seed-berries, in this row (No. 4) the plants produce seed-berries abundantly.

Three plants of No. 4 are sent to show its seed-bearing tendency. N.B. It will be seen that the tubers vary little, if at all, from those of No. 1 (this was the case also when shown in January last). A. W. S.

[Victoria foliage unaltered; haulms bear numerous berries of the size of marbles. Ed.]

A very similar experiment was made in 1895 with another Potato, Sutton's "Supreme," the character and constitution of which appears to have been modified by Tomato-grafts, just in the same way as Victoria Potato was.

No. 5.—Typical plant of Potato "Supreme."

No. 6.—Plant grown from tubers which were the result of grafting, in 1895, Tomato "Hain Green Favourite" on Potato "Supreme." Each year since 1895 a crop has been grown and tubers saved (resulting from this graft), as in the case of plants Nos. 2 and 3.

It will be seen that here also the plants are much dwarfed, though the tubers do not differ much (except in their smaller size).

AXILLARY TUBERS.

No. 7.—An interesting experiment was made in 1895, as follows:—Tomato "Earliest-of-All" was grafted with Potato "Woodstock Kidney." The Potato-foliage produced axillary tubers, nourished, of course, by the Tomato roots. The axillary tubers were planted, and a crop has since been grown annually. No. 7 represents the ordinary plant of Potato Woodstock Kidney. No. 8 represents the plants grown from the axillary tubers of 1895, and successive years.

Notes.—Perhaps No. 8 is stronger, and taller, and more upright in growth, but there is no very marked difference between the two as regards foliage; the tubers of No. 8, however, are very poor in every way, and very few in number (and the quantity of fibrous roots relatively large). A. W. S.

CARDIFF GARDENERS' ASSOCIATION OUTING.

AUGUST 14.—The members of the Cardiff Gardeners' Association, to the number of eighty, had their annual outing to Windsor on the above date.

Leaving Cardiff at 6 A.M., and travelling via Bath and Reading, under the guidance of Councillor J. M. Gerhold, the members were met at Windsor station by Her Majesty's head gardener, Mr. Owen Thomas, and his son. After proceeding to the hotel for light refreshments, the party left to view the State apartments at the Castle, and were afterwards conducted through the Home Park to Frogmore. They

returned by another route across the park to the hotel, and later were conveyed to the gardens of Baron Schroder, at The Dell, Englefield Green, where one of the finest collections of Orchids in the world is to be seen. The head gardener (Mr. H. Ballantyne) welcomed the party. The party were then driven to Cumberland Lodge, the residence of Prince Christian, to view the historic 100-year-old Vine, which is carrying at the present time, 3000 bunches of Grapes. The party then returned to Windsor via Virginia Water, partook of supper, reaching Cardiff at 5 o'clock on Tuesday morning!

TROWBRIDGE HORTICULTURAL.

AUGUST 16.—Trowbridge celebrated the Jubilee of its Horticultural Society with great gusto on the above date. The Society began in 1849 by holding a flower-show in aid of a local institution, then much in debt—the Mechanics' Institution. A flower-show was suggested as a means of discharging the debt, and everything was arranged, and tents erected, &c. The night before the flower-show day a strong wind wrecked the tents; but they were re-erected, and filled with exhibits, and success followed. That was the beginning of the Trowbridge flower-shows. It then became an institution of the town, and an annual exhibition has since been held in unbroken sequence. Some of those who assisted at the first took part in the Jubilee Exhibition on the 16th inst., when it could be seen, both from the extensive display of garden-produce and the immense attendance, that the flower-show is as popular as ever. The weather was brilliantly fine, and everything conspired to make the Jubilee Celebration highly satisfactory all round.

The interest of the competitions was much enhanced from the fact that the Veitch Memorial Medal and money prize was offered for competition in the class for—

Twelve stove and greenhouse plants, which are locally grown with remarkable success. The original intention was to offer the Medal for Fuchsias, for which Trowbridge has so long been famous, but as some of the most successful growers are compelled to declare themselves traders, it was found necessary to make a change, and the Medal and prize was transferred to the above class. It was well won by Mr. H. Matthews, gr. to Sir W. R. Brown, Trowbridge, who had a good level collection; the chief subjects being *Anthurium Scherzerianum* superbum, *Clerodendron Balfourianum*, *Bougainvillea Sanderiana*, a fine piece of *Rondeletia speciosa* major, *Allamanda Hendersoni* and nobilis, *Erica Eweriana* elegans and *E. Austriana*. Mr. G. TUCKER, Hilberton Marsh, was a very good 2nd, having *Dipladenia Brearleyana*, awarded a special silver medal as the best flowering stove and greenhouse plant in the show; *Stephanotis floribunda*, *Bougainvillea glabra*, very good; *Statice Gilberti*, &c.

Six specimens.—Those from Messrs. MATTHEWS and TUCKER were so evenly balanced, that equal 1st prizes were awarded. The former had *Allamanda Hendersoni*, *Ixora amabilis*, *Erica Tu nbuli*, *Eucharis grandiflora*, in very good character; the latter had *Bougainvillea glabra*, *Ixora Fraseri*, *Stephanotis floribunda*, *Allamanda nobilis*, &c. Mr. TUCKER was 1st with three specimens, having *Allamanda Hendersoni*, *Bougainvillea Sanderiana*, and *Ixora Tuckeri*, in fine form. Mr. H. MATTHEWS was 2nd. The best specimen flowering plant was *Dipladenia Brearleyana*, finely grown, from Mr. G. TUCKER; Mr. H. MATTHEWS was 2nd, with a fine *Allamanda nobilis*.

Fuchsias, the pride of Trowbridge, were in very fine character. Mr. GEO. TUCKER, was 1st with six specimens, tall, stately, finely grown and bloomed, they included Charming, a really superb specimen, some seven feet high from the pot, well proportioned, grandly grown, and freely bloomed. This was awarded a special silver medal as the finest Fuchsia in the show. Final, and Doel's Favourite, dark varieties; Mrs. Bright, Arabella, and Tucker's Favourite, light. Mr. J. Lye, Easterton, Market Lavington, came 2nd with smaller plants, but well grown and bloomed, he had Charming, Doel's Favourite, and Elegance, dark; Jubilee Queen, a beautiful light variety, wonderfully free; Wiltshire Beauty and Pink Perfection, light.

Cockscombs and Zonal Pelargoniums came from Mr. Chialett, gr. to Mr. E. T. D. FOXCROFT, Hinton-Charterhouse; the latter were particularly good, fine examples, carrying large heads of bloom.

Some excellent *Gloxinias* were shown by Mr. G. TUCKER and Mr. H. KIRK. With eight single as well as six double *Begonias*, Mr. G. TUCKER was 1st, showing finely-grown and bloomed specimens of high quality. Mr. H. MATTHEWS was 1st with four *Orchids*, showing a very good selection. *Lilies* in pots made a good feature, finely-grown examples of *L. speciosum*, &c.

Foliage Plants and Ferns were shown in twelves, and remarkably good they were. Mr. TUCKER was 1st with the best twelve, having medium-sized specimens of *Adiantum*, *Gymnogrammas*, *Cheilanthes*, &c., and in the pink of condition; and Mr. MITCHELL, gr. to A. P. STANCOMB, Esq., was 2nd, also with excellent plants. Mr. H. MATTHEWS was 1st with nine specimen foliage plants, having a fine *Kentia Forsteriana*, *Phoenix dactylifera*, a fine piece of *Theophrasta imperialis*, *Crotonei Weismanni* and *Reidi*. *Caladiums* and *Coleus* were shown in sixes; the latter in the form of even, well-coloured bushes, from Messrs. J. CRAY & SONS, Frome.

Groups arranged for effect in two classes, and being in the centre of a tent, were seen to the best advantage. Messrs. E. S. COLLE & SONS, Bath, took the 1st prizes in both classes, with tasteful arrangements.

CUT FLOWERS.

These always form a leading feature at Trowbridge. Mr. A. WALTERS, Kensington Nursery, Bath, was 1st with twenty-four blooms of Quilled Asters, showing them in much better condition than might have been expected. Mr. F. HOOPER, Bath, was 1st with the same number of flat-petalled varieties, having very fine blooms of the Victoria type.

Roses were shown in several classes, and in these Mr. J. MATROCK, New Headington, Oxford, who generally shows finely in the autumn, carried everything before him. He was 1st with twelve trebles, with thirty-six, twenty-four, and twelve varieties; and with twenty-four and twelve Tea-scented. Some remarkably good flowers for the season were staged by Mr. MATROCK, among them Mrs. J. Laing, Reynolds Hole, Maman Cochet and its white variety, Perle des Jardins, Madame Hoste, A. K. Williams, Charles Lefebvre,

Messrs. CRAY & SON, Frome, were 1st, with twelve blooms; and Mr. F. LINDSAY, Frome, 2nd.

With twelve fancies, Mr. G. HUMPHRIES came 1st, having a neat stand of bloom; and Mr. J. WALKER was 2nd. Pompon Dahlias were very good; the season appears to refine them, there being an entire absence of coarseness. Messrs. J. CRAY & SONS were 1st with twelve bunches; and Messrs. KEYNES, WILLIAMS & CO., 2nd. The Cactus were also very good, shown in bunches of three; Messrs. J. CRAY & SONS were again 1st, showing well developed blooms of the leading varieties; Messrs. KEYNES & CO., were 2nd.

Gladiolus, &c.—Collections of twenty-four spikes each were well shown by Messrs. J. MADDOCK, and G. HUMPHRIES.

Some fairly good Pansies were staged by Mr. F. HOOPER, who also took the 1st prizes with Carnations and Picotees. Sweet Peas in charming bunches were shown by Mr. BLACK-

Duke Cherries, &c.; 2nd, Mr. W. STRUGNELL, The Gardens, Rood Ashton, also with a good collection.

With six dishes, Mr. STRUGNELL was 1st, having Black Hamburgh and Muscat of Alexandria Grapes, Sea Eagle Peaches, Fine-apple Nectarines, Apricots, and Melons. Mr. J. DAVIS, Stockton, was 2nd.

The best two bunches of Black Grapes were Gros Maroc, from Mr. W. T. DOUGHTY, Steeple Langford; Mr. T. JONES, Coombe Down, was 2nd, with Black Hamburgh.

The best two bunches of white Grapes, Muscats excluded, were very fine Buckland Sweetwater, from Mr. W. A. TODD, Stoke Bishop; Mr. H. CLACK, The Gardens, Roundway Park, Devizes, was 2nd, with the same.

Black Muscats were represented by good Madresfield Comit, from Mr. E. J. PRACOCK, Bath; Mr. CLACK was 2nd with the same.

Mrs. TALBOT GREAVES was 1st with two bunches of white Muscat, having Muscat of Alexandria; Mr. T. JONES taking the 2nd prize with the same.

Melons were shown in two classes, and these were good. Apricots, Plums, Cherries, Peaches, and Nectarines were also in good character. The best dessert Apples were Red Quarenden, Duchess of Oldenburg, Beauty of Bath, and Irish Peach. Peasgood's Nonsuch, finely shown, took a decided lead among the culinary Apples. Peas were fairly good.

VEGETABLES.

The exhibits of vegetables are generally very fine here, but this was not so on this occasion; still, there was a very good display in many classes.

The amateurs have several classes allotted to them for plants, flowers, fruits, and vegetables, and also for bond-fide working-men, who generally show remarkably well, there being some 36 acres of allotment-gardens provided by the generosity of a resident, and they are generally very well tilled, but the land had suffered from the drought.

ROYAL HORTICULTURAL OF ABERDEEN.

A HURRICANE.

AUGUST 17, 18, 19.—The old adage that "Man proposes but God disposes," was never more truly verified than in the case of the annual show of this Society. On the eve of the show—Wednesday, 16th inst.—preparations were begun, and by nightfall numerous exhibits were arranged in the three spacious marquees, erected in Duthie Public Park, Aberdeen. The entries were up to the average generally, and the quality of more than average excellence.

As usual, a feature of the show was the display made by local nurserymen, in separate tents; and as this year a gold medal was offered for the best exhibition, there was keen rivalry among such well-known firms as Messrs. BEN REID & CO., Messrs. JAMES COCKER & SONS, Messrs. WILLIAM SMITH & SON, &c., all of whom had forwarded floral designs, cut-flowers, pot-plants, table-decorations, &c., as well as a large number of costly mirrors, vases, and such like. The wind was pretty rough in the afternoon, and about half-past eight those about became alarmed for the safety of the marquees and their contents, the wind having increased to a hurricane, and soon the centre-pole of the cut-flowers and fruit tent snapped, and in a twinkling the canvas was flapping about wildly, the tables with their valuable freights being swept bare. The marquee devoted to pot-plants was the next to go, and to add to the confusion clouds of dust from the walks obscured the vision, and hampered the work of rescue. Valuable Palm-trees and other exotic plants were tumbled indiscriminately, to the despair of the owners. But the spectators were practically powerless to avert further disaster; and in quick succession Messrs. COCKER and Messrs. SMITH & SON's tents were wrecked, as was also the secretary's tent.

There were now only the tent of Messrs. BEN REID & CO., and the luncheon-marquee, which stood in a less exposed situation, left standing; and, in order to save the former, the top-canvas was lowered. An exciting scene was witnessed in connection with the collapse of the cut-flowers' tent. The lamps inside had been lighted, and when the crash came the canvas caught fire. A number of people were below the fallen tent, and it was feared that the flames, fanned by the wind, would spread so rapidly, that it might be impossible for everyone to escape in safety. No sooner was the danger apprehended, however, than many willing hands assisted in rolling up the canvas, and thus smothering the flames, with the result that the people below managed to crawl out uninjured. A large force of police had now arrived, and were told off to keep watch on the fruit. It was now seen that little more could be done; and it being now 11 P.M., the spectators gradually dispersed.

In the case of professional gardeners the loss is very serious. From many of the castles and mansions in Aberdeenshire beautiful exhibits were forwarded, and in some cases they were nearly all destroyed. Mr. James McDonald, gr. to Mr. T. W. CROMBIE, M.P. Balgowrie Lodge, Aberdeen; and Mr. John Proctor, gr. to Sir WILLIAM HENDERSON of Devanha, were perhaps the worst sufferers in this respect, their losses amounting to from £30 to £50 each. The most serious loss of all, however, fell upon the smaller exhibitors, who had carefully prepared their collections in the hope of securing some of the awards.

Taken altogether, the incident is the most deplorable that has ever happened in the annals of this Society, and it was founded in 1824.



MR. H. W. ADNITT.

(Joint-Secretary of the Shropshire Horticultural Society. See p. 176.)

Princess of Wales, Etoile de Lyon, Medea, Maurice Bernardin, Duchess of Albany, Souvenir de la Malmaison, Cornelia Hock, &c. Mr. GEORGE GARRAWAY, Nurseryman, Bath, took the main of the 2nd prizes.

Twenty-four bunches of Stove and Greenhouse Flowers.—Mr. H. MATTHEWS was 1st, and Mr. G. TUCKER 2nd, both having excellent collections.

Hardy perennials and biennials in twenty-four bunches made an excellent feature, Mr. W. T. MATROCK taking the 1st prize; Messrs. W. J. BROOKS & SON, Bristol, were a good 2nd.

DAHLIAS.

Like the Fuchsias, Dahlias have long been a feature at Trowbridge, and it may be said to open the Dahlia competition. With twenty-four show varieties, Mr. JOHN WALKER, Thame, was 1st, having a very good lot of blooms indeed, including Goldsmith, John Walker, Rosamond, Eclipse, R. T. Rawlings, Diadem, Victor, John Hickling, Duke of Fife, Miss Cannell, Mr. J. Harris, Rev. J. Godday, Harrison Weir, &c.; 2nd, Mr. G. HUMPHRIES, Chippenham.

BURNE, of Bath, and Mr. F. LINDSAY; the latter taking the 1st of Mr. R. Sydenham's special prizes for nine bunches; Mr. F. HART being 2nd. Cut flowers of zonal Pelargoniums were very fine.

Floral decorations were exhibited in several classes; Messrs. E. S. COLE & SON were 1st with a dinner-table arrangement, having a soft and pleasing combination of Orchids, Francos, white Carnations, &c.; and Miss KATE MORRIS was 2nd. The best centre-piece for a dinner-table also came from Messrs. COLES & SON. Mr. E. FISHER had the best table decoration in wild flowers. The best centre-piece in fruit and flowers was also from Messrs. COLES & SON; and bouquets were also exhibited. There were also special prizes for wild flowers.

FRUIT.

The entries were numerous and good in the fruit-classes, though not equal to those of previous years. Mr. G. PYM, gr. to Mrs. GOULDSMITH, was 1st with a collection of ten varieties, having Black Hamburgh and Muscat of Alexandria Grapes, Dymond Peaches, Lord Napier Nectarines, Apricots, Late

THE SHOW.

Notwithstanding the havoc among the exhibits, a most marvellous collection of plants and flowers was displayed, thanks to the exhibitors, the majority of whom allowed what was saved of their entries to remain on exhibition, and to horticulturists, gardeners, and others, who forwarded a large number of flowering and foliage plants. The result was that when the opening ceremony came to be performed by the Countess of Aberdeen, who was accompanied by the Earl, there was much for visitors to admire; and by the evening of the opening day a really splendid display was to be seen in the re-erected marquees.

In the principal marquees were fine collections of *Araucarias*, *Dracenas*, *Palms*, *Crotons*, and *Ferns*, while near these was a fine group of plants and flowers sent by Mr. JAMES McDONALD, gr., Balgowrie Lodge, his collection including some remarkably fine *Crotons*, *Liliums*, *Begonias*, *Chrysanthemums*, and a much admired *Lapageria alba*. Mr. HARPER, Custodian of the Duthie Park, kindly furnished a large group which was placed in the centre of the marquee; the most prominent features of which were *Liliums*, *Begonias*, and foliage plants. Mr. PROCTER, gr. to Sir WILLIAM HENDERSON, of Devanah, supplied a third group, which consisted of *Orchids*, *Ericas*, *Orange-trees*, and foliage plants. Round the sides of the marquees were tables well laden with flowers; among the chief features of which were fine and well-chosen collections of flowers and plants sent by Messrs. BEN REID & Co. Mr. ROBERT SIM, Aberdeen, sent a superb collection of wreaths, sprays, and shower bouquets, all tastefully arranged and designed. Messrs. KNOWLES, florists, also showed wreaths of *Lilies*, *Lily of the Valley*, *Gardenias*, and *Asters*, made up with *Asparagus Ferns*. *Poinpon*, *Cactus*, *show*, *fancy*, and single *Dahlias* were numerous and good.

In a second marquee, the remains of the fruit made a very creditable show, some wonderfully good *Strawberries* for the season being a feature. Baskets of splendidly-cultivated vegetables were shown by Mr. A. PATRICKSON, gr., Ruthrieston; Mr. WILLIAM LAWSON, gr., Oakbank School; and Mr. F. KINNEAR, gr., Broomhill.

The display made by Messrs. BEN REID & Co. and others was highly creditable, considering the inconvenience to which they were put by the wreck of the tents. Messrs. JAMES COCKER & SONS rose to the occasion, they having re-erected their tent during the course of the opening day, and filled it with wreaths, bouquets, sprays, and floral designs. They also showed a large collection of *Roses*.

Thanks are also due to the exertions of the Chairman of the Society, Mr. PYPER, of Hillhead, who was on the ground at 4 a.m., and to the courteous secretary, Mr. J. B. R. KNETT, advocate, Aberdeen.

DEVON AND EXETER HORTICULTURAL.

AUGUST 18.—After sixty years, the place of exhibition has been changed from Northernhay to Bury Meadow public grounds. The change was made for reasons given in the *Gardeners' Chronicle* some time ago; and although it has not tended to increase the attendance of visitors—rather the contrary—there is better accommodation of every kind. The entries were about the average number.

OPEN CLASSES.

For twenty-four double *Dahlias* (open), Mr. W. B. SMALE, Torquay, was 1st, and Messrs. JARMAN & Co., Chard, 2nd. For twenty-four *Cactus*, Mr. C. ELMS, Teignmouth, was 1st, and Mr. W. B. SMALE, 2nd. For forty-eight spikes of *Gladioli*, F. FOX, Wellington, was a good first, and A. KNELL, Exeter, 2nd. Messrs. JARMAN & Co., Chard, was 1st for twelve Tea *Roses*, showing some fine blooms.

DINNER-TABLE DECORATIONS.

This class filled well, and was the cause of much interest to visitors. Miss LOCK, daughter of Mr. G. LOCK, gr. to Mr. HILL, Newcombes, Crediton, won easily, with a very pretty table, dressed lightly with *Orchids*, *Odontoglossums*, *Oncidiums*, *Lælias*, *Carnations*, *Adiantum*, and *Smilax*, the arrangement being light and effective. The table was 8 feet by 4 feet, and laid as for dessert for eight guests.

GROUPS.

The 1st prize for an oval group, 11 feet by 15 feet, arranged for effect, was easily won by Mr. B. H. HILL, Crediton (gr., Mr. LOCK), the arrangement having more grace and brightness than any of the others. The plants used in the design (arch shaped) were *Campanula pyramidalis*, *Humea elegans*, *Gloriosa superba*, *Tuberose*, *Codivium*, *Fraxinea ramosa*, *Oleanders*, *Dracenas*, *Cocos Weddelliana*, and *Lilium auratum*. This group took the Silver Cup.

For a smaller group, 11 feet by 8 feet, in which similar plants were used, 1st, Lady DUCKWORTH (gr., W. R. BAKER).

SPECIMEN PLANTS.

For twelve stove and greenhouse (six in flower and six foliage), 1st, Mr. W. BROCK, Parkerswell, Exeter (gr., W. ROWLAND), with nice specimens of *Dipladenia ananilis*, *Codiaeum Andraeanum*, *C. Warreni*, *Alocasia Veitchii*, *Clerodendron Balfourianum*, *Allamanda Hendersonii*, *Ixora Williamsii*, *Cycas revoluta*, and *Areca lutescens*, taking the Silver Cup; and he was further successful in winning 1st for six stove and greenhouse plants in this class, showing other species of the same genera. Mr. BROCK was 1st for six stove and greenhouse flowering plants, six stove and greenhouse *Ferns*, and six *Fuchsias*, showing nice plants of each. *Gloxinias* were very good; the Rev. COLERIDGE, Alphington (gr., E. REWE),

being 1st with six well grown plants, all, of course, being of the finest type. *Liliums* were fair, and *Cochlosoma* only middling. Lady DUCKWORTH showed some fine *Caladiums*, and was awarded 1st prize. In *Polargoniums* nothing of special merit was shown. Mr. BLOOM staged some finely coloured and well grown *Oleas*. The Rev. HAMILTON-GIBB, Walslade (gr., G. J. BARTES), was 1st with good *Dracenas*. Lord FOURMONT (gr., T. BLADE), sent—but not for competition, a collection of fruit, including some fine Black *Alicante Grapes*, with large well coloured berries. He also showed a very fine *Melon*, and other fruits.

FRUIT.

The Premier prize for a collection of ten dishes, was taken by Mr. W. SANFORD, Nynehead Court, Wellington (gr., S. KIDLEY), his collection consisting of very fine Black *Hamburg Grapes*, middling *Poster's Seedling*, *Stirling Castle Peaches*, very fine *Transparent Gage Plums*, *Humboldt Nectarines*, *Beauty of Bath Apples*, *Jargonelle Pears*, *Morello Cherries*, *Holborn Favourite Melon*. For six dishes the 1st prize was awarded to Rev. HAMILTON-GIBB. The Muscat of *Alexandra Grapes* with which Mr. C. EADY, Q.C., Weybridge (gr., J. LOCK), took the 1st prize, were very fine in colour and in other points 1st rate. In the "any other variety" of *Grapes*, Mr. C. EADY was 1st with fine bunches of *Alnwick Seedling*, being closely followed by the Rev. HAMILTON GIBB, with Black *Alicante*.

The fine variety, *Madresfield Court Muscat*, was extraordinarily fine in form and colour, as shown by the Rev. H. CLERK, Exmouth (gr., G. PIKE), who was easily 1st.

Mr. JOHN GARLAND, gr. to Sir THOS. ACLAND, Bart., Killerton Park, Exeter, showed a dish of seedling *Peach*, fine in size, as in colour. It is a seedling from Dymond, and resembles that variety in the blossom and fruit, but Mr. Garland says it is about ten days earlier. The tree is budded on a *Burgoyne Nectarine*.

VEGETABLES.

For the eighth time in succession, Sir JOHN SHELLEY, Bart., Shobrooke Park, Crediton (gr., R. MAIR), has won the Silver Cup with an exceptionally fine lot, each sort being so good that it would probably have been 1st in the single-dish classes. The collection included *Satisfaction Potato*, *Renton's Monarch Leek*, *Veitch's Garden Globe Turnip*, *Dobbie's Invincible Celery*, *Veitch's Intermediate Carrot*, *Autumn Giant Cauliflower*, *Sutton's Best-of-All Runners*, and *Peerless Cucumber*. Mr. B. H. HILL was a good 2nd; and in the collection for six kinds Lady DUCKWORTH, Knightley's, Exeter (gr., W. R. BAKER), was placed 1st for similar kinds, shown in fine form.

The *Veitch's Scarlet Model Carrots*, shown by Mr. MAIR in the single-dish class, were perfect in shape and fine in colour, and his *Excelsior Onions* average 2½ lb. each. Vegetables generally were very fine; *Cauliflowers* only being less good than other kinds.

TRADE EXHIBITS.

The trade collections included those of R. VEITCH & SONS, Exeter; W. B. SMALE, Torquay; JARMAN & Co., Chard; SELDON NURSERY CO., BOWTON; DEVON CHRYSANTHEMUM NURSERY, Teignmouth; JAMES WALTERS, Mount Radford; W. J. GODFREY, Exmouth; TUFNIN & SONS, Newton Abbot; and JADOO, Ltd., Exeter, who, in a very fine miscellaneous collection of conservatory plants, showed *Apples* in pots, bearing very heavy crops for their size.

The DEVON AND EXETER BEEKEEPER'S ASSOCIATION had a fine exhibit, the largest and best they have yet had.

SHROPSHIRE HORTICULTURAL.

AUGUST 23, 24, and 25.—There are few readers of the *Gardeners' Chronicle* but have some interest in the annual shows held at Shrewsbury. Nothing commands attention sooner than success, and for this reason the Shrewsbury show, like the Temple Show, of the Royal Horticultural Society in London, excites at least a passing interest in many to whom flower shows as a rule do not appeal.

On p. 170 a few particulars are given, showing the growth each year since 1875 of the financial receipts of the Society, which in that year were £791 12s., and in 1899 no less than £4389 1s. 10d.; the total income for the twenty-four years being £60,468 0s. 9d. A sum very much exceeding £1000 has been spent during the same period upon improvements to the well known "Quarry" grounds in which the shows are held. Then in 1897 the Society did honour to Shrewsbury by erecting in a prominent position in the town, an admirable statue to the late Chas. Darwin, the most illustrious of Shrewsbury's sons. This was done at an expense of £1038 9s. 3d. Local charities have also benefited largely from the society, and for several years past donations of ten guineas have been made to the *Gardeners' Royal Benevolent Institution*. The deserving nature of this institution, and of the *Royal Gardeners' Orphan Fund*, we feel sure will commend both to the increased liberality of the society in the future.

How much of the success that has followed the Shropshire Horticultural Society is due to the skilful and untiring efforts of the popular joint secretaries, Messrs. Adnitt and Naunton, is known to those only who have been more or less intimately associated with its management. But exhibitors, judges, and representatives of the press are unanimous in their appreciation of the work these gentlemen have done, and it gives us considerable pleasure to present to our readers their photographs on pp. 173 and 175.

The Shropshire Horticultural Society, though successful as we have shown, has not demonstrated that large horticultural exhibitions can be made to succeed financially when the attractions provided are purely horticultural. Doubtless

there are thousands who go to Shrewsbury mainly to see the sports and to hear first-class music, but who, nevertheless, make an inspection of the horticultural exhibits. It is by the help of such people that the Society has been and is able to bear such substantial encouragement to excellent cultivation of horticultural produce. This is the object for which most of the prize-money is given. Whether in the remarkable *Grape* class of the present year, or in the remaining fruit classes and in the plant section, the chief requirement is first-class cultivation; but in some cases, of course, it is necessary that excellent quality be accompanied by tasteful arrangement.

THE EXHIBITION.

At the outset we may say that the Show opened on Wednesday, was a magnificent one, probably the finest that has ever been held; and it is certainly one that has caused most interest. Shrewsbury's specialty, fruit, was shown splendidly in the Great *Grape* Class, in the *Decorative Dessert* Class, and in the *Collections of Fruit*, and *Grape* Classes. There was abundance of choice indoor fruits of the very highest quality. Scotsmen will be proud of the fact that the 1st and 2nd prizes in the Commemorative *Grape* Class have gone North of the Tweed, and English growers will doubtless redouble their efforts to get alongside their Scottish brethren on a future occasion, but Mr. Lunt is of English parents. Plants, Cut Flowers, and Vegetables contributed to make the Exhibition a very large one, and most attractive. Particulars of the principal classes are given below; but there are many minor ones, and a large number of Amateur and Cottagers' exhibits, of which we are quite unable to make note.

THE GREAT GRAPE CLASS.

To mark the occurrence of the twenty-fifth annual show, the committee arranged a remarkable *Grape* Class, offering prizes in the aggregate to the amount of £100. The money was divided into six prizes, the 1st of which consisted of the Society's Gold Medal, and £25. Each exhibit included twelve bunches of *Grapes*, two, in six varieties, and at least one white variety. The judging was done from the standpoint of "superior cultivation and finish," but a greater number of points was allotted to *Muscat of Alexandria*, than to any other variety. The exhibits were decorated by non-flowering table plants and loose foliage, which were interspersed between the bunches. Never has so much money been offered in a class for *Grapes*, and the chief interest (at least to fruit cultivators), in the exhibition, was naturally centred upon this contest. There were six collections staged, and there were six prizes.

The judges were Messrs. O. THOMAS, W. CRUMP, and J. W. McHattie, and they had a great difficulty before arriving at the conclusion of their work. The following are the varieties staged by Mr. T. LUNT, gr. to Capt. BRIDGEMAN, Keir, Dumbane, N.B., and the points awarded to each bunch. There were six varieties, and two bunches of each:—

Cooper's Black	...	6½ and 6 points.
Muscat of Alexandria	...	9½ and 9½ "
Muscat of Hamburg	...	8 and 8 "
Mrs. Pince	...	6 and 7 "
Alnwick Seedling	...	8 and 8 "
Black Hamburg	...	7½ and 7 "
For decorative staging	...	5 "

The points possible were 106, and the points obtained 96.

As may be judged from the points given above, the *Grapes* were extremely good, and *Muscat of Alexandria* were nearest perfection, getting 9½ and 9½ points out of possible tens. *Muscat Hamburg* and *Alnwick Seedling* were also of much excellence.

English *Grape*-cultivators must look to their laurels, for just as the 1st prize was won by a Scots grower, so the 2nd was awarded to Mr. A. KIRK, gr. to J. THOMSON PATON, Esq., Norwood, Alloa, N.B., whose maximum points amounted to 89½. One bunch of *Madresfield Court* was awarded 8½ points, from a possible nine, and was the bunch most nearly perfect.

Mr. J. H. GOODACRE was 3rd, obtaining 79½ points. Mr. J. CAMPBELL was 4th with 76 points; Mr. J. Langley, gr. to the Rev. T. M. BULKLEY OWEN, Tedsmore Hall, West Felton, 5th, with 69 points; and Mr. J. BANNERMAN, gr. to Lord BAGOT, Blithfield, Rugeley, 6th, with 63 points.

DESSERT TABLE OF FRUIT.

This class for a table of fruit so arranged as to represent a table of dessert fruit, has been a feature of much interest at Shrewsbury shows for several years past. Not more than fifteen dishes, selected from a published list of varieties, may be shown. The prizes were awarded according to the point-value system.

The 1st prize was won by Mr. J. H. GOODACRE, and a very excellent exhibit he made. His decorations were not heavy, but consisted of three large but elegant glasses, and more numerous smaller ones, tastefully filled with *Crocasmia aures*, *Fraxinea racemosa*, relieved with light *Fern-fronds*, &c. The *Grapes* were supported in elegant baskets, and were of the varieties *Muscat of Alexandria*, *Canon Hall*, *Madresfield Court* and *Black Hamburg*, all of them very fine. His *Peaches* were capital, of the varieties *Royal George* and *Sea Eagle*; *Nectarines* *Prince of Wales* and *Stanwick Elrige*; *Brown Turkey Figs*, *Countess* and *Hero* of *Lockinge Melons*, *Transparent Gage Plums*, *Williams' Bon Chrétien* and *Souvenir du Congrès Pears*, and *Washington Apples*. This exhibit was awarded 118 points. The 2nd prize was won by Mr. J. McIndoe, gr. to Sir J. PEARCE, Bart., Hutton Hall, Guisborough. In this exhibit, from one of the most renowned competitors, the fruit generally was very fine from the point of view of size; but in quality, some of the dishes were not superlative, notably the dish of *Souvenir du Congrès Pears*. The *Grapes* were excellent, and his *Peaches* and *Nectarines*

were highly coloured and good, but the aggregate number of points obtained was 98. The 1st prize was won by Mr. G. Mullins, gr. to Lady Henry Somerset, Eastnor Castle, Leicestershire, who so closely followed Mr. McIndoe as to obtain 94 points. Mr. J. Edmonds, Beeston Gardens, Notts, and Mr. S. Bremmell, gr. to H. H. France-Hayhurst, Esq., Overley, Wellington, were unplaced, there being five exhibitors.

COLLECTIONS OF FRUIT.

There were seven or eight exhibits in the class for a collection of twelve dishes, and in the aggregate a large amount of first class fruit was staged. The 1st prize was taken by Mr. J. H. Goodacre, gr. to the Earl of Harrington, Elvaston Castle, Derby, who had ground for considerable satisfaction. His Grapes were Muscat Hamburg, Canon Hall Muscat, Muscat of Alexandria, and Madresfield Court, all of them of first-rate quality and moderate size; he had a fine Queen Pine, Countess Melon, Barrington and Royal George Peaches, Victoria Nectarine, Brown Turkey Fig, Dr. Jules Guyot Pear, and Lady Sudeley Apple; the 2nd prize exhibit was naturally very good, and close to the 1st. It was shown by Mr. G. Mullins, gr. to Lady Henry Somerset, Eastnor Castle, Leicestershire. He had three varieties of Grapes, all good, the varieties being Muscat of Alexandria, Black Alicante, and Gros Maroc. His Peaches and Nectarines were of moderate size and high colour; and very large, handsome fruits of Bigarreau Cherry were shown. The 3rd prize was won by Mr. T. C. Nead, York House, Malvern; and the 4th by Mr. W. Pilgrim, gr. to Sir Geo. Mayrick, Bart., Boroogon, Anglesey. Mr. J. McIndoe, an opponent worth beating; Mr. J. Edmonds, Beeston Gardens; Mr. D. Murray, Culzean Castle Gardens, Maybole; and Mr. F. Jordan, Impney Hall Gardens, Droitwich, were unplaced.

In the competition for nine dishes there were engaged five competitors, the chief honour being won by Mr. J. Langley, gr. to Rev. T. M. Bulkeley Owen, Tedsmore Hall, West Felton. He had Black Hamburg and Foster's Seedling Grapes, Grosse Mignonne Peaches, Shipley and Kaisha Apricots, Hero of Lockinge Melon, Prince Englebert Plum, Jargonelle Pears, and good Cherries. The 2nd prize was won by Miss Wright, Halston, Oswestry (gr. Mr. C. Roberts); and 3rd, Mr. S. Bremmell, gr. to H. H. France-Hayhurst, Esq., Overley, Wellington.

GRAPES.

The best collection of four dishes of Black Grapes was from Mr. A. Kirk, gr. to J. Thomson-Paton, Esq., Norwood, Allos, N.B.; the varieties staged being Madresfield Court and Hamburg. The bunches were large and well-finished in size and colour of berry; the latter variety especially so. 2nd, Mr. J. Campbell, gr. to C. E. Newton, Esq., Michleover Manor, Derby, with Gros Maroc and Black Hamburg. 3rd, Mr. A. H. Hall, gr. to J. C. Waterhouse, Esq., Prestbury, Macclesfield. There were nine competitors in the class.

For four bunches of White Grapes, there were five competitors, and again Mr. J. A. Goodacre won the premier prize with the choice varieties, Canon Hall and Alexandria Muscats. Mr. Thomas Lunt was 2nd; and showed very large but not perfectly-finished bunches of Muscat of Alexandria and Foster's Seedling; 3rd, Mr. T. Lambert, gr. to Lord Harlech, Brogityn, Oswestry.

The best two bunches of Black Hamburgs among five collections, were from Mr. A. Ruddock, gr. to E. A. Young, Esq., Tanybryn, Bangor; 2nd Mr. J. H. Goodacre; 3rd, Mr. J. Campbell. The Grapes in this class were good, but not exceptional.

Madresfield Court was shown best by Mr. A. H. Hall, who had two very pretty bunches of beautifully finished berries of moderate size; 2nd, Mr. W. Neild, Holmes Chapel; and of the other three exhibitors the 3rd prize was won by Mr. W. Shingler, gr. to Lord Hastings, Melton Constable, Norfolk.

The best two bunches of Black Alicantes, were shown by Mr. W. Shingler, whose bunches were very heavy ones, and the berries of large size and good finish. Mr. A. H. Hall, was 2nd, and Mr. J. Langley, 3rd.

The best Gros Colman or Gros Maroc, in collections of two bunches, were from Mr. W. Shingler, with Gros Maroc of extraordinary berries as large as moderate-sized Greengages, and good in finish. Of six other exhibitors, Mr. J. Campbell was 2nd, with the same variety; and 3rd, Mr. G. Grimmer, gr. to W. G. Phillips, Berwick House, Shrewsbury, who had also exceptionally large berries, but they had been considerably rubbed.

The best two bunches of white Grapes (Muscats) were from Mr. T. Lunt, who had long, tapering bunches, of fine finish, and uncommon merit. There were nine others, and the 2nd prize was won by Mr. W. Neild; and 3rd, Mr. T. Bannerman, gr. to Lord Bagot, Blithfield, Rugby.

In the "any other white" class, the variety Buckland Sweetwater was well shown by Mr. R. Lawley, gr. to Mrs. Darby, Adcote Hall, Baschurch; 2nd, Mr. A. Kirk; and 3rd, Mr. F. Jordan.

LOCAL CLASSES FOR GRAPES.

The best two bunches of Black Hamburg Grapes, to be shown by Salopians, were from Mr. A. Salt, gr. to J. W. Wilson, Esq., The Grove, Market Drayton; and the best pair of "any other black," by Mr. W. Ashwood, gr. to R. A. Newitt, Esq., Admaston, Wellington, who had good Madresfield Court. There were eight or nine exhibits in each of the two classes. The best Muscats from the County were shown by Mr. T. Lambert, there being eight exhibits. The best

"any other white" was Buckland Sweetwater, from Mr. R. Lawley. The best black Grapes from local amateurs were Madresfield Court, from Mr. W. Ashwood; and the best white were Muscats from the same exhibitor.

OTHER FRUITS.

Peaches generally were very good and of nice colour. The best dish of six fruits was from Mr. C. Tyler, gr. to C. A. Jones, Esq., Bron, Hendre, Carnarvon, who had deeply coloured, excellent sized fruits of Bellegarde; 2nd, Mr. J. McIndoe, gr. to Sir J. Pease, Bart., Hutton Hall, Guisborough, with Sea Eagle; and Mr. T. Bannerman, was 3rd, with Royal George. There were as many as seventeen exhibits in the class.

Nectarines.—There were twelve exhibits in the class for a dish of six fruits, and those of Pine-apple (1st prize) from Mr. J. Howard, gr. to Sir B. Sutton, Bart., Benham Park, Newbury, were of unusual quality. In size and colour they were really first-class. Mr. J. H. Goodacre was 2nd, with finely-coloured Elruge; and Mr. A. H. Hall, 3rd, with Lord Napier.

Apples.—The best dish of six fruits, out of seventeen exhibits, was from Mr. Isaac Cooke, Corner Farm, who had the variety Moor Park; Mrs. Darby, 2nd.

Plums were good in quality, but there were not so many exhibited as is usual at Shrewsbury. The best dish of twelve fruits, green or yellow varieties, was from Mr. J. Langley, who had good fruits of Transparent Gage; 2nd, Mr. J. Riebow, gr. to Col. Kenyon Stanley, M.P., Shifnal. There were ten exhibits.

The best dish of purple or red Plums was shown by Mr. J. H. Goodacre, who had Kirke's, very fine in quality; 2nd, Mr. J. Bowerman, gr. to C. H. Hoare, Esq., Basingstoke.

Melons.—There were as many as twenty green-fleshed Melons shown in competition, and the best varieties after the judging were Countess, from Mr. Davies, gr. to the Rev. F. Alderson, Frankton, Oswestry; Hero of Lockinge, from A. Henderson, Esq., Buscot Park, Berks; and the same variety from Mr. Jno. Durnell, gr. to R. L. Kenyon, Oswestry.

Of scarlet-fleshed varieties, the best was from T. F. Kyrenesley, Esq., Leighton Hall, Ironbridge. There were sixteen other exhibits; and the 2nd prize went to Sutton's Scarlet, from Mr. J. Howard; and the 3rd prize was won by Mr. J. Durnell.

Cherries.—There were eleven dishes of this fruit, and all of them were good. 1st, Mr. J. Robinson, gr. to R. W. D. Harley, Esq., Braampton Brian Hall, Hereford, whose fruit were like little Plums.

Hardy Fruits in Salop.—The best collection of six dishes of hardy fruit grown in Salop was from Lieut.-Col. Lloyd, Aston Hall, Oswestry. He had good Figs, Gooseberries, Currants, Pears, Apples, and Cherries. J. B. Wood, Esq., Henley Hall, Ludlow, was 2nd.

There were classes also for cooking and dessert varieties of Apples, Pears, and Plums grown in the county, and some excellent produce was staged.

GROUPS OF PLANTS.

The groups of plants at Shrewsbury have been one of the greatest features of the show for some years past, and almost all the centre of the exceptionally large + shaped marquee.

There were classes for miscellaneous plants, in or out of bloom; and for a group of ornamental foliage-plants; in both cases the space allotted to each exhibitor is 300 square feet. It requires some practice and resource to win the 1st prize in either of these classes, for the arrangement of such groups has now become quite a fine art, and the quality of the plants used in them is equally important.

The 1st prize for the group, in or out of flower, is £25, and it was won on the present occasion by Mr. Peter Blair, gr. to the Duke of Sutherland, Trentham Hall, Staffs; and we believe this is the first time Mr. Blair has won this distinction at Shrewsbury. His exhibit was certainly a worthy one. In the centre was built a kind of basket with jagged margins, 4 feet to 5 feet high, of some material, but it was so smothered, and naturally smothered, with the choicest stove-trailers, and dwarf-growing plants and mosses, that the material was not in the least visible. In this was planted a fine Palm, and under it were very choice Orchids in flower, Odontoglossums and Masdevallias especially. This centre object was supported by mounds of lesser height at the corners and elsewhere, generally surmounted by a Palm or highly-coloured Codium, and the variety of plants used, together with such arrangement, produced a picture full of light and shade; exquisite from whatever point judged. As far as flowering plants are concerned, the group owed nearly all to the exquisite Odontoglossums.

The 2nd prize was awarded to Mr. J. Cypher, Cheltenham, who has won so many 1st prizes. This group differed in arrangement from Mr. Blair's. The prominent object, a very fine Palm, was at the back; and from the front corners there stretched towards the centre, but not reaching it, two cork bridges, having a maximum height of about 3 ft., and supporting plants of Humea elegans, Asparagus, Ferns, Odontoglossums, &c. The groundwork of the group was composed of exceeding choice plants, Ixoras, Cattleyas, Aralias, &c., and was much admired. Mr. W. Vaux, Leamington Spa, was 3rd.

The 1st prize for a smaller group of miscellaneous plants

was won by Mr. G. A. Roberts, gr. to Miss Watson, Halston Oswestry; and the 2nd prize by Mr. F. Tugwood, gr. to F. F. Minshull, Esq., Leighton Hall, Ironbridge, each exhibit being commendable.

Foliage Plants.—Mr. J. Cypher won premier prize in this class, again adding, and in greater degree, the kind of cork bridges described above. These running from the front corners towards the centre were repeated, and at the extreme back also there was a tall bridge that spanned the group; and this as well as the others was beautifully furnished with Palms, and other choice foliage plants, and trailers. It is needless to specify the plants used in the group, as so many were represented, and they were of ordinary well-known kinds, but all were thoroughly well grown, and good of their kind. A Codium under the highest bridge was exceptionally well coloured. The 2nd prize (also £25) was won by Mr. C. J. Mee, Floral Depot, Nottingham, whose plants were exceptionally fine specimens, but there was not the necessary study shown in arrangement. 3rd, Messrs. Artindale & Sons, Sheffield.

SPECIMEN PLANTS.

The premier class in this section was one for twenty stove and greenhouse plants, either blooming species, or others with ornamental foliage, providing at least twelve were in bloom. Mr. J. Cypher, generally the favourite in such cases, was the winner of the best prize (£25), with enormous plants, of the greatest possible quality. It would be an easy matter to enumerate the varieties, but they differ so little from those shown in recent years that it is unnecessary. Suffice it to say, that we noticed no species not previously shown in such a class, and that the Palms and the specimens of Ixora Duff, and some others, have never been excelled. Mr. T. S. Timmis, Allerton, Liverpool, was a good 2nd.

Thirty stove or greenhouse plants in pots not exceeding 10 inches, Orchids excluded, were excellent, from Mr. J. Cypher. His Ixoras were again noticeable for their fine quality. Mr. T. Lambert, gr. to Lord Harlech, was 2nd, and well deserved the prize.

The best Caladiums in sixes were from Mr. B. Cromwell, gr. to T. S. Timmis, Esq., Allerton, Liverpool, who had fine plants.

Zonal Polargoniums were shown fairly good; the best collection of six plants of double flowering varieties coming from Mr. A. Bateman, Abbey Foregate, Shrewsbury; and the best single ones from Mr. A. Myers, Shrewsbury.

Cordylines were shown in several collections, but the best were from Mr. T. Lambert.

Tuberous Begonias in the competitive classes were not of great merit.

Fuchsias are not a great feature at Shrewsbury. The best were from Mr. A. Bateman, Abbey Foregate; and Mr. A. Myers, both of Shrewsbury.

Ferns were not present in great quantity outside the miscellaneous groups, but the best collection of six exotic species was from Mr. E. Jones, gr. to A. M. Barber, Esq., Field House, Wellington, and included fine specimens of Adiantums and Microlepia hirta cristata.

Coleus were not numerous; Mr. J. Carter, gr. to W. J. Scott, Esq., Berword House, Shrewsbury, had the best. The plants were about 5 feet high, and pyramidal.

CUT FLOWERS.

As usual at this exhibition, the section devoted to cut flowers made a brilliant display. Both bouquets and baskets arranged for effect were fully equal in quality to former years, whilst the competitors were much closer to each other in the chief classes, scarcely any difference being apparent in several instances. It is gratifying to note this, and it clearly reflects credit upon those exhibitors who, in these arrangements for effect, take note of the designs of their most successful antagonists. The bouquets in the several classes are of an exceptionally high standard, and the competition very keen. The method adopted at Shrewsbury of providing classes for groups of cut flowers of Dahlias, Roses, and Carnations, as well as of hardy herbaceous flowers, is commendable, and far preferable to the old stereotyped idea of so many varieties in so many classes. In this way many kinds find admittance which in the older methods would be excluded. Roses, for instance, are thus made a most interesting feature at this season; the same applies to Gladioli and Dahlias, which, in this particular instance, made a splendid display, illustrating their value from a decorative standpoint far more than the old-fashioned flat boards and their prim effect. Carnations in this way also, when set up in vases, produce a better display than when decorated with paper-collars. The hardy herbaceous and bulbous flowers produce a brilliant effect; some bunches of immense size, others small relatively in proportion, however, having regard to the variety staged. Better quality is rarely ever seen than in this class. The tender (i.e., the stove and greenhouse) cut flowers were not so well arranged; more latitude in this section should be allowed, as in the other classes. Being limited to so many varieties, those kinds of which only a few flowers, perhaps, are obtainable are not staged.

HARDY HERBACEOUS FLOWERS.

The 1st prize (to occupy a space of 15 feet by 5 feet for a collection) was awarded to Messrs. Harkness & Son, whose exhibit comprised all the best things in season, notably of Gladioli, as G. Aurora de Feu, Madame Palmer (extra), Lafayette, and Mrs. Brecher; Montbretias, Lilies, Helianthus, and Galtonia candicans were represented by huge bunches

so also was *Cheilone barbata*, *Lilium Batemanni*, *Phloxes*, and *Gaillardias*; and smaller bunches by *Scabiosa caucasica* and *Tigridias* in variety. The 2nd prize was awarded to Messrs. GUNN & SONS, Oton, Birmingham. The bunches here were also fine, but the varieties scarcely so good, the best being of *Montbretia Golden Sheaf*, *M. rosea*, *Erigeron planum*, *Phlox Elma*, *Echinops Ritro*, *Gaillardia grandiflora*, and *Achillea Eupatorium*, the arrangement being very good.

Dahlias.—For a collection of Dahlias, any varieties, Messrs. KEYNES, WILLIAMS & Co., Salisbury, were 1st, with a fresh, attractive exhibit, in which the Cactus varieties were quite prominent, show and fancy, as well as Pompons, being well represented, but the singles, which lend themselves to this form of arrangement, were almost absent; nevertheless, it was a fine display, and the arrangement good, with the exception that the Pompons, where mixed with the Cactus, detracted somewhat from each other; the quality throughout, for thus early in the season, was first class. Mr. Wm. TRESEDER, of Cardiff, was 2nd, with a smaller arrangement, but with more massive stands, the Cactus varieties again predominating; a few single specimens here and there between the large stands would have been a distinct advantage, instead of so much dyed moss. Mr. SEALE, Vine Nursery, Sevenoaks, was 3rd. Singles here were the best, show varieties good, but Cactus deficient.

For a collection of Cactus var., Messrs. KEYNES, WILLIAMS & Co., were again 1st; the selection being excellent, and the flowers very fresh; some being in boxes upon moss, others in bunches, and others in masses. Messrs. POPE, King's Norton, Birmingham, were 2nd in this class, their arrangement also being good, but the varieties not so wide in point of colour, so many dark colours being included. Mr. M. CAMPBELL, Blantyre, N.B., was 3rd, with a smaller, but bright arrangement.

Roses.—The best collection was from Messrs. D. & W. CROLL, of Dundee, who had brought their flowers from the North in a remarkably fresh condition. The Tea-scented varieties were the best, including the decorative kinds; a few good blooms of the Hybrid-perpetuals were also staged. Messrs. POPE & SONS were 2nd with smaller exhibits.

Gladioli.—Messrs. HARKNESS & SONS staged the finest set in this class for a collection, and in their usual high-class quality; the best were Mr. Admitt (new, distinct, very bright), Mr. Naunton (distinct and fine), Horace Vernet, Madame Palmer, and *Aurore de Feu* were also good, and the spikes fine. Mr. MORREN, florist, Leominster, was 2nd with smaller spikes.

Carnations.—Mr. M. CAMPBELL, Blantyre, was easily 1st for a collection; having large individual bunches of Mrs. McNish, soft pink; Germania, yellow; Crimson Pearl, dark crimson; and Jessie Stevens, and smaller ones of other kinds; the whole effect being excellent. (Messrs. LAING & MATHER, were 2nd with good selections, the heat had, however, told upon the flowers. Many novelties were to be seen here, the best on the whole being Dundas Scarlet, Primrose League, Duchess of Westminster, and Mr. R. Mather; 3rd prize to Messrs. CROLL & SON.

BOUQUETS AND BASKETS OF FLOWERS.

For six bouquets and six baskets, arranged with a few plants and foliage, Messrs. W. JENKINSON & SON, florists, Newcastle, were comparatively easy 1st; the bouquets were on the whole a little too prim and neat, otherwise no fault could be found. Orchids predominated largely; excellent use in the bouquets being made of *Oncidium flexuosum*, with *Cattleya Harrisoni* and *Epidendrum vitellinum majus*, *Oncidium Forbesii*, with *Cattleya labiata*, and *Odontoglossum crispum*, with *Phalaenopsis amabilis*.

The baskets were scarcely so good as the bouquets, but nevertheless quite meritorious. Messrs. JONES & SON, Shrewsbury, were 2nd; their arrangements were light and effective, but in some cases the wire mounting was too conspicuous. Orchids again predominated, being more mixed in the various arrangements than in the 1st prize exhibit (these two exhibits were the centres of great admiration).

For one Bridal and one Ballroom bouquet, Messrs. JONES & SON most deservedly won the 1st prize with light arrangements, every flower telling well, the ground-work in each case being of *Asparagus plumosus*; Messrs. POPE & SONS were 2nd with well finished examples, but slightly too heavy, otherwise a very close 2nd; 3rd, to Messrs. W. ARTINDALE & SONS, Sheffield.

For two similar bouquets, but without Orchids, Mr. W. TRESEDER, Cardiff, was 1st, with two capital and very tasteful designs, both alike good; Messrs. GUNN & SONS, were 2nd, with beautifully finished examples, but a trifle too prim and neat; 3rd, to Messrs. POPE & SONS.

For a bouquet of Dahlias, Mr. TRESEDER, was well to the front with an arrangement of one variety only, viz., "Harmony" (or one very similar); this bouquet well demonstrated the utility of the Cactus Dahlia in such purposes. Messrs. POPE & SONS, King's Norton, Birmingham, were 2nd with a larger bouquet, a beautiful combination, but rather too large. Mr. SEALE, 3rd, chiefly with *Arachal*.

For a bouquet of Roses, Mr. TRESEDER, was again 1st, with a dark crimson and Wm. Allen Richardson, in combination, very tastefully done; 2nd, to Messrs. POPE & SONS, who had Catherine Mermet with *Niphetos*, the whole rather too large; 3rd, to Messrs. CROLL & SON, Dundee.

For a "Featherweight" bouquet (a novel class), the 1st prize went to Messrs. JONES & SONS, Shrewsbury, who showed in strict accord with the schedule, and won easily with *Francoa amosa*, *Calliopsis grandiflora*, and *Asparagus plumosus*, tastefully blended; 2nd to Messrs. GUNN & SONS, who had *Francoa ramosa*, *Statice Bonduelli*, and a

blue variety, lightly put together; 3rd, was to Mr. SEALE, whose design was of a yellow-and-blue *Statice*, in light sprays, with gauze-like ribbon, only lacking colour to make it effective. (Two other exhibitors in this class showed well, but they had evidently not read the wording of the schedule strictly.)

Basket of Cut Flowers.—The 1st prize was easily taken by Messrs. JONES & SON—a light, tasteful, and inexpensive arrangement, composed of a yellow Cornflower, *Montbretia* (dark var.), *Lily of the Valley*, and *Pancreatum fragrans*; 2nd to Mr. TRESEDER, who had *Montbretia Gloire d'Or*, *Francoa*, *Lilium speciosum album*, tastefully blended; 3rd, WILLIAM LASHMERE, Market Drayton.

For a stand of cut flowers, Mr. SEALE was 1st with a light arrangement, composed of *Mina lobata*, yellow *Statice*, and *Monbretia*, with appropriate foliage, amongst which *Asparagus deflexus* told well; 2nd to Messrs. JONES & SON, whose arrangement was extremely light—too much so, in reality, to be effective, and addition of foliage at the base would have added to its beauty; 3rd to Mr. VANCE, Leamington, who showed well.

For six buttonholes and six sprays, Messrs. JONES & SONS were quite easily 1st with extremely light and tasteful arrangements, better than which, if a trifle smaller, could not be desired; 2nd to Messrs. JENKINSON & SON; and 3rd to Mr. F. H. NORRIS, Handsworth.

DISTINCT CLASSES.

Sweet Peas.—These produced such a display, that a tent might well have been devoted to their special benefit. For Mr. ECKFORD'S Special Prizes, THOS. ALDERSEY, Esq., was well to the fore with eighteen varieties, which might well be considered as typical of the best kinds of the present day. The bunches were light, and tastefully arranged, the individual flowers very fine, and the colours well blended; the best were Prince of Wales, Duke of Westminster, Silurian, Lady Grisel Hamilton, Queen Victoria, Emily Eckford, Venur, Lady Mary Currie, Blanche Burpee, Chancellor, Lovely, Mrs. Eckford, Countess of Radnor, and Countess of Powis (these names are given as indicative of the best kinds to grow). 2nd, Mr. BOLTON, Walton, Carnforth, a capital lot, but not so well arranged.

For thirty-six varieties, in which class a Silver Challenge Cup was offered, Mr. BOLTON was 1st, with a selection of the best kinds now grown, amongst which besides those already enumerated were *Shahzade*, *Princess Beatrice*, *Mass*, and *Black Knight*; 2nd to Mr. A. BESSELL, of Ludlow, whose arrangement was better, if the quality was not quite so good as in the former exhibit.

For *Stove and Greenhouse* cut flowers, the 1st prize was awarded to Mr. McDonald, gr. to G. H. KENRICK, Esq., Edgbaston, Birmingham, who made quite a feature of the *Javanica-Jasminiflorum* hybrids of the *Rhododendron*; these were *Princess Frederica*, a soft pale shade of terra-cotta; *Lord Wolseley*, *Duchess of Connaught*, and *Princess Alice*; the other bunches of various flowers being also good. Mr. Hall, gr. to J. C. WATERHOUSE, Esq., Prestbury, Macclesfield, 2nd, for an exhibit of first-rate quality.

For a similar class for six vars., Mr. Huxter, gr. to J. B. WOOD, Esq., Henley Hall, Ludlow, was well to the front, and Mr. Dawes, gr. to Lord TREVON, Bryn Rinalt, Chirk, 2nd.

Roses, twenty-four vars.—1st, to Messrs. D. & W. CROLL, Dundee, who showed the best of the well-known late vars., as *Madame Joseph Bonnaire*, *Caroline Testout*, *Her Majesty*, and *John Stuart Mill*. Messrs. HARKNESS & SON were 2nd, being well up to the 1st-prize winners.

For twenty-four vars., open to the county of Salop only, Mr. Squibbs, gr. to Dowager Lady WILLIAMS WYNN, was 1st, with good blooms.

For twenty-four show and fancy Dahlias, Mr. SEALE was a most creditable 1st, with well-developed blooms in good variety; Mr. S. MORTIMER being 2nd with another good exhibit.

Gladioli in eighteen varieties.—Messrs. HARKNESS & SON were again 1st, with first-rate spikes in good variety; Mr. E. MORREN, High Street, Leominster, being 2nd.

For twelve spikes of Gladioli, Captain T. A. M. DICKING, Loppington House, was 1st; and Lieut.-Col. LLOYD, Aston Hall, Oswestry, 2nd, each staging well.

For twelve vars. of ornamental grasses (a most commendable class), Mr. Seabury, gr. to the Rev. J. M. BULKLEY OWEN, was 1st, with a charming exhibit, the best of which were *Melica altissima*, *Pennisetum longistylum*, *Lagurus ovatus*, *Gymnorrhiza latifolia*, and *Eragrostis elegans*; this exhibit was well staged. 2nd, Mr. Salt, gr. to J. W. WILKES, Esq., Market Drayton.

Cactus Dahlias.—Twelve vars.: 1st, to Mr. MORTIMER, who staged well with the best kinds; Mr. Keeble, gr. to F. W. SHARPE, Esq., Twyford, Berks, was a close 2nd, having the best of the newer kinds in good form. Messrs. KEYNES, WILLIAMS & Co., 3rd.

For the best collection of hardy cut flowers, Mr. Squibbs was 1st, the selection a good one.

For twelve bunches of cut flowering shrubs, 1st to Mr. Seabury, who amongst other things had *Kolreuteria paniculata*, *Indigofera floribunda*, and *Clerodendron trichotomum*; 2nd to Mr. Huxter, gr. to J. B. WOOD, Esq., Ludlow.

VEGETABLES.

These products were shown in unusual abundance, the season apparently affecting for the worse Cauliflowers only; generally, the quality was remarkably high, and in the larger collections competition was wonderfully keen.

The chief interest in the large classes centred in the one for nine dishes in competition for prizes offered by Messrs. SUTTON & SONS, of Reading, there being twelve entries. Here the 1st place was taken by Mr. Bowerman, gr. to Mrs. C. HOARE, Hackwood Park, Basingstoke, who had good Cauliflowers, Superb Onions, Leeks, Perfection Tomatoes, Ideal Potatoes, Best-of-all Runners, Superb White Celery, New Intermediate Carrots, and beautiful Ne plus Ultra Peas. Mr. J. Gibson, gr. to R. W. HUDSON, Esq., Dainesfield, Marlow, was 2nd, having capital Onions, Red Celery, Windsor Castle Potatoes, Best-of-all Runner Beans, Autocrat Peas, &c. Mr. W. POPE, gr. to the Earl of CARNARVON, Highclere Castle, was 3rd.

There were four entries for the prizes in plate offered by Messrs. JAM. CARTER & Co., High Holborn, London, for nine vegetables. Mr. POPE was here 1st, having good Cauliflowers, Tomatoes, Snowball Potatoes, Parsnips, Red Onions, Jubilee Beans, Intermediate Carrots, and Model Cucumbers. Mr. Wilkins, gr. to Lady THEODORA GUEST, Henstridge, Blandford, was 2nd, having good Atlas Craig Onions, Peas, Carrots, Cauliflowers, Leeks, Tomatoes, Potatoes, Celery, and Runner Beans. Mr. Ashton, gr. to the Earl of LATHOM, Ormskirk, was 3rd.

There were eight collections each of eight dishes in competition for Messrs. WEBB & SONS, Wordsley, Stourbridge, excellent prizes. Here Mr. BOWERMAN was again a good 1st; Mr. POPE was 2nd, with similar kinds; Mr. WILKINS 3rd.

There was a very large competition in each class for Mr. Sydenham's prizes, chiefly in single dishes; in addition to money prizes, there was a handsome silver tankard awarded to the taker of most prizes or points.

Mr. POPE won the cup for the second year with forty-four points in this competition, and it therefore becomes his property.

Prizes offered by the WITN'S CHEMICAL MANURE COMPANY for nine vegetables.—This was taken by Mr. Martin, gr. to A. Henderson, Esq., Buscot Park, Berks.

For prizes offered by Messrs. C. FIDLER & Co., Reading, for four vegetables, the 1st was taken by Mr. Abbott, gr. to Mrs. GUNSE, Stadhall.

Messrs. McRELL & Co., Shrewsbury, had classes for twelve dishes and six dishes respectively. The best in the four was taken by Mr. Robinson, gr. to R. W. HANLEY, Esq., Hereford, having capital samples.

In the smaller class the 1st prize fell to Mr. ABBOTT.

Mr. BOWERMAN had the best dish of Messrs. Webb & Sons Jubilee Tomatoes.

Messrs. JONES & SON had a class for eight vegetables. Mr. Dawes, gr. to Lord TREVON, coming 1st; Mr. McKINNON, 2nd, and Mr. TOWNSEND 3rd.

SOCIETY'S SINGLE CLASSES.

Mr. A. H. Hall, gr. to S. C. WATERHOUSE, Esq., Prestbury, was 1st with a single dish of Tomatoes, also with a handsome brace of Exquisite Cucumbers.

Mr. TOWNSEND had in Autocrat the best Peas. He was also 1st with Canadian Wonder Dwarf Beans.

Mr. Birch, gr. to Captain H. J. BULTER, Shrewsbury, had the best Runner Beans.

Mr. ASHTON was 1st with three Cauliflowers, and Mr. ABBOTT had the same position with Giant White Celery.

The best six Parsnips came from Mr. Riebbrow, gr. to C. J. KENYON SLANEY, Shifnal, that root being some thirty inches long.

Mr. Hunt, gr. to Sir COLLEY SUTLAND, Shrewsbury, had the best Chirney.

With six Turnips Mr. HUXTER was 1st, having handsome Snowball.

Mr. BOWERMAN staged the finest autumn-grown Onions, and Mr. HUXTER the best Spring Onions.

Potatoes.—In the Potato classes there was great competition. Mr. POPE was a good 1st with handsome Supreme, Perfection, Satisfaction, Ideal, and Windsor Castle. Mr. ASHTON was 2nd with Monarch, Snowball, Holborn Reliance, and Goldfinder. Mr. Riebbrow was 3rd with very handsome samples.

With three dishes Mr. Taylor, gr. to Lord KENYON, was 1st, having unnamed whites none too distinct. Mr. E. CUMBERBATCH, Silverdale, 2nd.

Mr. POPE was first for a single dish with Windsor Castle, Mr. GITTENS, West Felton, 2nd, with Snowdrop.

MISCELLANEOUS EXHIBITS.

Messrs. DOBBIE & Co., Rothesay, N.B., and Orpington, Kent, made a grand exhibit of cut Dahlias, of Cactus and Pompon varieties; also a splendid lot of Gaillardias in much variety, Sweet Peas, Marigolds, their Wallflower—coloured Violas, early Chrysanthemums; also their new Tomato Cherry Ripe, recently certificated as a good flavoured one for dessert. The fruits are small, and generally are produced in clusters of thirteen (Small Gold Medal).

Mr. H. DEVERILL, Banbury, put up a fine exhibit of hardy herbaceous flowers, including excellent Phloxes, Gladioli, &c. (Silver gilt Medal).

Mr. ALBERT MYERS, Sutton Lane Nurseries, Shrewsbury, had a large exhibit of greenhouse plants (Silver Medal).

Messrs. DICKSONS, Ltd., Chester, had a first-class group of cut flowers, Gladioli, *Lilium auratum*, herbaceous Phloxes, &c.; also very good floral designs, a few choice stove plants, and flower and leaves in a tank of hybrid Nymphs (Small Gold Medal).

Dahlias and Begonias, the former as cut flowers, and the latter as plants, were staged by Mr. B. R. DAVIS, Yeovil (Silver Medal).

Messrs. SUTTON & SONS, Reading, were awarded a large Gold Medal for a very large exhibit of flowers and vegetables. The vegetables were the more remarkable; Onions especially

MARKETS.

COVENT GARDEN, AUGUST 24.

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantums, p. doz.	6 0-7 0
Arborescens, var., doz.	6 0-36 0
Aspidistra, p. doz.	12 0-36 0
— specimen, each	5 0-10 6
Crotus, per doz.	18 0-30 0
Dracenas, var., doz.	12 0-30 0
— viridis, per doz.	9 0-18 0
Erica, var., per doz.	18 0-36 0
Eucynimus, various,	
per dozen	6 0-18 0
Evergreens, var.,	
per dozen	4 0-18 0
Ferns, in variety,	
per dozen	4 0-18 0
— small, per 100	4 0-6 0
Ficus elastica, each	1 6-7 6

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, dozen	
bunches	3 0-4 0
Asparagus "Fern,"	
bunch	2 0-2 6
Carnations, per doz.	
bunches	1 6-2 0
Cattleyas, per dozen	10 0-15 0
Eucharis, per dozen	4 0-6 0
Gardenias, per doz.	1 6-2 6
Lilium Harrisii, per	
dozen bunches	4 0-5 0
Lilium longiflorum,	
per dozen	4 0-6 0
Maidenhair Fern,	
per doz. bunches	4 0-6 0
Odontoglossums, doz.	8 6-5 6
Tuberose, doz. blms.	0 3-0 9

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, all home-	
grown:	
— Ingestres, bus.	6 0-8 0
— Julien, bushel	3 0-4 0
— Keswick, bush.	2 0-3 6
— Mans, bushel	3 0-4 0
— Suffield, bushel	2 0-3 0
— Quarrendon, bus.	8 0-12 0
— Worcester Pear-	
main	8 0-9 0
— Various Cookers,	
per bushel	2 6-3 6
Apricots, dozen	2 0-2 6
Bananas, per bunch	8 0-10 0
Figs, per dozen	2 0-3 0
Grapes, English,	
Hamburg, lb.	1 0-1 6
— Alicante, per lb.	1 0-1 3
— Gros Colmar,	
per lb.	1 6-2 0
— Muscates, A.,	
per lb.	2 0-2 6
— B., per lb.	1 0-1 6
— Belgian, per lb.	0 6 —
— Channel Islands	0 6 —
— Muscates, lb.	1 0-1 6
— Lisbon, Black	
or White, boxes	10 0 —
Lemons, Naples,	
per case of 420	16 0-20 0
— Messina, case of	14 0 —

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe,	
per doz.	1 6-2 0
Beans, English,	
Dwarf, per sieve	2 6-3 0
— Scarlet Run-	
ners, per bush.	2 6-3 6
Beetroots, new,	
doz. bunches	3 0-4 0
— in bus.	3 0-3 6
Cabbage, tally	4 0-8 0
— dozen	1 0-2 0
Carrots, new Eng-	
lish, per dozen	1 0-2 0
— bunches	1 0-2 0
— good, cwt. bags	8 0-8 6
Cauliflowers, dozen	1 0-2 0
Celery, new, per	
bundle	1 6 —
Cress, per dozen	
pennets	1 6 —
Cucumbers, doz.	1 6-3 0
— ridge in pots	2 0 —
Endive, new French,	
per dozen	1 6 —
Garlic, new, per lb.	0 2 —
Horseradish, Eng-	
lish, bundle	2 6-3 0
— foreign, per	
bundle	2 0-2 6
Leeks, new, per doz.	
bunches	2 0 —
Lettuce, English,	
Cabbage, dozen	1 6-2 0
Lettuce, Cos, doz.	2 6 —
Marrows, Veg., doz.	0 9-1 0
— tally	8 0-4 0
— in pads or pott.	1 6 —

POTATOES.—Hebron, Furitan, Snowdrop, Up-to-Date, &c., 00s. to 90s. John Bask, 32 & 34, Wellington Street, Covent Garden.

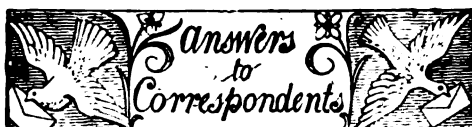
REMARKS.—There is now in Covent Garden Market, Maiz or Indian Corn, from Jersey, selling from 1s. to 1s. 3d. per dozen, according to the size of the Cobs; this is for use as a green vegetable. Some Cos Lettuce and Cabbages, both very good, coming from Cheshire; Runner Beans are short in supply, and prices have advanced; Apples are plentiful in supply, and trade is very slow with them; the Plums quoted are all home-grown.

(Remainder of Markets carried forward to p. viii.)

ENQUIRIES.

THUNDER AND LIGHTNING.—I shall be greatly obliged if some reader will favour me with the title of some modern work dealing with the origin of thunderstorms, and the cause and effect of lightning. W. S. T.

BOWLING GREEN.—Will you kindly furnish particulars of a Lancashire bowling-green. Bowler.



A DESERTED WIFE: Antrim. We are sorry we cannot help you to find your husband, even though he did obtain a situation through an advertisement in our advertising columns. Communicate with the police.

CAMPANULA ISOPHYLLA DISEASED: Left at Office, Wellington Street. The leaves are attacked by a species of *Ecidium* (rust fungus). Sulphide of potassium at the rate of half an ounce in a gallon of water, applied with a syringe, will destroy it. Burn the affected leaves.

CATTLEYA GASKELLIANA BLOOMS: W. R. Yes, we do think them fine blooms of a good variety.

CORRECTION.—"The late Rose season," in our last issue. "Wild Rose" desires us to state that Messrs. Harkness & Sons' Nursery is at Hitchin, not at Ledbury.

DENDROBIUM: Veritas. We assume that your Dendrobium Hildebrandi is making a second growth, and under the circumstances you had better place it in a warm, moist house, and endeavour to make up the pseudo-bulbs sufficiently to allow of the usual cool, dry rest in winter being safely adopted.

DRYAS OCTOPETALA: Dryas. The plants succeed in well-drained, rich loam, on a rockery. If the loam or natural soil is retentive and close in texture, some peat and sand should be added. To propagate this and others of the genus, divide the roots in the spring.

FERNS AS FOLIAGE PLANTS: W. B. If there is nothing in the schedule to the contrary, you might stage a Fern among foliage plants. At the same time it is customary to exhibit Ferns by themselves. We recommend you to obey the ruling of the committee whatever it be, and to get the rule altered next year if necessary.

GRAPE: B. & Sons. In the absence of leaves and wood, we should take the variety to be Golden Hamburg.

"HARDY HERBACEOUS FLOWERS": M. The wording of the schedule certainly does not exclude bulbs. If the committee wished to exclude bulbous plants, they should have said so. Bulbs like *Lilium auratum*, with deciduous leaves, are undoubtedly herbaceous plants, although in catalogues and books they are usually placed by themselves. The best guide to follow is the "Rules for Judging," issued by the Royal Horticultural Society, but these require frequent revision. In your case the committee, according to section 10 of the Regulations, should have acted as the court of final appeal, and their judgment, right or wrong, should be loyally accepted by exhibitors, at the time, but note taken for future guidance.

Kew: A Reader. You should have applied to the Director, and not to us. You must do that now, stating the length of time you have worked in a garden, where it is, &c., and send copies of such testimonials as you possess. You may have to wait some considerable time before a vacancy occurs, even if you are considered eligible.

KITCHEN GARDENS: An Old Cabbage Grower. You have sent us a document similar to some made use of in the Dreyfus trial; but in spite of the disguise, we take it more in the spirit than in the letter, and will attend to your hint, for which we are obliged, but we should like to know the precise grievance.

MOTH: A. Bott. The insect is the humming-bird Hawkmoth (*Macroglossa stellatarum*); a local species.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—E. T. The correct botanical name is *Leucophyta Brownii*, syn. *Calocephalus Brownii*. It is mentioned in the supplement to Nicholson's *Dictionary of Gardening*, p. 503, under the latter name.—Samuel McGredy. *Delphinium denudatum*.—W. B. 1, *Abies balsamea*; 2, *Arundo Phragmites*.—C. L. W. *Sciadopitys verticillata*; not very unusual.—P. Bicknell. *Nostoc commune*; an Alga which springs up suddenly in such situations as you describe.—J. T. *Pteris crenata*; not hardy.—A. B. Brothers. *Campanula pulla*, *Sedum populifolium*.—H. F. *Epidendrum variegatum*.—Kentish. 1, *Bocconia cordata*; 2, *Indigofera Dsoua*; 3, *Olearia Haasti*; 4, *Phygellus capensis*; 5, *Abelia triflora*; 6, *Spiraea callosa*.—A. W. S. *Thymus Serpyllum*. It is not very objectionable, but a dressing of manure will probably destroy it.

NOTICE TO QUIT EMPLOYMENT: Constant Reader. The gardener being at law a domestic servant, is entitled to and must also give a month's notice in the absence of a written agreement. He may, for wilful misconduct, be discharged by his employer without any notice being given him.

PHYSALIS FRANCHETI: Physalis. This is very like P. Alkekengi (Winter Cherry, &c.), the fruits of which are eaten as dessert in Arabia, Germany, and other countries. They are slightly acid, but not bitter, as described in your note; but perhaps a liking for them has to be acquired. In this country, P. Alkekengi and P. Francheti are grown merely for ornament.

SEEDLESS GRAPES: J. B. We are unable to inform you of the exact cause of the imperfect fertilisation of Gros Guillaume and Alnwick Seedling. The first is always uncertain as to fruiting, some plants showing abundantly, others not at all; and the same applies to the setting of the flowers. Barron, in his book, *Vines and Vine Culture*, says that this variety does best on the long-rod system of pruning. It should be afforded as much heat as the Muscat of Alexandria; it would therefore not be suited in a vineyard afforded cooler treatment. Alnwick Seedling is a notoriously shy setter, needing at flowering time a temperature of 70°. We should advise the use in the future of the pollen of other varieties conveyed to the bunches on a feather or camel's-hair pencil, and the maintenance of a temperature of 70° at that season.

SHADING: S. B. Mix sour milk with the whitening; or, failing that, use a very thin solution of glue instead.

TOMATO DISEASE: Grower. Do growers never read about what concerns their business? The fruit is affected with black-spot, repeatedly figured and described in our columns. The affected plants should be burnt, and the rest sprayed with Bordeaux Mixture.

WHOLESALE SEEDSMEN IN GREAT BRITAIN: C. J. Jones, Ruthven, Ontario. You might obtain the *Horticultural Directory*, price 1s., exclusive of postage, published at 12, Mitre Court Chambers, Fleet Street, London, E.C.; and likewise communicate with Mr. Bryan Wynne, No. 1, Dane's Inn, Strand, London, W.C., who publishes an exclusively advertising periodical.

WHO SHALL PAY THE GARDENERS' WAGES IN THE ABSENCE OF THE HEAD GARDENER? Interested. We should suppose that the general foreman should pay the men, he being usually considered the next in authority to the head gardener.

WILLOW, MONSTROUS: C. C. The "Rose Willow," in which the leaves are aggregated into tufts. This is the work of a fly, *Cecidomyia* (see *Masters's Vegetable Teratology*, p. 168). We did not receive the caterpillar.

COMMUNICATIONS RECEIVED.—G. Tourret Grignan (next week).—A. O. N.—Expert.—R. D.—A. C. F.—J. E.—H. H. T.—A. H.—J. W. McH.—G. G. M.—A. Dickson & Sons.—Too-good & Sons.—R. W.—H. F.—A. J.—G. R. F.—E. J. A.—T. A. H. R.—H. J. W. Lincoln, Nebraska.—R. C. B.—H. T. M.

SPECIMENS, PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—Hugh Low & Co.



THE

Gardeners' Chronicle

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CARTON GARDENS.

CARTON is near Maynooth, and about ten miles from the city of Dublin, and belongs to His Grace the Duke of Leinster. One of the most pleasant ways of reaching Carton is to ride through the Phoenix Park, with its fine trees, and groves of gnarled old Hawthorns, and herds of fallow deer; and then leaving the Knockmaroon-gate to pass The Rag Well, at Wilsontown, and bear away to the right towards what is locally known as the Rugged Lodge, a quaint, Ivy-covered entrance to Woodlands, or as it is now more generally called Luttrellstown. This is a picturesque domain, with a large lake, and a turretted house draped with Ivy, now the residence of the Hon. Mrs. Barton, formerly of Straffan. There is a good garden here, and extensive fruit and plant-houses, and charming dells and woodland walks in the vicinity. The lake is naturally undulated and river-like, its margins covered with the large white Water-Lily, and it is moreover alive with fish and water-fowl. The views both ways from the bridge which crosses this extensive piece of water are most varied and enjoyable.

Leaving Luttrellstown by a side-gate, you pass through corn-fields, and along delightful country roads for 3 or 4 miles, until Carton is reached. The hedges are here and there aglow with the bright berries of the Water-Elder, the Wayfaring-tree (*Viburnum Opulus*), and with fragrant masses of Honeysuckle, the ditches here and there being filled with the white plumes of the Meadow-Sweet; while the profusion of green hips on the arching branches of the Wild Roses show how profusely they have bloomed.

It is a gloriously hot day in August, with fleecy clouds in the blue overhead, the cattle knee-deep in the pools, and the golden corn-lands yellow in the sun. Now and then a robin sings its earliest song, or a yellow-hammer sounds its melancholy notes; or a wood-quest coos in the Pine-trees; or the rattle of a mowing-machine comes from a sloping Wheat-field far away on the side of the hill.

We are now at Carton, and enter one of the back-lodges, and skim down the smooth drive, startling alike rabbits and pheasants that lie on the green turf in the hot sun. Through plantations of Box and Larch, and past the end of the lower lake, by the rocky banks, and the lake, and we are at Carton itself, with its noble grey mansion, flanked by Cedars and Irish Yews. It is fronted by rolling scenery and fine timber, while the enclosed flower-garden, sheltered by low Yew-hedges, is bright with hardy flowers. Hot and dusty, we glide round the great house, past a picturesque group of harvesters at luncheon under the trees, and reach the gardener's house, to find Mr. Black awaiting us with a hearty welcome. Both Mr. and Miss Black insist on

carrying out the traditions of a Scottish welcome, and then we are allowed to see the gardens and the flowers. Carton is an extensive place, and it is by no means easy to do justice by mere words to its many phases of beauty. The timber here is very fine, especially Beech, Ash, Lime, Chestnut, and Oak; and the Conifers are healthy and well-grown. Cedars perhaps predominate; but Scots Fir, Larch, Yew, and Silver Fir are all remarkable. There are some fine Yew-trees at the cottage grounds, and the largest Yew-tree in Ireland is on the estate at Maynooth, a mile or two away, its trunk at 3 feet from the ground being over 20 feet in circumference.

There is a very large lake here made many years ago by damming up the little Ryewater river, and its islands and banks being well planted with golden and red osiers, Dog-wood, Birch, Alder, Golden Elder and White Willow, there is an agreeable change of aspect and of colour all the year round. This lake is haunted by wild fowl of all kinds, especially during winter, the wild duck being extremely numerous.

A pretty little building or tea house, known as the "Queen's Cottage," stands on the bank of this lake on the opposite side to the great house, and there a charming enclosed garden, filled with Roses, Clematis, and Honeysuckles in variety. H.M. Queen Victoria visited Carton in 1848 or 1849, and took tea here—hence its name, and she sat in the ancient old carved Oak "wishing-chair," which originally stood in the hall of the old Geraldine fortress or castle at Maynooth. A fine head, with antlers, of the now extinct Irish elk is preserved over the large open fireplace in the cottage kitchen, while the sitting-room is decorated with shells, and contains some life-sized Chinese figures in native costume.

On the sloping banks near the cottage are some noble Beech-trees, and a fine *Quercus alba*, and on the lower grounds some fine Conifers. The lake on the other side is fringed by a high rocky bank, and is planted with *Hypericum olympicum*, *Helleborus*, *Narcissus*, *Colchicum*, *Dianthus*, dwarf *Periwinkle*, and many other hardy flowers and shrubs.

At the lower end of "the rocks" is a charming little marsh or bog-garden, through which a stream of limpid water runs from the "Violet well," and this garden has been tastefully planted with marsh-loving vegetation. In the little stream the "Water Hawthorn," or "Cape Pond-weed" (*Aponogeton distachyon*) attains a size and vigour I never saw before.

Leaving the marsh-garden and lower lake, here spanned by a bridge of grey limestone, on which the Scale Fern (*Ceterach officinarum*) grows, the house and garden may be reached by ascending the hill and passing upwards to "Cromwell's Tower," a square tower on the highest part of the home park, from the top of which it is said that Cromwell watched the troops in the plain below.

Lying between the mansion and the kitchen and fruit garden is a long and undulating piece of water, now devoted to Water Lilies of all kinds. *Nymphaea alba* is here by the hundred, its numerous star-like flowers resembling a Milky-way in June and July; but now, in August, we found M. Latour-Marliac's seedlings in full beauty. *N. Marliacea rosacea* (rose), *N. M. carnea* (flesh), *N. M. chromatella* (yellow), *N. odorata rubra* (deep rose), *N. Leydekeri purpurea*, and others, were blooming very freely in the hot sunshine. Mr. Black has here also the dainty sweet-scented blue *Nymphaea stellata*, flowering well in the open-

air unheated water; and this is, so far as I know, the first time this Lily has succeeded in cold water without some added shelter or heat at the beginning of the season. Both here and in the lower lake the Arum Lilies (*Richardia æthiopica*) grow and flower quite freely.

One of the most striking and attractive of all the more modern features at Carton is the great pergola, erected by the late Duchess Hermione just before her death in 1894. Two low walls, having square brick piers at intervals in the total length of about 100 yards; the piers support oaken beams or cross pieces, and these again support other rustic oaken beams, so as to form an open flat roof. The floor is 9 to 10 feet wide, and is paved with bricks on edge, narrow borders being left on either side for flowering plants; and there are oaken seats at intervals on either side for repose. Outside this pergola is planted with Roses, Clematis, Spiræa, and Honeysuckles, in variety, for draping the pillars and overhead; while on the low outer walls sweet-scented shrubs and plants have found a congenial home, such as Rosemary (for remembrance), Lavender, Verbena, Musk, and Mignonette, Marjoram, and scented golden Thyme. So far as I know, there is nothing like this noble pergola out of Italy, and it will form a fitting and appropriate memorial of the Duchess Hermione in years to come. It is really a great open air conservatory, a cloistered retreat full of beauty and sweetness, a shrine sacred to the children, to the flowers, and to the birds.

The so-called kitchen-garden at Carton is enclosed by the fruit-walls, but all the borders on the main walks are so full of annuals and herbaceous plants or florists' flowers, that the vegetable quarters must be sought for if they are to be seen, so shut in and hidden are they behind the floral ramparts! Even the Vine and Peach-house borders outside are gay with Phloxes and Petunias, Sweet Pea and Zinnias, or Mignonette. The fruit-houses within are well stocked, and Vines, Peaches, Nectarines, and Figs are all heavily—not too heavily—cropped, and the produce is fine in both size and quality. In one of the houses I noted a healthy young Shaddock or Pomelo in fruit, and the Muscat of Alexandria Grapes were taking on that rich amber hue so dear to the sight of the connoisseur, but not always so easy to secure. The plant-houses are gay with *Lapageria*, *Begonia*, or *Stephanotis*, and the now rarely seen ally of the last-named, viz., *Schubertia grandiflora*, bore many clusters of its great ivory-white, Cocoa-nut scented flowers. The bright, rosy, dense masses of flower on *Begonia President Carnot*, were larger and richer than we had ever seen them before.

The Orchids were growing freely—so luxuriantly indeed, that they will soon require more extended quarters; and in the Orchid-house were also noted remarkable examples of two of the best of all the *Nepenthes*, viz., *N. Mastersiana* and *N. mixta*. Both basal and cauline pitcher on *N. Mastersiana* were the largest and most highly-coloured I ever saw, and Mr. Black may well feel proud of them.

One charm about the garden at Carton is, that amid all the beauty of vegetation, there is room and a welcome for things interesting rather than merely showy. Many a rare alpine nestles in the rock-edgings, or under the lee of a selected boulder. The Calvary Clover is here with its spirally-twisted pods, that look, when ripe, like little hedgehogs!

Here also is the rare and beautiful *Orobancha speciosa*, a parasite readily grown by sowing its

seeds along with those of the Broad or Windsor Bean, either in large pots, or in the open ground. This seems to be the best and most showy of all the Broom-Rapes, having close-set spikes of white-purple blotched flowers, each spike being 12 to 16 inches in height.

I have had the privilege of seeing Carton and its gardens at all times and seasons, and it is always beautiful. In winter, when thousands of wild duck flutter and swirl in clouds around the lakes, and a gleam of sunshine illuminates the golden osiers and dead reeds, and gives a touch of crimson to the Cardinal Willows and the Dogwood; in spring, when Daffodils nod and flutter on the grassy slopes, or when great crimson Tulips sway and flutter in the May sunshine. Then there is a regal splendour in the time of Roses, and when Delphiniums shine forth in every shade of blue.

Now the annuals make a glorious show, the Water Lilies jewel the lake margins, and all these will in turn give place to the Torch Lilies and Pampas, to the thousand-and-one lingering blossoms that grace the waning year. *F. W. Burbidge.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA × ATLANTA.

A FLOWER of this fine Veitchian hybrid between *C. Leopoldii* and *C. Warszewiczii* (gigas), sent by Samuel Gratrix, Esq., West Point, Whalley Range, Manchester, while showing a good example of the beauties which the hybridist has developed, also gives a pointed instance of the increasing difficulties of determining positively from a single flower what any of these much-worked crosses may be. The first thought was that it might be an extraordinary form of *Laelio-Cattleya* × *elegans*, but a test of the polliniae showed pure *Cattleya*. Then the section of crosses between *Cattleya Leopoldii* and the different types of *Cattleya labiata* had to be considered, and it appeared to be very close to the natural hybrid *C. × Victoria Regina* (*Leopoldii* × *labiata*), and still nearer, perhaps, to *C. × Fowlerii* (*Leopoldii* × *Hardyana*). The rose-purple markings on the side-lobes of the lip, however, in the flower sent indicate clearly the influence of *C. Warszewiczii*, although the flower sent by Mr. Gratrix is larger than those of *C. × Atlanta* previously seen. The sepals and petals are light rose-purple, with a white median line at the base; the very showy front-lobe of the lip, and the tips of the side-lobes of a bright purplish ruby-red, the exterior of the side-lobes folded over the column bluish-white veined with rose-purple.

FLORISTS' FLOWERS.

THE DAHLIA.

ONE of the earliest notices of the Dahlia is given by Hernandez in his *History of Mexico*, published in the year 1651, who figured and described two species under the name of *Acocotli*, as, he informs us, it was called by the inhabitants. He found the plants growing spontaneously upon and around the mountains of Quauhnahuac. It is afterwards noticed in 1787 by M. Thierry Menonville, in the history of his journey to Oaxaca, where he was despatched by the French Government upon the perilous mission of stealing the cochineal insect from the Spaniards.

In the year 1790, a plant which had been introduced into the Royal Garden at Madrid the previous year produced blooms, and was described by Professor Cavanilles under the name of *Dahlia sinuata* in his *Icones Plantarum*, published in the early part of 1791. It would seem there were two varieties in Madrid, *D. rosea* and *D. coccinea*. Upon the introduction of the plant to Madrid, the Marchioness of Bute, then temporarily residing

there, procured seeds or roots, and transmitted them to this country, but they were totally lost shortly after their arrival.

In May, 1804, seeds were re-introduced from Madrid by Lady Holland, and during the following autumn several varieties bloomed in the gardens of Holland House, Kensington. From these, M. Buonaluti succeeded in saving several seeds which were liberally distributed. The extension of sorts, however, in this country progressed tardily until the peace of 1814, when numerous importations of sorts were made from France, Germany, and Holland, where the raising and propagating of new varieties had been more successfully pursued, especially by Count Lelieur at Paris, M. Otto at Berlin, and M. Van Eeden at Haarlem. Two persons in this country were among the earliest to attempt the improvement of the flower, viz., Mr. Joseph Wells, gr. to Wm. Wells, Esq., of Redleaf, Kent, and Mr. David Douglas, gr. to Lady Grantham, of Putney Hill; and it is stated that the former raised the first double dwarf Dahlia. The most decided advance considered to have been made in those days was when Mr. Geo. Lynes, a gardener at Springfield, Surrey, in 1832, obtained that universally-admired flower, Springfield Rival.

At the time of the publication of the *Annual Dahlia Register*, in 1836, the production of new varieties had increased enormously, and exhibitions of Dahlias were held in many parts of the country. There were so many raisers of new varieties that it would seem invidious to particularise; however, mention may be made of Harris, of Upwey; Brown, of Slough; Wheeler, of Warminster, Levis, of Sheffield; Cox, Widnall, and others. The veteran Dodds, still living, was just commencing as a raiser, and high prices for new varieties ruled. To these, a generation after, succeeded Drummond, of Bath; Holmes, of Norwich; Bush, of Bath; Turner, of Slough; Rawlings, of Bethnal Green; Burgess, of Salt Hill; Keynes, of Salisbury; Fellowes, of Shottesham. It was the last of these, with Turner, Keynes, and Harris, of Orpington, who brought the succession of raising down to our day.

The fancy type of Dahlia originated with Count Lelieur, of Paris, who obtained from seed some striped and shaded single flowers; and from these were developed the present race of fancy Dahlias. In the early fifties, the lists of this type contained a goodly number raised abroad; but it is mainly to Keynes, of Salisbury, we owe the fine show flowers which are now grown and exhibited in this country.

The Pompon, Liliputian, or Bouquet Dahlias originated with Hartweg, of Karlsruhe, through his obtaining a double form from the single Dahlia *coccinea*. This type was greatly favoured by the Germans, who kept the cultivation and raising of new varieties pretty much in their own hands, for they were not offered in English catalogues until thirty years or so ago. The varieties of ten years earlier were of very tall growth; but Turner, Keynes, Cheal, West, Seale, and others, have so improved the type, that the plants are now dwarf and bushy, and exceedingly floriferous, and invaluable for garden decoration.

It was the late Mr. W. H. Cullingford who introduced the Mexican Dahlia, Juarezii, to this country about 1874. It was originally received from Mexico by M. J. T. Vander Burg of Utrecht; and among a number of subjects contained in a box, many of which were destroyed by reason of delay, was seed, or a tuber, which eventually produced *D. Juarezii*. Mr. Cullingford supplied Mr. Henry Cannell of Swanley with plants, who exhibited it for the first time in 1880; and though shunned at the onset by the admirers of the large show-types, it yet caught on, and was the means of bringing into temporary cultivation under the term of *Cactus Dahlias* a number of varieties of poor value. Happily the true *Cactus* type has been preserved and greatly developed, and at the present time there are in cultivation a considerable number showing great variation in colour and form, as well as much

amendment in habit of growth and freedom of bloom as compared with the earlier sorts. Bunches of *Cactus Dahlias* are now a leading and imposing feature at our Dahlia exhibitions. The work of improvement is largely the outcome of the labours of Messrs. Cannell, Keynes, Cheal, Burrell, Stredwick, West, Mortimer, Ware, and others.

The single Dahlia came to the fore about the year 1880, when Mr. Alfred Salter brought to one of the meetings of the Royal Horticultural Society *D. coccinea*, and at the same time appeared *D. lutea*, and an old variety grown sixty years ago under the name of *Paragon*. Several at once began to raise seedlings, and the varieties increased with great rapidity and were highly popular for a time, but are now much less so than they were a few years ago. The fugitive character of the blossoms unfits them for general decorative purposes. No one has more decisively left his mark as a raiser of new single-flowered forms than the late President of the National Dahlia Society, Mr. T. W. Girdlestone. He was successful in obtaining many beautiful fancy varieties of high quality; and he also originated the very dwarf-growing *Tom Thumb* race, which are approved for bedding purposes.

A single form of the *Cactus* type has been developed by Mr. E. J. Lowe; and the varieties have been increased by Messrs. Dobbie & Co., Rothesay. That they are more attractive from an artistic point of view than the formal single varieties there can be no doubt, but it can scarcely be said they have as yet attained to any great degree of popularity. *Florist.*

NOTES FROM A SCOTTISH MANSE.

THIS is the season of climbing flowers: the period at which they bloom most luxuriantly, and produce the grandest artistic effects. In many Scottish gardens, I regret to say, they are almost ignored; possibly because their capabilities of floral impressiveness are not adequately realised. Here they are assiduously cultivated, and receive every possible attention. What they chiefly require, especially in their initial stages—what may be called their first attempts at aspiration—is sufficient moisture around the roots and on the foliage during the warm summer months. It may be said, without exaggeration, that water (and especially rain, which has fertilising chemical properties peculiar to itself) is their very life. All of the *Tropeolums* require it in abundance during such tropical weather as we have recently experienced, and especially the extremely graceful *Tropeolum speciosum*, at present festooning a lofty Hawthorn hedge above the south wall of my garden, at a height of 13 feet. This is the brightest climber within the range of my acquaintance; and especially is its luminous beauty apparent, when, planted in such a picturesque situation as I have instinctively assigned it, its radiance is intensified by environing masses of dark or delicate green.

Such, the lover of Nature will observe, are the finely contrasted surroundings of her fairest flowers; and from the arrangements of Nature, so wise and so beneficent, reverential thinkers, to whom she has taught the deep lesson of humility, can learn much. We do not go so often as we should to the waysides or the woodlands for our gardening inspirations. Everywhere around us, in the great garden of Nature, may be heard the vast music and beheld the marvellous evidence of infinite design. For, as Cowper has so beautifully sung:

"Happy who walks with Him! whom, what he finds

Of flavour or of scent in fruit or flower,
Or what he views of beautiful or grand
In Nature, from the broad, majestic oak,
To the green blade that twinkles in the sun.
Prompts with remembrance of a present God!"

Among the climbing flowers that at present make our gardens oriental in aspect, the finest are *Tropeolum speciosum*, already and most inade-



FIG. 4.—PHARUS GUIANEENSIS ALBO-STRIATA.

quately described, for it is of a beauty that transcends all description; *T. canariense*, which, grown amid the dark purple foliage of a *Prunus Pissardi* in the centre of my "earthly Paradise" (as an olden horticultural writer, not yet quite forgotten, expressively entitled his own garden of Eden), has created a striking floral effect; *T. majus*, familiarly known as the Great Nasturtium, here covering old, mossy Apple-trees with its wealth of varied bloom; the "Painted Lady," a scarlet and white runner, richly ornamental; and above all the exquisitely tinted and powerfully fragrant Sweet Peas, for the finest of which we are indebted to their great specialist, Mr. Eckford, a native of Midlothian. These I have climbing and flowering luxuriantly wherever they could be planted with any prospect of success. With the exception of the Rose, the Lily, and the Viola, there is no other flower that I cultivate so much.

I am a great lover of old-fashioned flowers, though fond of adding the latest novelties to my collections; and I anticipate much pleasure from a number of very fine perennial Asters (akin to "Michaelmas Daisies") raised mostly in Belgium, and of comparatively recent origin, though they belong to a class of flower which most of us have known from childhood, and which are therefore to memory very dear. Flowering during the months of September and October, they are of great value for late autumnal bloom. Their companions are the Dahlias, and early "garden" Chrysanthemums, whose period of floral productiveness—so long in its duration, and so memorable for its effectiveness—has just begun. Among the former, my supreme favourites are the single, the Cactus, and the decorative varieties, and I think that the last-mentioned, which are now extensively cultivated and universally admired, are the fairest of them all. In them the noblest attributes of all the other classes appear to be combined.

But for the climbing flowers to which I have alluded, our gardens would at present be somewhat lacking in brightness; for this is the intermediate season of the Rose. There are several very precious varieties that seem to flower almost without intermission; conspicuous among these are *Caroline Testout*, *Marie Van Houtte*, *Papa Gontier*, *La France*, *Madame Pernet Ducher*, and *Madame Lambard*. *A. K. Williams* is a splendid autumnal bloomer, but his second reign among the crimson Roses has not yet begun. Some very late varieties of *Duke of Edinburgh* and *Duke of Wellington* are still very conspicuous by reason of their rich colouring of velvety-scarlet and maroon; equally appreciable is an occasional dark specimen of *Sir Rowland Hill*; *Ards Rover*, one of the most recent introductions of the Dicksons of Newtownards, whose colour resembles that of the venerable *General Jacqueminot*, seems likely to prove a valuable autumn Rose. Roses at this season, like our old friend, *Mrs. Gamp*, in *Martin Chuzzlewit*, require a good deal of artificial stimulant to bring them into proper form for any kind of exhibition. Under the influence of the terribly exacting sunlight they come very rapidly, and as suddenly collapse. Ere long, when the atmosphere grows cooler, and the beneficent rains descend, they will acquire stronger petals, and last longer in full bloom.

The most fascinating flowers in my garden at present are *Lilium auratum*, *L. longiflorum*, and the exquisite, satiny-crimson *Lobelia cardinalis*, highly eulogised by Sir Archibald Alison, in his *History of Europe*, in an eloquent, incidental passage on the scenery of America. *David R. Williamson*.

PHARUS GUIANEENSIS ALBO-STRIATA.

THIS is a handsome tropical grass, suitable for the adornment of the stove. It has, as the illustration shows (fig. 64), broadly ovate leaves, tapering to each end, and irregularly striped with yellow or cream-coloured stripes. It has been

exhibited by Messrs. Veitch & Sons, of Chelsea, on more than one occasion during the summer. We figure the plant under the name in which it was exhibited. The species of *Pharus* are mostly natives of tropical America.

HORTICULTURAL RECIPES.*

Grafting Wax.—(1) Beeswax, 75; purified resin, 125; turpentine, 36; rape oil, 12; Venice turpentine, 25; zinc white, 25. Colour yellow with turmeric. (2) Japan wax, 100; yellow wax, 300; resin, 800; turpentine, 400; hard paraffin, 100; suet, 300; Venice turpentine, 600.

Fluid Grafting Wax.—(1) Resin, 1250; pitch, 300; linseed oil, 120; turpentine, 50; yellow wax, 180. Melt with a gentle heat, stir continually until cold, and then add methylated spirit, 400 fluid parts. (2) Burgundy pitch, 500, is melted slowly, removed from the fire and mixed with alcohol, 70 to 80. Put up in wide-necked glass bottles, or in tins. (3) Turpentine, resin, 1; methylated spirit, 4.

Manure for Indoor Plants.—(1) Sodium chloride, 10; potassium nitrate, 5; magnesium sulphate, 5; magnesia, 1; sodium phosphate, 2; mixed and bottled. Dissolve a teaspoonful daily in a litre of water, and water the plants with the solution. (2) Ammonium nitrate, 40; potassium nitrate, 90; ammonium phosphate, 50; 2 gm. is sufficient for a medium-sized flower-pot. (3) Ammonium sulphate, 10; sodium chloride, 10; potassium nitrate, 5; magnesium sulphate, 5; magnesium carbonate, 1; sodium phosphate, 20. A teaspoonful to a litre of water. (4) Ammonium nitrate, 40; ammonium phosphate, 20; potassium nitrate, 25; ammonium chloride, 5; calcium sulphate, 6; ferrous sulphate, 4. Dissolve 2 gm. in a litre of water, and water the plants with the solution. (5) Potassium nitrate, 20; potassium phosphate, 25; ammonium sulphate, 10; and ammonium nitrate, 25. This mixture produces a luxuriant foliage. If blooms are desired, dispense with the ammonium nitrate.

To Destroy American Blight and other Plant Lice.—The use of carbon disulphide is recommended, the affected places being daubed with a rag tied to the end of a long stick. The application must be repeated every eight days. A simple method is to sprinkle the affected parts with diluted petroleum. No ill effects have, so far been noticed from this treatment. A dilution of 1 litre of petroleum to 4 or 5 litres of water may be used as long as it is continually shaken up. The process of extinction can only be considered complete when every trace of the bluish-white web in which the insects are enveloped has been destroyed. Autumn is the best season for waging the campaign, when the trees are bare; later, in spring, the bluish-white web disappears, and the pests are then scarcely discernible. It is useless to attempt their destruction unless it can be done thoroughly, as the smallest remnant left multiplies to an alarming extent.

Destruction of Phylloxera.—Bordeaux mixture is rapidly prepared as follows:—Water, 90 litres, is put into a wooden or earthenware vessel, and copper sulphate, 2 kilos., dissolved in it; 700 gm. to 1 kilo. of freshly slaked lime is mixed carefully with 10 litres of water. This is gradually added with continual agitation to the copper solution; a turbid blue mixture results, which becomes clear on standing. If still blue, more milk of lime should be added until the solution is quite colourless. Sprinkle the Vine with this solution. The solution destroys the phylloxera, but has no lasting effect, so that the application must be repeated several times during the summer.

Shield Louse Wash.—(1) Calcium sulphide wash is prepared with unslaked lime, 18 kilos.; sulphur, 9 kilos.; salt, 6.75 kilos.; mixed as follows:—A fourth part of the lime is slaked and boiled for two to three hours with the sulphur in 22.4 litres of water. The remainder of the lime is then slaked and added with the salt to the hot mixture. The whole is boiled for another half-hour, or an hour, and then diluted to 858 litres. The fluid is applied lukewarm when the plants are not in active growth. (2) Sodium sulphide solution, consisting of sulphur, 900 gm.; caustic soda, 675 gm. (or concentrated ammonia solution); and train oil soap, 7.5 kilos. The sulphur and the alkali are boiled in water for one hour, the soap is dissolved in 45.4 litres of boiling water. The solutions are mixed, boiled for half an hour, and diluted to 227 litres of water. Apply while warm. (3) Saponified resin solution, consisting of resin, 9 kilos.; caustic soda, 2.25 kilos.; or concentrated ammonia, 2.25 kilos.; or calcined 98 per cent. soda, 1.575 kilos.; fish or train oil, 1.4 litre. All three substances are put into a kettle, covered with 3 or 4 inches of water, and boiled from one to two hours. The mixture is then diluted with water to resemble strong black coffee. This fluid is diluted with water to 450 litres. Petroleum.—Undiluted petroleum may be used in frosty weather when the insects are not fully developed. The petroleum is painted on with a brush. Delicate Plum or Greengage trees, however, will not stand such an application. Pruning is recommended for these.

Petroleum Emulsion.—Train-oil soap, 2.25 kilos, is dissolved in 45.4 litres of boiling water, petroleum, 2.25 litres, is added, and the mixture diluted to 227 litres with hot water. Wash or spray with the lukewarm solution.

Krueger's Petroleum Emulsion.—Black soap, 250 gm., is dissolved by boiling in 4.5 litres of water, and petroleum, 9 litres, is added when the soap solution is removed from the fire. The fluid is then agitated well for 10 to 15 minutes.

Nesaler's Remedies for American Blight.—(1) Soft soap, 40 gm.; amylalcohol, 50 gm.; methylated spirit, 20 gm.; water, 1 litre. (2) Soft soap, 30 gm.; sulphurated potash, 2 gm.; amylalcohol, 32 gm.; to water, 1 litre. (3) Soft soap, 15 gm.; sulphurated potash, 25 gm.; to 1 litre of water.

Destruction of Thrips.—Insect powder dusted on the plants answers admirably. (2) A decoction of tobacco stalks, 500 to a pailful of water, sprayed over the beds. (3) Decoction of wormwood, and dusting with a mixture of guano, gypsum, and wood-ashes.

Destruction of Slugs and Snails.—Strew plentifully with powdered lime in dry weather and repeat in half an hour.

Destruction of Moles.—(1) Place pieces of fresh raw meat, poisoned with arsenic powder, 1.15 or 1.20, into the hole immediately underneath every heap of earth thrown up by the mole, and cover again carefully without disturbing the passages excavated by the animal. The scent of the bait lures the moles to sure destruction. (2) Insert branches of Elder into the mole runs; this is sure to drive them away. (3) A few bulbs of Garlic steeped in petroleum have the same effect. (4) Hedgehogs are said to drive away moles.

Destruction of Mice.—(1) Soak Wheat thoroughly in an infusion of fresh squill bulbs, 1.5, and dry quickly; this Wheat is only poisonous to rats and mice, and an excellent vermin-killer if the infusion is carefully prepared. (2) A mixture of lard, 500; salicylic acid, 5; one onion; suet, 50-100; barium carbonate, 500; solution of ammonio-acetate of copper, or of verdigris, 50. The Onion is cut up fine and fried with the fats until dark brown. The salicylic acid is then added, and the mixture strained and stirred until the fat nearly sets. The barium is next added, and, finally, the copper solution.

Destruction of Rats.—(1) Precipitated barium carbonate, 100 gm., and tartar emetic, 1 gm., are mixed with baked flower and glycerin in 2 gm. into boluses, which are fried brown in hot fat. (2) Gypsum, 2; oatmeal 750; flavoured with anise oil. (3) Plaster of Paris and sugar, equal parts. The mixture is spread on a plate, and exposed near a vessel of water. (4) Crushed bitter almonds, 60; lard; fresh squill bulbs, equal parts, (5) powdered almonds mixed with arsenic answer well.

Rat Cakes.—A bulb of squill is cut into thin slices, dried and mixed with sugar, flour, and a little salicylic acid. Make into cakes with glycerin and with sugar, and expose them by the side of the water.

Moth and Caterpillar Lime.—Venice turpentine, 200; resin, 1,000; turpentine, 140; tar, 80; lard, 500; rape oil, 240; tallow, 200. (2) Resin, 50; lard, 40; steaming oil, 40. (3) Resin, 3; rape oil, 4; lard, 2; soft soap, 1; wood tar, 10. (4) Resin, 36; rape oil, 36; Venice turpentine, 20; wood tar 5; turpentine, 3 parts. Paint the mixture while warm on strips of paper laid smoothly on the tree-trunk about a yard above the ground. This should be done at the end of October, or the end of November, to prevent the females of the winter moth from climbing up the trees. (5) Instead of above mixture, cat grease may be used. (6) Mix melted resin with crude rape oil to form a mass of sticky consistence.

FOREIGN VEGETABLE PRODUCTS.

(Continued from p. 166.)

BORDEAUX.—*Pine Forests and Forest Fires.*—The Pine forests of the Landes of south-west France cover about 5,000,000 acres, and are apt to take fire in very dry summers. The summer of 1898 being unusually dry, was more than ever prolific in forest fires; and in August and September vast tracts were devastated by fire. On August 21, a fire broke out in the forests a few miles from Bordeaux, in which two persons lost their lives, and timber to the value of £60,000 was burnt. At the same time two other vast tracts of forest were a prey to the flames. The extent burnt by the one was in length about ten miles by about two miles in width, the loss being estimated at £40,000. All the buildings which were in the way of the fire were burnt, and a large number of cattle, sheep, and beasts of burden were destroyed.

Another fire on the same day, which was said to have been caused by lightning, burnt forest to the value of £12,000. All these were in the department of the Gironde, around Bordeaux. At the same time fires were burning the forests in the department of the Landes, one of them alone destroying 50,000 acres. A fortnight later the forest along the Southern Railway between Bordeaux and Arcachon took fire, and the Pines burning fiercely on both sides the line became a fiery way. Much courage was shown by the engine-drivers in taking their trains through the flames and smoke. An express train from Bordeaux to Arcachon arrived at the scene as the fire was at its fiercest on both sides of the line; the train was stopped, and all windows and ventilators

ordered to be closed. Then the driver put on steam, and at his best speed ran the gauntlet through an actual forest of fire. It is true that the flames did not actually cover the line, but they were burning on each side, and gave out such dense smoke that the train was literally lost in it; so dense, indeed, was the smoke, that it was found impossible to pull up at Marcheprince station, around which the fire was raging. The forest of La Teste, close to Arcachon, was no exception, and was devastated by fires.

The inhabitants of the villages around this forest enjoy feudal rights as to its use. They may cut all the live wood which they require for their households and their boats, and the dead wood is their exclusive property. The extent of this forest burnt was at least 1200 acres, and the value £16,000. After the fires, legal questions arose between the proprietors and the peasants as to whether the burnt trees were live or dead wood. The tribunal declared it live wood, and ordered it to be sold. This decision exasperated the peasants, who claimed it as dead wood, and who thereupon to the number of nearly 2000, with 300 carts, made a procession to the forest. It was as if taken by assault. The trees, still blackened by the fires, were felled in hundreds, sawn, and cut up, and loaded on the carts, which, almost breaking under the loads of timber, returned to the villages.

French Plums.—The annual blooming of the Plum-trees generally takes place during the early part of the month of March, but last year, in consequence of the low temperature, the trees did not blossom till the second week in April. Though very high temperatures prevailed during the months of June, July, and August, 1898, the maturing of the fruit was delayed, and harvesting the Plums only took place early in September, under most favourable circumstances, and terminated in the early days of October. The crop was very abundant, and reached about 1,600,000 owt. The fruit was of average size only, from 54 to 59 Plums to the pound, up to 90 and 100. The larger sizes, 41 to 46 and 45 to 50, were scarce, and commanded unusually high prices. The largest-sized fruit, 30 to 32 Plums to the pound, were very rare. The demand from Great Britain was very active, and very important in quantity, the comparatively low prices favouring consumption, as well as, perhaps, also, the fact, that other fruits were scarce in France, and not of the usual good flavour. The Apricot and Peach crops were almost an entire failure. *J. R. Jackson.*

ANNUALS IN POTS.

THE cultivation in pots of annuals and ornamental grasses for conservatory decoration, has recently become more general, and deservedly so, for they may be easily grown, and are invaluable in many ways during the summer months. They give colour and lightness to the greenhouse, are extremely useful for cutting, and are also admirably suited to the work of the decorator and plant furnisher.

One great advantage possessed by the annuals over the perennial subjects is, that so soon as they are over, they may be cleared from the houses and consigned at once to the fire heap; but perennials, when they have flowered, still need much attention in the way of watering, pruning, &c., and they continue to occupy a large amount of ground, while generally presenting an untidy appearance. Those showy varieties of *Oenothera*, popularly known as *Godetias*, are exceedingly well adapted for pot-culture. At Ferrières-en-Brie, the domain of Baron Alphonse de Rothschild, thousands of them are thus grown annually. For out-door use, as, for instance, in floral decorations at a garden-party, nothing could be more effective.

The seed may be sown in the pots in which the plants are intended to flower, and the seedlings afterwards thinned out to the required number, or they may be sown in boxes, and when large enough, be placed eight or ten in a 6-inch pot. For this

* Reprinted from the *Pharmaceutische Zeitung* by the *Journal of the Pharmaceutical Society*.

latter operation, it is best to fill the pot very loosely with soil, even higher than the rim, and then make holes for the plantlets with the finger. When the work is completed, the soil will have become quite firm enough, and there will also be sufficient of it to nicely fill the pot.

Coreopsis Drummondii is another showy annual, well adapted for this method of culture. It remains dwarf, and produces an abundance of flowers. *Gypsophila paniculata* is rarely seen grown in pots, yet it succeeds admirably under those conditions, and is of great value as a summer greenhouse flowering plant, its habit is so light and graceful.

Of ornamental grasses, *Agrostis nebulosa*, *A. elegans*, and *Briza gracilis* (syn. *minor*), are a few of the most popular. The loose panicles of these grasses are very useful for making up with sprays, buttonholes, and bouquets. *A. nebulosa* is known as the Cloud Grass; and its fully developed flowering shoots certainly do bear some resemblance to a small cloud resting over the ground. *A. elegans* does not grow quite so high as the preceding one; it seldom exceeds 1 foot in height. *Briza gracilis*, "The Little Quaking Grass," grows wild in Britain, but is of comparatively rare occurrence. It is a charming plant of very distinct appearance.

If gathered and dried, these ornamental grasses can with advantage be made use of for vase and table decoration in the dwelling house. All the foregoing varieties can be easily raised from seeds sown in spring. Sow them in the pots in which they will flower, and thin out as becomes necessary. Cool conditions are essential to success with these plants. *H. H. T.*

MALSHANGER PARK, HANTS.

ON an elevated position, in a fine English park, is the beautiful mansion of W. S. Portal, Esq., a great admirer and planter of forest and ornamental trees. In the policies and pleasure-grounds are some grand Beech-trees, Oaks, Chestnuts, Limes, and Scots Fir; also many choice Conifers, planted in clumps of six to eight plants, in one position. They have grown freely during the past thirty years, and some of them have reached a height of 40 feet. These clumps add a rare beauty to the landscape. Mr. Portal has made many grass-walks and new woodlands through this estate. It is most interesting to note the rapid rate that trees grow when planted in deeply-trenched land. The pleasure-grounds are extensive, and contain many noble trees whose branches sweep the lawn, besides many young trees and shrubs of the choicest kinds that have been planted more recently.

The flower-garden, near to the conservatory and mansion, has been planted skilfully with numerous flowering and foliage-plants, the whole garden being a grand display of different coloured flowers and foliage. Leading from the flower-garden to the kitchen-garden is another fine grass walk, with trimmed Yew-trees on each side, and spanned by several fine arches of Vines, Roses, and Honeysuckle. This walk, which gives quite a character to the place, becomes an entrance to the kitchen-garden, which is well cultivated. It contains fine beds of Peas, Cauliflower, Celery, Carrots, Parsnips, Beet, Turnips, and some excellent white Cos Lettuce. Onions here are a special feature, and Mr. Kneller, who is one of our oldest and most experienced growers, says they are this year as good as ever he had them. The bulbs are wonderful in size, shape, and quality, and carry a growth of 3 feet, 6 inches in height. The same high cultivation is afforded all crops, whether fruit-trees, vegetables, or flowers. The glass-houses are not extensive, but they are most useful ones, and are kept in excellent repair.

The Fern-house contains useful plants for decoration; also some well-grown Palms in fine health. In the vineries there are crops of even-sized bunches of fruit with large berries. Such sorts as Alicante, Madresfield Court, Buckland Sweetwater, Black Hamburg, and Muscat of Alexandria are grown.

The greenhouses and the stove contain many choice plants, including Ferns and Orchids.

In the Cucumber-house are some fine fruits of a large deep green Cucumber of handsome form; and without exception, I think, the finest and heaviest crop of Tomatos I ever had the pleasure to see is grown in a small house in this garden. The plants are grown in boxes 3 feet long by 1 foot wide, and 9 inches deep. The trusses of fruit are perfect in all ways, and from one box alone I was informed Mr. Kneller had cut 30 lb. of fruit, some specimens weighing 17 oz., and perfect in shape. The variety is known as Plentiful. The Tomato-house is 36 ft. in length, and 8 feet wide.

In the pits and frames are batches of many useful plants for summer and winter supplies of cut flowers. In one pit were some fine seedling Cyclamens, which ought to give a good account of themselves.

The whole of this extensive garden is under the care of the able and much-respected gardener, Mr. N. Kneller, who has been here many years, and has carried out great improvements in this charming place. *J. W. McHattie, Strathfieldsaye.*

FLAVOUR IN POTATOS.

THE question of flavour in Potatos continues to receive much attention from our correspondents. Below is a strong, but not too strong, indictment of the modern varieties. [Ed.]

"Mr. Harrison Weir and Mr. H. J. Elwes do not write one whit too strongly, but have quite understated the case against the modern Potato. "A. D." may be amused, but it is scarcely a laughing matter. Some day, when the public is less largely composed of fools—at present there are more of them eating worthless Potatos than Mr. Elwes imagines—Potatos with the Potato flavour will be again inquired for, and in vain. For at present it seems the one aim of those who are most industrious in raising Potatos from seed to eliminate all yellow colour, and with it, every vestige of flavour; and to flood our gardens and markets with coarse lumps of tasteless white starch. It may seem an invidious thing to carp at the long and patient work of the hybridiser, but I am constrained to ask a foremost firm, who write of one of their popular Potatos, that "It possesses the great advantage of being white in the flesh." Why is this any advantage? The French, who are immeasurably ahead of us in knowledge and appreciation of what is good to eat, and not merely to measure or look at, in vegetables, will have nothing to do with white Potatos. To myself this whiteness has one advantage only, it serves as an unerring advertisement of insipidity, and so simplifies the decision of summary rejection. The good Potato is yellow in colour, and in consistency of flesh a happy medium between wax and flour, like a boiled Chestnut; it should never fall to a heap of loose starch when cooked, but should dissolve in the mouth, not on the plate. It has always been a marvel to me why Messrs. Sutton did not follow up the clue of that excellent production, Magnum Bonum—large, prolific, disease-resisting, and with so much of the true colour and flavour of the early kidney varieties. It was the introduction and infusion of the American strains that worked the mischief; how people can grow and eat such dry, rapid, choking stuff as Beauty of Hebron, *et hoc genus omne*, passes my understanding. Years ago I had sent me from Guernsey, by a sympathising friend, a basket of small, round, roughly-formed, red-skinned Potatos, for all the world like the first known drawing of the Potato in old Clusius's book. They were supremely good, but the plant was a small cropper, and I grieve to say that by some mischance one year no seed-tubers were kept, and I never could obtain the thing again.

To demonstrate what a Potato should and may be in flavour, I posted some of it to the office of a horticultural paper, and with it, to serve as the drunken Helot, or awful contrast and example, the biggest tuber I could find of one of the white

American kinds. The Editor (not you, Mr. G. C.), who probably wished to gratify me, but had read my note upside down, wrote:—"We have received your Potatos; the small red kind is valueless, but the other is large, white, floury, and excellent." We still grow in this district the delicious old Walnut Kidney, unsurpassed for earliness, texture, and flavour, but a small cropper, and therefore sure to disappear before the inroad of the coarse, vulgar, valueless, modern Juggernaut Monster. If it is true—but I doubt it—that the American blood was the only possible help against the disease, and that therefore these chalk-faced starch packets are a necessity, we must endure them. But I object to the insult added to injury of being assured that these are the best Potatos that ever have been or are conceivable. It reminds me of the saying attributed to Professor Jowett, "Young men will go wrong, but it is pity when they make a theory of it." As to Tomatos, if Mr. Elwes wants them to eat and not to look at, all he can do is to fall back upon the old common (if it is still common), corrugated Red. *G. H. Engleheart, Appleshaw, Andover.*

COLONIAL NOTES.

A MARKET GARDENER IN VICTORIA.

IN a former letter (see p. 140), when making mention of land that could be taken up in this district for fruit-growing and general market-garden purposes, I omitted to give various necessary details in connection therewith.

Land that is declared auriferous, or "gold-bearing," is not let on a purchasing lease; but the selector is allowed the right to cultivate the surface by paying a small yearly rent per acre, with this risk, that miners may at any time come in and commence gold-finding operations on that area. This at first may seem a queer sort of tenure; but when this kind of land is taken up it has generally passed through its day of mining, and is just waiting the re-inspection by the mining authorities to have the area transferred to another section; and in many cases that I have known, when the Department has seen the genuine improvements made by the selector, he is at once allowed a purchasing lease under section 42 of the Land Act. Under this section, land is leased to selectors in 20 acre blocks, at a yearly rental of £1 per year, or 1s. per acre, for six years, at which time the occupier can, by paying £14, the balance of purchase-money at £1 per acre, obtain his title to the freehold, providing that he has in the meantime fenced and cultivated the land. For small allotments, miner's rights can be taken out for 2s. 6d., and the holder can peg out an acre and have it registered by paying another 2s. 6d., the qualification necessary to holding being residence for two consecutive years, when you can demand the sale of your allotment at the next Government land sale, when you or some one else can purchase the freehold. The occupier, is, however, allowed to place what valuation he thinks for improvements, thus putting probable bidders out of the running.

Within the last two or three years there has been a great increase in the acreage under fruit and garden crops generally, and now that the home-market is being catered for successfully by Victorian fruit, all those areas adapted to fruit-growing will soon be selected. Our crops here ripen when the home-market is really hungry for supplies, and most assuredly there is a great future for the Victorian fruit industry.

As I have said before, it is young men that have been trained in the practical school of English gardens that can utilise the facilities for raising and producing fruit crops in a climate that has everything in their favour, and but few of the drawbacks incidental to open-air operations in this line in England. *A. V. N., Englebank, Victoria, Australia.*

HONG-KONG.

The report for 1898 of Mr. Superintendent Ford

has been received, giving details of the changes in the staff and Botanic Gardens. *Nepenthes ventricosa* has been sent to Kew. *Derris Fordii* (§ *Mimosa*) was discovered by Mr. Ford in the province of Kwan Tung, and is described as a picture of beauty; the flowers, which are produced in the greatest profusion, being white and red. *Rourea santaloides* (Connaraceæ) is a lovely plant when in bloom; it is indigenous in Hong-Kong. Strawberries have been successfully grown. Six hundred and eighty-six cases of illicit tree-cutting for fire-wood have been recorded, the convictions amounting to fifty-one; but as there are only five forest-guards for the whole colony, it is not to be wondered at that the convictions are few. Forest fires are numerous and destructive, being caused chiefly by the carelessness of natives and Europeans alike, in the use of matches.

THE HERBACEOUS BORDER.

LUPINUS POLYPHYLLUS.

FOR some years the writer has held somewhat hopeful views of the future of *Lupinus polyphyllus*. It seemed to him hardly likely that a plant which had yielded the comparatively few varieties known until late years should not give us before long several distinct breaks. Nearly everyone interested in hardy flowers is thoroughly familiar with the blue, the blue and white, and the white varieties so often met with. Of these the best was, perhaps, that with blue and white flowers. It might look at times a little stiff and too pronounced in its contrasts, but it is decidedly effective in a large border. Most of the white-flowered plants had a bad defect in the shape of irregular spikes, caused by breaks in the continuity of the flowers, or by some of the latter dropping too soon. From what has been seen of late, one cannot but think that we are in a fair way to have many improved varieties, which will be found of the greatest value. Perhaps the greatest surprise was the introduction last year, I think, of a yellow variety by Messrs. Kelway & Son, of Langport. It is assumed that this may have originated from hybridisation with a yellow Tree Lupin; but this does not appear to be proved; and there is no reason why it may not have been the result of variation from seed. [Is it not commonly grown in France? Ed.] Last year I saw in an Irish nursery a large bed of seedling *L. polyphyllus*, among which were some very beautiful flowers in shades of blue and white. Some of the latter seemed quite perfect in their flowering. Messrs. Barr & Son have also some pretty varieties. A dark-purple form, called Purple King, was in their stand at the last Temple Show, but the way in which it was set up, hardly did justice to a plant of the character of *Lupinus polyphyllus*. Of the various breaks that I have seen, nothing has pleased me so much as a pretty pink-coloured one in Mr. George F. Wilson's experimental-garden at Oakwood, Witley. It was different from any of the perennial Lupines with which one is acquainted, and gives a colour we have not yet had among these useful border or wild-garden plants.

IRIS PALLIDA FOL. VAR.

Garden visits are very interesting to those who admire flowers, and one often comes across plants before unknown; or, if known, sees them under quite different conditions. At Guildford, the other day, I was delighted to see a fine bed of this beautiful variegated *Iris*, which I had not met with before, although it is not absolutely new. It was honoured with an Award of Merit from the Royal Horticultural Society in 1890. It is quite possible that some of its effect was due to its being grown on the chalk; but, even allowing for this, it is apparent that this *Iris* will be invaluable to many. I was told that it liked as hot and dry a place as possible, and that it should not be watered. Such a plant can easily be accommodated in most gar-

dens, and on a wall or a roof it would apparently succeed perfectly. We ought to make greater use of such *Iris*es as do well in these positions. Many are perfectly at home, and look far more delightful than those who have not seen them can imagine, crowning the summit of a wall or a low roof. In addition to its broad creamy-banded variegation, *I. pallida* fol. var. appears to flower freely. The effect of the beautiful blue flowers, with the distinct variegation of the leaves, is most pleasing. *S. Arnott*.

THE IMPROVEMENT OF PLANTS.

MIGNONETTE.—My earliest experience in the improvement of flowering plants was when the first plant of Mignonette was selected, which after further selections, extending over a period of seven or eight years, resulted in the fine white variety, which was known as Parsons' White (or *Rosa odorata eximia*), under which name it received a First-class Certificate from the Royal Horticultural Society. The plant referred to above, though far from being what would now be considered worth growing, was a decided advance on all the others then grown. It was one of several in the same pot, all except the one being carefully removed, and the one placed in an isolated position for seed; the same process of selecting the most distinct being carried on for several generations, during which time other varieties equally distinct were found among them, one with almost round leaves, and of very dwarf habit. Upwards of forty different selections were made, all of which except the white, and a vigorous-growing variety with more green in the flowers, were eventually discarded; the last was known as Parsons' Tree-Mignonette. It was found that to keep these true, and prevent deterioration, it was necessary to carefully select the seed-plants, and avoid the two varieties coming in contact. I might add that further selections resulted in a variety without any anthers, and a large batch reserved for seed proved abortive. The above results were obtained without any cross-fertilisation except what occurred by natural agencies. The above is only an illustration of what has occurred with many other plants which are grown from seed annually. It was from the late Mr. Geo. Parsons (who did a great deal both in selections and hybridising) that I received my first instructions, and it was not only with flowers but also vegetables that these selections were made. I have gone over large breadths of Lettuce, Cauliflower, &c., and selected the best to save seed from for own sowing.

Chinese Primulas.—Coming back to flowers, Primulas received a large amount of attention. For some time we saved only what seed was required for own sowing, and as the seed plants were carefully selected from large quantities grown for sale, steady improvement was made. The camels'-hair pencil was brought into requisition for these, and a clean pencil was used for each distinct colour. Some crosses were also made. I found that the seed parent generally sustained the habit, while the pollen parent was more responsible for the colour. Taking the Fern-leaved varieties as they were first sent out, there were two white and red; the latter was of rough habit while the white was dwarf and compact. By carefully selecting and re-crossing we had not only a red and white of good habit, but also all the intermediate shades, including the striped and mottled. The semi-double varieties also made their appearance, and although not so perfect in form and shades of colour, a gradual advance was made from year to year.

During the first years of my experience, even from the most carefully selected stock, many of the seedlings would revert to the old form with only two lobes to each petal, but eventually it was rare to find any reversion, though some would be of superior form and colour. A similar process was carried out with the—

Cinerarias, only that the main stock for seed consisted of plants of named varieties which were

propagated by divisions; additions being made annually from the most approved seedlings, and also by obtaining seed from other sources; this, though often with poor results, introduced some new breaks, and, perhaps, more sturdy growth.

Pelargoniums.—My first experiment with these proved a great failure. Although I had good material to work from, I made a grave mistake. I crossed the various colours indiscriminately, the result being that most of the progeny produced washed-out colours; this proved instructive. In my next venture, I carefully avoided crossing distinct colours, there being already sufficient of the intermediate shades. I selected of good habit and well-formed flowers, and fertilised them with pollen from those of more distinct or brighter shades, the result being much more satisfactory, but I lost sight of most of these, as the death of Mr. G. Parsons, which occurred about this time, resulted in the whole of the nursery-stock being sold off, and thus ended my first and most interesting series of experiments in plant-breeding. I was, however, able to keep sight of one of the Pelargoniums, which eventually gained a First-class Certificate from the Pelargonium Society in about the last year of that Society's existence.

Begonias.—The events referred to above, also broke off my first start in crossing Begonias, but not before I had made one very distinct cross; this was by the employment of the pollen of *B. boliviensis* on *B. insignis*, which might be considered a "hybrid," for the parents were very distinct species. Although the best of these seedlings were lost, I was able to secure a plant from a friend after I went to Chiswick, where, under Mr. Barron, I again started crossing, but the hybrid referred to above, proved, like the beautiful Gloire de Lorraine, perfectly abortive, both in regard to pollen and pistillate flowers. I made many attempts to raise seedlings from *B. Moonlight*, for although there was no pollen, the female flowers appeared perfect, yet though I took pollen from various sources, all proved a failure to raise seedlings. I was, however, more successful with the tuberous section, and the Chiswick collection at that time being one of the best, I had good material to work from, the result being that thirteen First-class Certificates were awarded at one meeting of the Committee, but all of these have now long been superseded by the magnificent varieties of the present day.

I have found in the course of my experiments that there are some varieties which prove far better as seed-parents than others, which from appearance should be equal. In Begonias, one of the earliest which almost always gave a good percentage of fairly good flowers, and was the parent of some of the best raised at that time, was *Oriflamme*; while other varieties, equally good in themselves, rarely gave good results from their seedlings. It is this point which gives those who remain in the same field so great an advantage over those who move about.

Carnations.—In these plants I have found somewhat similar results as with the Begonias. Of those I have raised some of the best came from Winter Cheer. I used the pollen of Uriah Pike on Winter Cheer long before Uriah Pike was in commerce, securing a bunch of blooms from the market for the purpose. Although it would be difficult to entirely supersede this fine crimson, I think Countess of Warwick, which proved the best of three years' re-crossing, has several points in its favour, being nearly as dwarf as Winter Cheer, free-flowering, and of a rich claret-crimson. It is a curious fact that I never was able to get a good pod of seed from our old favourite, Miss Jolliffe. I have worked on a number of plants, always with the same result—failure. Even the large double flowers of the Malmaison section are more prolific, thus proving that it requires careful observation, and some knowledge of the material you are working on, to prove successful in cross-breeding of all sections of plants, and although some success may

attend first attempts, the net results will be very small compared with those who have followed a long series of observations and experiments.

One great misfortune in the raising of seedlings is, that in many instances the number of plants obtained is so great that there is a difficulty in giving them all a fair trial. The specialist knows at an early stage, to some extent, what he may discard; but it is not so with the less experienced, and although it may be very fascinating to go in for a number of subjects, those who confine themselves to some particular class or classes, as room permits, generally attain some success. *A. Hemslay.*

M. LATOUR MARLIAC'S WATER-LILIES.

No more remarkable results of cross-breeding and hybridisation have been gained than the series of

not appear to have ever been so much as thought of. On the continent, on the other hand, height-growth is the first thing the forester concerns himself about after he has planted his trees. Get height-growth, he says, and the rest will come. Height-growth has the same significance as "drawn up," an expression well known to gardeners, who seldom want height-growth in their productions, as that, as a rule, would be against the object they have in view, which is lateral development in trees and bushes and in fruiting plants, crops. The editor may perhaps remember me writing to him a year or two back on this subject, and asking for explanations of a puzzle that physiologists have not yet solved, viz., how trees in crowded woods, dells, and ravines, get pulled up at such an extraordinarily rapid rate compared to isolated trees in the open; and how more timber is produced to a given area in that way than when the trees are grown wide

projecting considerably beyond the last support, and the "spring" of the pole is worked to drive the sinking apparatus up and down, a man working the pole.

Some time ago your well-known correspondent, Mr. Burbidge, sent me a pen-and-ink sketch of a section of a ravine planted with Scotch Fir, near Newry in Ireland, that would have illustrated my meaning well, but a type-writing company lost it, to their cost and mine too. This sketch showed the Firs as tall as masts in the bottom of the gully, and those at the top, in the exposed field on each side, rough-branching specimens, unfit for anything but firewood, and about half the height of the others. That is height-growth! The Douglas Fir pole at Kew is another fine example of height-growth. It is about 160 feet high, and only just a little less in girth at the top than at the bottom. How a timber merchant's mouth would water over that pole! He could enter his saw at one end and cut one continuous plank out of it 55 yards long, with very few knots. I have twice measured the Douglas Fir specimen at Dunkeld, planted about 1845, and now containing well on for 100 cubic feet, and compared it with the Kew pole, much to the disadvantage of the former, for whereas the first represents a perfect timber tree, the other, from the same point of view, is an abortion of the candle-extinguisher pattern, having every fault that a trunk of timber can have—viz., too much taper, and a multitude of coarse knots over its entire surface. The opinions of the saw-mill man and the forester—as distinguished from the tree-lover—are sadly at variance on such subjects. When the Royal Scottish Arboricultural Society visited a certain estate in Ireland, the proprietor took pride in showing the visitors two favourite trees of the umbrageous type, more limbs than trunk; and was shocked by hearing a timber-merchant, member of the Society, whisper to another, "Two brutes!"

If only the importance of height-growth in forest-trees was better understood, there would be more glens and ravines planted than mountain-tops, and our woods would be dense everywhere. The common Alder grows about 40 feet high in the open, and is a rough tree, but attains to 60 feet and 70 feet in a plantation of the taller-growing Oak and Ash, that pull it up. The Elm is said to double its height or more under the same conditions, and the Birch does the same. The common Hawthorn, as everybody knows, does not greatly exceed the dimensions of a bush in the open field, but I have seen it 40 feet high, with a perfectly straight stem, in an old Oak wood. I left it standing, but it blew over soon after its neighbours were felled. The height-growth of all plants as well as trees is influenced by the same conditions. About twelve years ago I planted a long plantation of Firs and other species on very rough ground, where Brambles, Nettles, rag-weeds, Thistles, &c., abounded, and it has been interesting to watch the struggle for existence among the weeds and trees. The trees were planted 3 feet apart, and have not yet been thinned. The first few years the weeds and rank grass had to be beaten down to give the trees a start, otherwise they would have been smothered. After they got the lead, however, it was the turn of the weeds to fight for their existence. In many places these have quite succumbed, the ground being now bare under the trees; but the weeds named struggled on for years, and many that I measured lately were from 6 to 8 feet high—a height far exceeding their usual growth in the open. They were, of course, very attenuated, and could not have held their heads up but for the shelter the trees afforded them. The Bramble, which previously seldom rose above 2 or 3 feet from the soil, I found last year overtopping some of the trees about 14 feet high, struggling to reach the light, just like the Potato mentioned by Dr. Lindley, which, lying in a dark cellar, pushed a shoot some 12 feet long, till it reached a hole in the wall, where the light came through. The common Bracken, however, beats all other plants for

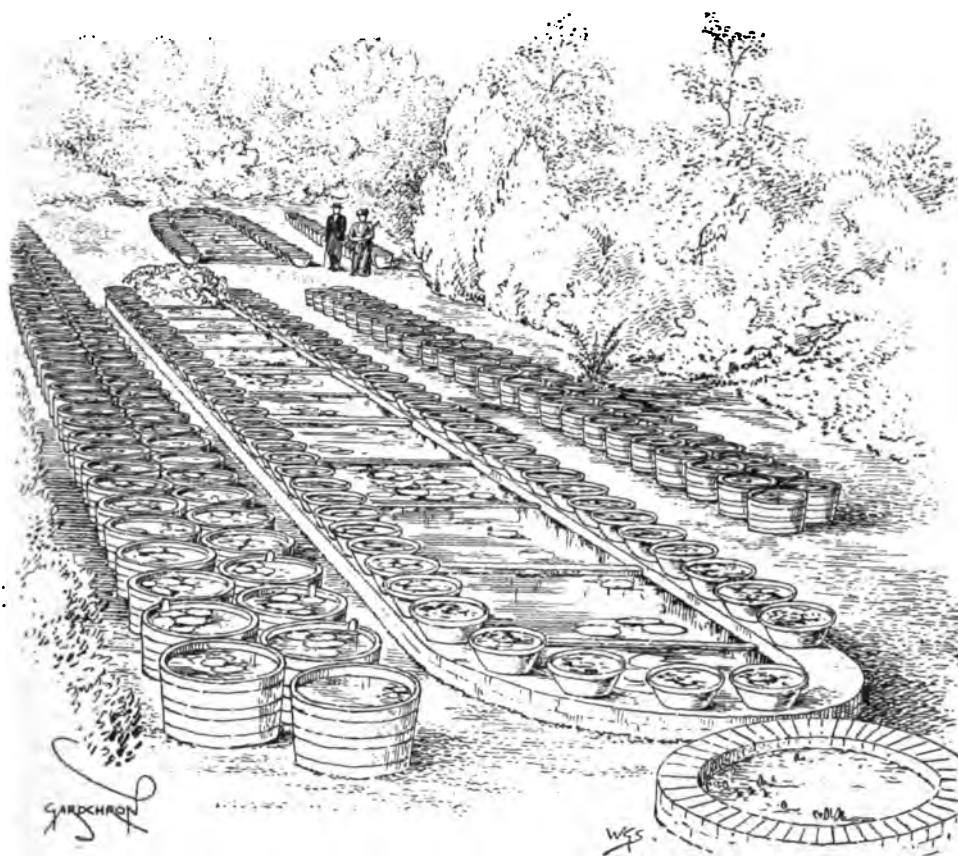


FIG. 65.—NYMPHÆAS AT M. LATOUR-MARLIAC'S ESTABLISHMENT, TEMPLE-SUR-LOT, FRANCE.

hardy Water-Lilies raised and sent out by M. Latour-Marliac. We have repeatedly had occasion to call attention to their extreme beauty, and those who visited the Conference on Hybridisation at Chiswick in July last will remember the magnificent display of these flowers made by Mr. Hudson from the gardens of Baron Rothschild. We are indebted to Mrs. Hampson for the opportunity of giving an illustration showing the means adopted to propagate these remarkable plants.

FORESTRY.

HEIGHT-GROWTH IN PLANTATIONS.

THE term "height-growth" in forestry is derived from the German. Neither the words nor their meaning have ever had any significance in British forestry practice, and the importance of height-growth as a factor in the production of timber does

enough apart to develop to their utmost extent? Let me give an example or two. For over thirty years I have watched the gradual filling up of a precipitous narrow gully with trees, and marked the comparative progress of the trees on the steep sides of the gully.

At first, when the ravine was planted, a section of it would have appeared like the letter V with the plants (all then about the same size) on each side. But gradually, as the trees grew, the acuteness of the angle of the V grew less and less, owing to the trees lower down growing faster than the trees higher up, until now the tops of the trees are nearly level across the ravine. At the top edge of the cliff the trees are short, and in the bottom tall and cylindrical, and by far the more valuable. We have frequently wanted very long larch-poles for sinking purposes, for minerals, and all the poles have been got from this wood. This will show that the timber is tough and of good quality. The poles are laid over tressels with the long point

asserting itself in a crowd. I have seen it on the bleak hills of the Isle of Man, not exceeding 6 or 9 inches in height; but hereabouts it keeps pace with young plantations for years, if it can get the end of a frond out to the light. Fronds 7 and 8 feet long are common in the woods, and we once found one 12 feet long in a thicket of underwood. It was tied to a rail and taken care of as a curiosity.

A belief exists among some foresters that girth is sacrificed to height-growth when the latter is prolonged, and it is that notion that has led to such severe thinnings in this country. No doubt the drawing-up process may go on too long, but it is surprising to see how tall all species of trees are allowed to grow in German forests with exceedingly slender stems, and yet become good, thick trees before the end of the rotation period. We do not look close enough into the question of increment in our forestry practice, or we should not be so nervous and generalise so much. So long as a tree lives and has a healthy top, however small, a ring of new wood, however narrow, will be added to the trunk annually; and it is a very narrow annual ring indeed that does not produce a measurable quantity of timber over a tree of fair size. One-sixteenth of an inch to the girth is not much, apparently, but the layer goes round the tree, and over the whole surface of the trunk it means a large addition to the bulk. The telegraph-poles on the highway, and the scaffold-poles we see set up in the streets might read the forester a lesson. Mark their proportions: the 30 or 40 feet telegraph-pole, about 9 inches in diameter, is nearly as thick at the top as the bottom; some are so nearly cylindrical in shape, that the untrained eye can hardly tell the thick from the small end, yet these poles are only part of one tall tree, nearly the same girth throughout, not very old, that never had more than a small tuft of branches at the top to carry on elaboration and growth; and a close examination of a section of such a pole will show that the annual rings are of fair measurable width, and very regular.

The extent to which height-growth is influenced by situation is most frequently noticed by those who have to practice in an undulating country of hill and dale. The difference in the height of the trees and length of bole in different situations, not as regards height above the sea, but only so far as relates to the configuration of the ground, is very remarkable. Even a mere depression in the ground makes a difference, and a marked one.

Not long since I had to value and sell nearly 20 acres of Larch, growing at an altitude of about 1300 feet. The ground was very poor, and consisted of a series of hillocks or mounds, so artificial-looking in shape as to suggest that they had been raised by the hand of man. Both the heights and the hollows were planted at the same time—about seventy years ago; and when I valued them standing, the average dimensions of the trees were about 6 cubic feet, yet the trees ran from 1 foot up to 23 feet, according to the position. An average of the two extremes would have given 12 feet as the general average, but what pulled the average down was the number of stunted short trees that grew on the high and exposed knolls, these seldom exceeding 1 ft. or 1½ ft., and a careful average had to be taken in every part of the wood. The winding narrow gullies everywhere held the best and tallest trees, some reaching a height of 50 feet where they were drawn up. The total quantity of measurable timber estimated in the lot was 36,000 feet, or a little under 2,000 feet to the acre all over, and it fell just a little over the estimate, the most of it going to one consumer for pit work—for about 1s. per foot delivered, the road being bad and long. Roughly speaking, the trees in the gullies would average about 9 cubic feet, and the poor ones on the high ground about 3 feet, a difference due not to soil, but to the comparative shelter afforded in the different positions, and the pulling-up process—the height-growth. The wood had never been thinned, and the tall trees varied greatly in girth.

All were about the same height, but while some did not quarter-girth more than 3 inches in the middle, others would girth double that and more, showing that the height-growth was not due to shelter alone, but to their being drawn up in the struggle to reach the light. *J. Simpson, Wortley, Yorkshire.*

THE BULB GARDEN.

GALTONIA HYBRID (PRINCEPS × CANDICANS).

SEEDS from the above cross were sown less than two years ago, and already the most advanced bulb is in flower, with a fine scape 4 feet 6 inches high. It shows a hybrid which is very nearly intermediate in character between the parents. The scape evidently partakes of the greater height of *G. princeps*, while in foliage, if much difference can be detected between the parents, it partakes rather of *G. candicans*, especially in the somewhat greater glaucousness of the species.

In the flowers, hybridity is clearly evident. They are of paler green than those of *G. princeps*, and may be described as tinted all over with green. The perianth segments are less spreading than in *G. princeps*, but decidedly more spreading than in *G. candicans*. The intermediate character, or at least, the hybrid character, is easily shown by measurement. In *G. princeps*, the perianth segments are shorter than the tube; in *G. candicans* they average a quarter of an inch longer, while in the hybrid they are an eighth of an inch longer, or, it may be said, that in *G. candicans* they are half as long again as the tube, while in the hybrid they are about a fifth as long again.

Whether the hybrid will be of much horticultural value remains to be seen, but there may be those who can appreciate a plant rather like *G. candicans*, but taller and with flowers delicately tinted with pale apple green. *G. princeps* does not appear to be much cultivated. Here, it is perfectly hardy, but I find its chief use to be in the conservatory; where, in spring or early summer, several scapes from an 8-inch pot reach a height of nearly 6 feet, and are striking to all. They are distinctly ornamental, though the flowers are but green. Does anyone now cultivate *Galtonia clavata*, *Gardeners' Chronicle*, 1884, Sept. 27, p. 401? *R. Irwin Lynch, Botanic Gardens, Cambridge.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Odontoglossum crispum.—In comparison with the number of growers of this popular species, those who attain satisfactory success are exceedingly few. A mistake frequently made by cultivators is that of treating the plants rather as if they were aquatic than plants which grow naturally on trees more or less bare. Complaints have been frequent this season that *Odontoglossums* have shrivelled greatly owing to the unusually hot weather, and in attempting to remedy this, many growers have given the plants too much water and shade, which, I believe, has more often than not defeated the end in view. An excess of moisture in the pseudo-bulbs is decidedly disadvantageous to the plants, but a little shrivelling is more a blessing in disguise than an injury. Now that cooler conditions prevail, the pseudo-bulbs will soon regain their former plumpness, and commence to root anew. The operations of repotting or resurfacing of *Odontoglossums* should not be performed at any one particular period. Instead of this, examine the plants repeatedly during the next two months, and select those the young growths of which are in that condition that new roots from their base may be confidently expected to follow the operation. Pots and pans of various sizes are used with success by different growers, though the larger the receptacle and the greater the body of material it contains the greater will be the care necessary in the important matter of watering. A plant that is in good health, and has room to develop, need only be relieved of a portion of the old surface material, and given fresh peat and living sphagnum-moss; but those in bad health, or

any that require more pot-room, must be repotted. Those in ill-health should be shaken out, and the roots washed in tepid water. Cut away all dead roots, and fix the plants in pots just large enough to hold them. These pots should be two-thirds filled with drainage material, and the compost about the roots of the plants may be peat and sphagnum-moss in equal proportions. Healthy plants that need be moved on merely, should be turned out of the pots, when much of the old potting material may be removed; also, any of the old pseudo-bulbs that are of no further use to the plant. Afterwards, fix the plants in clean pots that will be large enough for the two seasons following. The base of the plant should be just above the level of the pot. The drainage material may be broken much more than is generally the case for other Orchids, and the peat and sphagnum-moss should be used separately, when it will not retain moisture so long as if mixed together before using. For some time to come, the temperature must depend largely on outside conditions; and so long as the night temperature does not recede much below 50°, the ventilators may be left open. Only sufficient water to keep the sphagnum-moss alive will be necessary for some time to come. *O. Pescatorei*, *O. triumphans*, *O. luteo-purpureum*, *O. Sanderianum*, *O. odoratum*, &c., should be treated in the same manner.

Odontoglossum Rossii.—No one but the inexperienced would take exception to the bulbs of this species shrivelling during dry, hot weather, as they are subjected to such conditions in their natural habitats, and apparently are benefited thereby. The plants thrive well when grown in baskets, and suspended over the other cool *Odontoglossums*. At this season they may be removed to larger baskets, or re-surfaced only as each may require. When about to give new baskets, the bars of the old ones should be removed separately, and with great care, to prevent injury resulting to the clinging roots. Then place the plants in the new ones, and insert amongst them plenty of drainage material and a small quantity of peat and living sphagnum-moss.

Odontoglossums Erstedii and *Cervantesii* should be grown in pans and suspended. In order to obtain nice specimens mound them up as much as possible, and give extra drainage material. Excepting when rooting freely, these two species thrive best under moderately dry conditions.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. R. FORTESCUE, Esq., Drogheda, Maldenhead.

Strawberries.—If a mulch of short manure was provided after making new plantations of Strawberries, this will help to shade the soil, and thus prevent evaporation; but waterings may be necessary also until the plants have become established. All runners that form must be pinched off immediately. In some districts mildew has spread badly over Strawberry-plants, in beds and in pots. The best remedy is to syringe the leaves, &c., with a solution of Gishurst Compound, or a mixture of scap-water, at the rate of 2 oz. of soft-soap and 4 oz. of sulphur to 3 gallons of water. Dissolve the soap in a small quantity of hot water, and with this mix the sulphur, afterwards adding clear water to the required strength. Rain or pond-water is the best for this purpose. Some provision should be specially made now by setting out plants for furnishing runners for next season's layering, as it is not desirable to obtain these from the fruiting quarters. Young plants to the number required should be set out in a convenient position for layering next year, and each plant will probably produce at least three or four strong runners. We utilise for the purpose the borders near the margins of the paths in the fruit quarters. In the spring, the flower-trusses should be pinched out as soon as they appear. If such borders be not available, ground from which Potatoes have been lifted may be used without further preparation, other than levelling and making it firm. Plant them 12 inches asunder in lines 3 feet apart, to allow of room for the work of layering. Where forced plants of *Vicomtesse H. de Thury* and *Royal Sovereign* were planted out early, some second crop fruits will now be ripening, and if these are required for use, they will need to be protected from birds by garden netting, and the trusses of fruit should be propped up with forked sticks to keep them from the ground.

Gathering Peaches.—Now that fruits are ripening fast the trees should be looked over daily, or at least every other day, and those fruits that come away easily be gathered and placed on wadding on the shelves of the fruit-room. With a little practice those fruits that are ready may be easily selected without any squeezing or hand pressure on the fruits. Bruises soon show badly after the fruits are gathered. A box, with a sheet of cotton-wadding and soft paper in the bottom, should be taken to the trees to place the fruits in. Going over the trees in this way is less trouble than suspending netting to catch the fruits, and the flavour is usually much better than when the fruits are allowed to become fully ripe and drop from the tree.

Protecting Apples and Pears.—Of late years it has become absolutely necessary to protect by some means the choicest fruits of Apples and Pears from the ravages of Birds. Blackbirds and thrushes are the worst to Apples, but no birds are so destructive to Pears as the small tits. These small tits attack the fruits near the stem, and fly from one to another until the crop is ruined. Thin muslin or canvas bags are cheap, and may be quickly put on. If the string be fixed to the branch, the fruit, should it part from the stem, will be caught in it. Round pieces of cardboard with a small hole in the centre, and from this slit to the edge, will enable it to be slipped over the stems of Pears, and if pinned together after will keep the birds from the part usually eaten. The celluloid protectors of the Rev. Barnley-Smith, which have been figured in the *Gardeners' Chronicle*, are apparently valuable protectors, and when they can be produced cheaply will probably be much used. I am giving them a trial, and will report later. [Please do so. Ed.]

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester

Watering.—The last month has been the hottest and driest for many years, and flowering plants, such as Lobelias, Phloxes, Salvias, Nicotianas, Verbenas, Pansies, Violas, and late-flowering annuals, have suffered greatly, although liberally supplied with water. All moisture-loving plants, as Spiræas, Hellebores, Ferns, and many other occupants of the rock and alpine gardens, should be given an abundance of water at the roots, unless there be rain.

Narcissus.—Bulbs that were lifted in July and stowed away should be replanted as early in this month as possible, and if the present supply be not large enough, a catalogue should be obtained, and orders given without delay. Narcissus may be planted as late as November with very good results, but there is a decided advantage in planting them in September. Narcissus may be grown successfully in almost any position, and the stronger-growing varieties, such as N. Emperor, Empress, Horsfieldii, Sir Watkin, Golden Spur, Henry Irving, Grandee, Obvallaria, M. J. Berkely (very fine), Glory of Leyden, and Johnstone's Queen of Spain, have a pleasing effect when planted in grass or under deciduous trees; but in no case place them where the main roots of trees are near to the surface or above the ground. Nor is it of use to plant bulbs too near the stem of the tree, or where heavy drip may damage the flowers. In the herbaceous borders they make a pretty show of flowers in spring, when placed in irregular masses, and if the spots chosen have annuals planted near them, it will take off the bareness of the ground when the Narcissus foliage dies down, and shelter the bulbs when resting, as the roots will absorb the moisture on the surface. N. incomparabilis and the Barrii sections have star-like perianths, cups well expanded, edged with orange and orange scarlet. The Barrii section should be given a high position partially shaded, so that they may escape as much as possible from the frosts, otherwise the colours will be less brilliant. N. triandrus albus, concolor, calathinus, pulchellus, and the Bulbocodium section, citrina, and monophyllus, are gems for the rock-garden. N. odoratus (the Campenelle Jonquil) is a free-flowering variety, most useful for cutting purposes, and succeeds well in the woodlands and on grassy banks.

Suitable Soil and Planting.—Narcissus will thrive in almost any good loamy soil devoid of fresh stable manure and peat; but where the soil is of a

wet, clayey nature, it is best to remove this away entirely to the depth of 12 inches, and replace with some good loam. When planting in grass, if the soil is of a dry, sandy, and poor nature, the turf should be removed, and some good bone-meal or basic slag mixed with the soil, allowing about 2 oz. of the former and 6 or 7 oz. of the latter to the square yard. The turf should then be relaid, and a hole dibbed through this to the depth of 6 inches, and filled with some good loam; then press the bulb firmly into the soil, and cover over. Thus planted, they may remain to advantage in the same soil three or four years, and if placed at distances of 5 inches or more, they will multiply readily.

FRUITS UNDER GLASS.

By W. STRAUGHMILL, Gardener to Lieut.-Col. RALPH VIVIAN, Road Ashton, Trowbridge.

The Early Vinery.—Strict attention must be given to supplying the necessary moisture to the borders. Those that are filled with roots, or have done duty for a number of years, will be benefitted by applications of manure water, or dry manure purposely prepared for Vines and other fruits. This will strengthen the roots, and enable the Vines to store in the embryo buds material for a vigorous start in the new year. Do not allow the borders to become dry as soon as the crop has been cleared from the Vines, neither allow superfluous laterals to grow. Shorten the fruiting laterals gradually, so that the basal buds, which will be the actual fruiters next season, may derive all possible benefit from the autumn sun. During such tropical heat, Vines with roots in outside borders would be helped by a surface covering of straw manure. Borders having hard baked surfaces, need to be lightly pointed over before watering, and if a good thickness of straw litter is at once placed over this, the moisture will be retained over a much longer period. Now the Vines are free from fruit, steps can be taken to rid them of insect enemies. Water, or soap-suds from the laundry, heated to 145°, form an excellent remedy for mealy-bug and thrips, but one application alone is insufficient. The Vines should be syringed right and left, wetting thoroughly the foliage, rods and spurs. In bad cases, a little soluble petroleum would render the remedy more certain. The same remedy will destroy mildew and red-spider. A fairly coarse roset-syringe is the best means for applying hot water. Mildew often comes from dryness at the roots, and those troubled with it ought to satisfy themselves that the roots are well soaked to the whole depth of soil from now onwards.

Later Vineries.—With continuous sunshine, it is difficult to keep down the temperature of the vinery, despite all-night ventilation. Lateral growth should be allowed to extend with little more freedom over ripe Grapes, and those nearly ripe. Roofs furnished with large squares of glass, and lightly timbered, may be given a light shading of whitening mixed with milk. Lime is neither good for the paint or the glass. Black Grapes soon lose their colour if there is not sufficient foliage to shade them; and white ones unduly exposed become shrivelled or scalded. The fullest ventilation will be required in the daytime, but reduce it slightly at night, to prevent moisture condensing on the Grapes. The night dews are heavy, and with open ventilators moisture may settle on the bunches, unless a little warmth from the pipes is given. Wasps and bluebottle-flies are becoming troublesome, and a stock of Scott's or Davis's Destroyer ought to be at hand, applying a little from a pointed stick to the partially-eaten berries. Muslin tacked over the ventilators will keep them out; but later, when the weather is less clear and settled, it tends to check the passage of air. Robins give a good deal of trouble in the autumn, and should either be trapped, or kept out of the house by means of fish-nets hung over the roof and front ventilators.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Onions.—As the land on which Onions have been grown will probably be required for spring Cabbage, the crop should be pulled, dried, and stored as soon as growth has ceased. After pulling them up, let the bulbs lie upon the ground for a few days fully exposed to the sun, turning them over at intervals

if needed. When they are properly fit for storing, remove all thick-necked ones and put them aside for immediate use. Those remaining should be laid in a dry, airy shed, or they may be roped and tied to the roof of an open shed, where they will keep sound for weeks. But never put them away whilst damp.

Cabbages.—If it is intended to cultivate Cabbages upon land that has been occupied with Onions, and the land for the latter crop was thoroughly trenched and heavily manured last winter, no preparation in the way of digging, &c., will now be required. Merely hoe and rake over the surface, and draw shallow drills. Do not omit to plant plenty of that useful early Cabbage, Ellam's. These may be put 12 inches apart in the rows, and 15 inches from row to row. The later and larger varieties should be allowed more space. Continue to water the seed-beds if it be necessary. It is not yet too late to sow seed, and plants from a sowing made now would be useful for spring-planting, to follow the earliest batch of Ellam's, which might be cut, and the ground at once cleared for other crops, leaving some of the later for sprouting purposes. A few of the red pickling Cabbage should be planted at one side, as these will have to stand till the following autumn.

French Beans.—A good batch of some of the best dwarf Beans should be sown in pots, filled three parts full with a mixture of loam and manure. They may be kept out-of-doors so long as the weather keeps warm. Small Beans will be found useful when the outside crop is over. Do not let the pods upon Beans out-of-doors become stringy before they are gathered.

Celery must be given every possible attention. Thoroughly deluge the trenches with water and liquid-manure alternately. Earth up the plants at intervals, and take great care to keep the hearts free from soil, avoiding at the same time the mistake of putting too much earth to the rows at one time. Plants that were earthed up partly some time ago will still need water, but it must be applied in such a manner that the soil will not be washed into the hearts of the plants. A good plan is to make a trench 6 inches away from the plants, and then soak them thoroughly, filling up the trenches several times before putting back the soil.

PLANTS UNDER GLASS.

By C. R. FIELDER, Gardener, St. James's House, Malvern.

Hydrangeas.—To obtain dwarf plants for flowering in late spring, cuttings should be taken at the present time; these should be selected from plants now in the open air, whether they be planted out permanently, or plants in pots which have been removed out-of-doors since flowering, and which have not yet been cut back. Choose strong shoots which, by reason of the shortness of the last few joints, indicate that flower-buds are in course of formation. Remove them below the third joint, and after taking away the lowest pair of leaves insert them singly in 3-inch pots filled with sandy soil. Place them under a handlight in a cool house, keep the air close, and afford shade during sunshine. When the cuttings are sufficiently well rooted remove them from the handlight, and in a few days transfer them to a cool frame, which should be ventilated freely. They may be wintered in any cool structure from which frost is excluded, and towards the end of January shift them into 5 or 6-inch pots. Afterwards place them in an intermediate temperature, and they may be expected to flower when from 12 to 15 inches high.

Centropogon Lucyanus.—As this useful winter-flowering plant completes its growth, it should be afforded plenty of light and air. The flowers will then be produced along the greater portion of the gracefully arched branches. When well grown the stems are sufficiently strong to be self-supporting without the aid of stakes, and the plants are most effective when thus grown; but if staking be unavoidable, use only one stick to each plant, and loosely aling the stems to this by thin strands of raffia. Being a free-rooting plant, the pots will soon become full of roots, and manure-water will be then required. When in bloom, the plants should be placed in the driest part of the house, as the flowers are inclined to damp off if subjected to a close moist atmosphere, or if the water from the syringe be allowed to fall upon them.

APPOINTMENTS FOR SEPTEMBER.

MEETINGS.

TUESDAY,	SEPT. 5	Scottish Horticultural Association.
TUESDAY,	SEPT. 12	Royal Horticultural Society's Committee.
TUESDAY,	SEPT. 12	Royal Horticultural of Ireland.
TUESDAY,	SEPT. 26	Royal Horticultural Society's Committee (Vegetable Competition for "Sherwood Cup").

SHOWS.

FRIDAY,	SEPT. 1	National Dahlia Society's Show at the Crystal Palace (3 days).
WEDNESDAY,	SEPT. 6	York Florists' Exhibition of Dahlias.
THURSDAY,	SEPT. 7	Dundee Horticultural Society's Exhibition (3 days).
THURSDAY,	SEPT. 7	Cambridgeshire Horticultural Society's Exhibition at Cambridge.
WEDNESDAY,	SEPT. 13	Royal Caledonian Horticultural Society's Show in the Waverley Market, Edinburgh (3 days).
TUESDAY,	SEPT. 19	National Dahlia Society's Exhibition at the Royal Aquarium (2 days).
THURSDAY,	SEPT. 28	Royal Horticultural Society's Show of British Fruits at the Crystal Palace (3 days).

SALES FOR THE ENSUING WEEK.

MONDAY,	SEPT. 4	Dutch Bulbs, at Protheroe & Morris Rooms.
TUESDAY,	SEPT. 5	Dutch Bulbs, at Protheroe & Morris Rooms. Clearance Sale of Stove and Greenhouse Plants and Effects, at Devonhurst, Duke's Avenue, Chiswick, by Messrs. Protheroe & Morris.
WEDNESDAY,	SEPT. 6	Dutch Bulbs, at Protheroe & Morris Rooms. Great Trade Sale of Winter Flowering Heaths and other Plants, by Protheroe & Morris, at the Longlands Nursery, Sidcup, by order of Messrs. Gregory & Evans.
THURSDAY,	SEPT. 7	Dutch Bulbs, at Protheroe & Morris Rooms. Great Trade Sale of Palms, Ferns, &c., by Protheroe & Morris, at The Page Green Nursery, South Tottenham, by order of Mr. G. Rochford.
FRIDAY,	SEPT. 8	Dutch Bulbs, at Protheroe & Morris Rooms. Imported and Established Orchids, at Protheroe & Morris Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period August 20 to August 26, 1899. Height above sea-level 24 feet.

1899.	AUGUST 20 TO AUGUST 26.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			AT 9 A.M.		DAY.	NIGHT.	RAINFALL.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.
			Dry Bulb.	Wet Bulb.						
SUN. 20		N.N.E.	69.1	68.0	74.9	53.5	...	66.3	65.1	62.1
MON. 21		E.N.E.	62.0	55.5	73.8	48.2	...	65.5	64.9	62.1
TUES. 22		S.E.	63.0	58.2	75.1	45.0	...	64.9	64.7	62.1
WED. 23		S.E.	68.4	62.4	79.1	50.9	...	64.9	64.3	62.1
THU. 24		S.E.	70.9	64.7	85.5	60.5	...	66.0	64.5	61.9
FRI. 25		S.E.	79.9	68.3	87.1	55.9	...	67.1	64.7	61.9
SAT. 26		N.N.E.	70.1	61.7	82.1	51.5	...	67.9	65.1	61.9
MEANS...		...	69.1	61.5	79.7	52.2	Tot.	66.1	64.8	62.0

Remarks.—The weather has again been very hot and dry, with high winds, mostly from the south.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—69.4°.

ACTUAL TEMPERATURES:—

LONDON.—August 27: Max. 75°; Min. 61°.

PROVINCES.—August 30 (6 P.M.): Max. 66°, South Coast; Min. 56°, Shetland.

Fine—warm—heavy showers.

HENRI
VILMORIN.

THE announcement of the death of HENRI L'ÉVÊQUE DE VILMORIN on Thursday the 24th inst., in his 57th year, will come as a sad shock to his many English friends. He was one of those then young horticulturists, who, like EDWARD ANDRÉ and EDWARD PYNAERT, first became generally known to their British colleagues at the great Exhibition and Congress of 1866, when foreign visitors were present in much larger numbers than at any other subsequent time. From that time to this, HENRY VILMORIN, as he liked to be called, has been, as it were, one of us, visiting us frequently, taking part in most of our great exhibitions and conferences, speaking our language fluently, a member of our societies and clubs, a contributor to our charities. Some of us have not

HENRI DE VILMORIN trod in the paths of his predecessors, and availed himself, as he was proud to acknowledge, of their observations and of their collections. It must be pointed out, however, that these works are, some of them, mere outlines, which it has been left for the son to complete and fill in. His work, *Les Meilleurs Blés*, richly illustrated with coloured figures, is one of the most carefully elaborated volumes on the subject, and is quite indispensable to the student and experimenter.

The following note addressed to the writer of these lines, shows the principles on which he worked in his experiments on Wheats.

"I have made two series of experiments in cross-breeding Wheats. The one was initiated with a view to raise new sorts with an agricultural,



THE LATE HENRI L'É. DE VILMORIN.

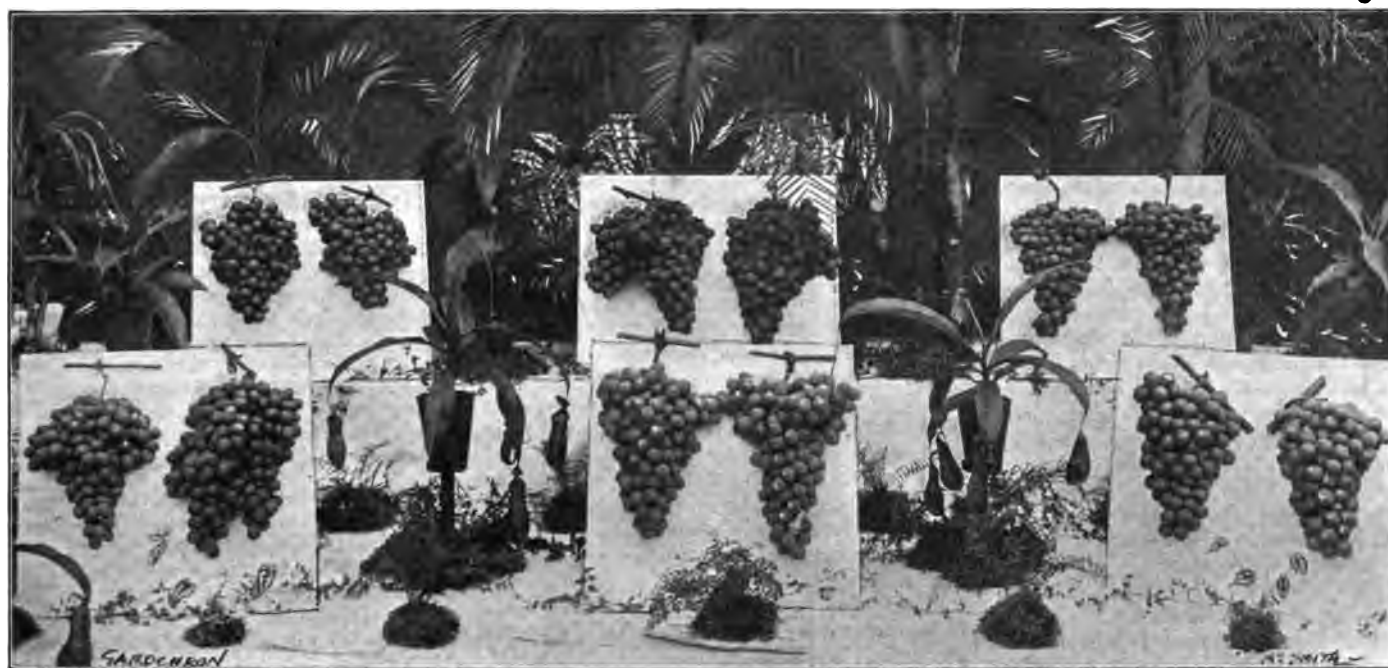
only known him here, but have been privileged for over thirty years to enjoy his hospitality in his own domain, to meet him at many of the principal continental horticultural gatherings, to travel with him, and with him to visit trial grounds and seed farms in Italy and in France, and to maintain a correspondence specially relating to variation, and to the species of Conifers. In these varied circumstances, HENRI VILMORIN was always the same—high principled, conscientious, considerate, unprejudiced—a perfect gentleman.

It is only a few weeks ago that he was among us, and took part in the Hybridisation Conference, giving us the history of his successful endeavour in hybridising the annual Opium Poppy, *Papaver somniferum*, with the perennial, *P. orientale*, or *bracteatum*. He showed coloured drawings and explained the peculiarities of the plants in fluent English (see p. 56, *Gardeners' Chronicle*, July 15). That same evening he spoke at the banquet of the Royal Horticultural Society.

and, consequently, a commercial value different from and, if possible, superior to older kinds. In this line, which was only 'metisage,' as taking place between different varieties of the same species, from *T. sativum*, I obtained a good many new varieties, of which I introduced only three to commercial circulation, one being subsequently withdrawn, while two, Dattel and Lamed, are now gaining favour every year. This line is still being followed up, and I have new hybrids on hand which may be sent out if considered of sufficient merit.

"Now for the other series. Finding the process of intercrossing Wheats easier than I expected, I tried other experiments, with the object of ascertaining whether Wheats belonging to groups, generally regarded as distinct species—*T. sativum*, *turgidum*, *durum*, *Polonicum*, *Spelta*, *amyleum*, and *monococcum*—could be made to intercross, and to give a fertile offspring. The result of those experiments was on several occasions communicated to the Société de Botanique.

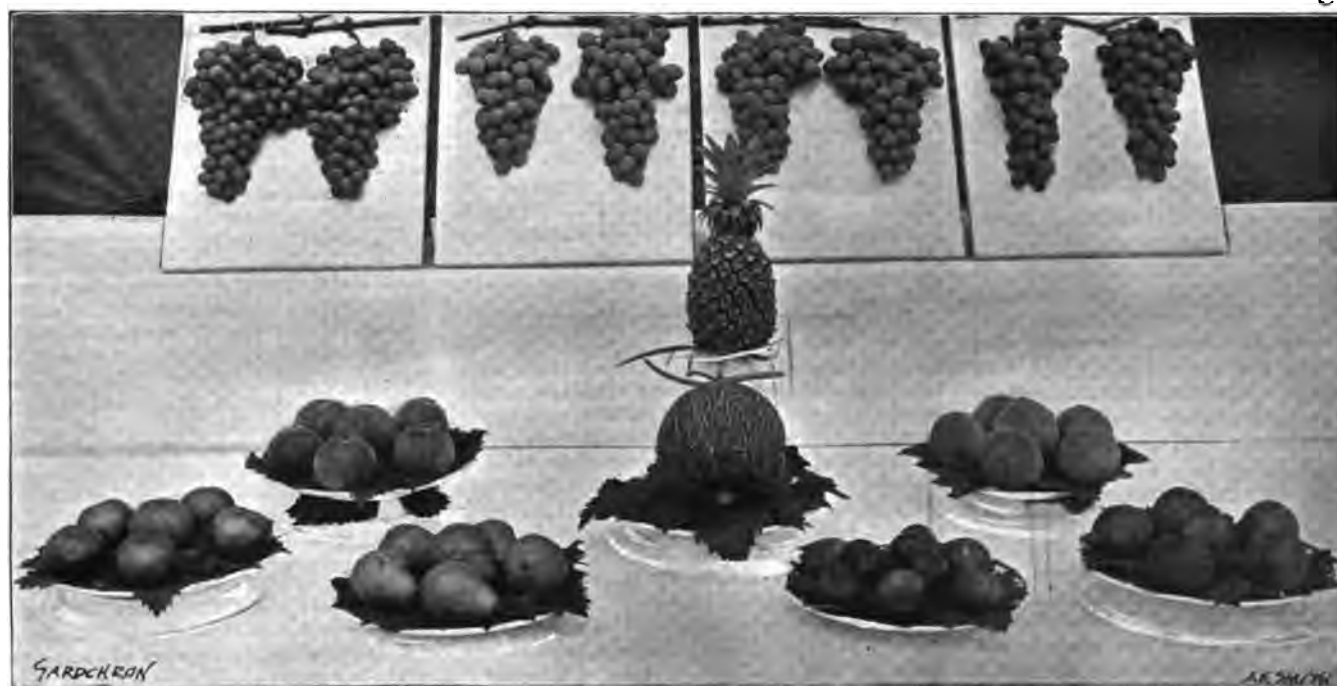
"There is no agricultural use whatever in obtaining a cross with the *T. polonicum*. But as I had



[From a photograph by W. Thurtell, Shifnal.]

FIG. 67.—MR. LUNT'S FIRST-PRIZE EXHIBIT IN THE GREAT GRAPE CLASS AT THE SHREWSBURY SHOW. (SEE P. 176)

The varieties in the front row, commencing above the word "Gardchron," are Muscat Hamburg, Muscat of Alexandria, and Cooper's Black ; and those in the back row, commencing at same point, Black Hamburg, Alnwick Seedling, and Mrs. Pince. The number of points possible was 100, and those gained 96.



[From a photograph by W. Thurtell, Shifnal.]

FIG. 68.—FIRST-PRIZE EXHIBIT IN THE CLASS FOR TWELVE DISHES OF FRUIT, SHOWN BY MR. J. H. GOODACRE, AT THE SHREWSBURY SHOW. (SEE P. 177.)

failed in former attempts to cross this with other Wheats, I was glad to show that the failure had come from imperfect work, not from a physiological hindrance.

"Those people who deny the possibility of such crosses are right, if they mean that no such thing takes place by merely growing two Wheats side by side. But if they will try impregnation by hand, the stamens of the flowers to be acted upon having been previously removed, they will find that nothing is more feasible, and comparatively easier."

It would be tedious to enumerate the many contributions to the literature of horticulture and botany enshrined in the Transactions of various Societies, such as those on the Potato (*les meilleurs Pommes de terre*) and the Chrysanthemum. That he was not an even more prolific writer may be understood when it is remembered that he was the head of the largest and most historic seed firm in France, that he took a principal part in the trials and experiments at Verrières and at Antibes, where he passed the winter supervising the growth of seeds and plants which demand a warmer climate than that of the neighbourhood of Paris. At Verrières, in addition to the trial-grounds, there is a laboratory, a studio, a museum, a printing-office, as well as warehouses. At the Ferme de St. Fiacre the cultivation of the Sugar-Beet is carried on. The increase in the percentage of Sugar in this root is one of the substantial gains due to the VILMORINS.

Abroad as well as at home, VILMORIN was beloved and honoured. He was first Vice-President of the National Horticultural Society of France, a former President of the Botanical Society, an officer of the Legion of Honour and of the "Mérite Agricole." He was a foreign member of our own Royal Horticultural Society, and a recipient of the Veitch Medal in 1896.

The circumstances of his death which we glean from a communication of Mr. ARTHUR SUTTON to the Royal Horticultural Society were very sad. VILMORIN spent the day in his trial grounds at Verrières, and on returning to his house seemed to be in his usual health. In the middle of dinner, however, he complained of pains in the head, and becoming unconscious was conveyed to his room. At ten at night he rallied slightly, but unconsciousness soon set in again, and he died at 1 A.M. on Thursday, the 24th, of effusion of blood on to the brain, doubtless caused by long exposure to the sun during the day. The funeral took place on Saturday last, the only English representative present, owing to the inevitable shortness of the notice, being Mr. ARTHUR SUTTON. The relations between the SUTTON family and that of the VILMORIN's have been intimate during at least two generations, and no better British representative could have been selected even had time permitted. The ceremony was very long, but very impressive. The several French Societies, Horticultural, Agricultural, and Botanical, were represented, and hundreds of friends filed past the bereaved family, first at the house, and afterwards at the cemetery, where as is the custom in France funeral orations were delivered. The trial to the family must indeed have been terrible, but it may have imparted some alleviation to them to know that they have the deep sympathy of the entire horticultural community.

HENRI DE VILMORIN, with his brother, MAURICE, offers a good illustration of the inheritance of intellectual and moral qualities. There is every reason to believe that M. PHILIPPE DE VILMORIN,

the son of HENRI, will be found to have shared the family inheritance like his father and his uncle. The grandfather of HENRI, PHILIPPE VICTOR LÉVÊQUE DE VILMORIN, was distinguished as a student and an experimentalist. To him AUGUSTE PYRAMUS DE CANDOLLE dedicated the genus *Vilmorinia*. He died in 1804. To him succeeded PIERRE LOUIS FRANÇOIS LÉVÊQUE DE VILMORIN, a Correspondent of the Institute of France, who published descriptive lists of culinary plants—*plantes potagères*—of varieties of Wheat, and of hardy flowers, the precursors of the books on the same subjects, and with the same titles, by which his son HENRI has achieved so great repute. PIERRE, or, as he was generally called, LOUIS DE VILMORIN, died on March 21, 1862, in the eighty-sixth year of his age. This was the VILMORIN who contributed to the *Transactions of the Horticultural Society*, in 1840, a paper on the "Improvement of the Wild Carrot," remarkable as showing that the effects produced by abundant nutriment were capable of transmission by inheritance. He also published notes on the improvement of plants by selection, together with considerations on heredity in plants, which are of value now when so much attention is given to the subject. The history of the remarkable arboretum created by him at Barres, and now the property of the State of France, is given in the *Memoirs of the Imperial and Central Society of Agriculture* (1862). A notice of the career and work of LOUIS DE VILMORIN was contributed by DUCHARTRE to the *Journal of the Central Society of Horticulture*, vol. vi. (1862), LINDLEY (*Gardeners' Chronicle*, April 19, 1862) speaks of him as a man of singular intelligence, with a love for scrupulous accuracy in the conduct of experimental gardening.

Madame ELISA VILMORIN, the wife of LOUIS and mother of HENRI, also enjoyed a very high reputation as an experimentalist and an observer. She not only assisted her husband, but conducted original researches, and her powers of observation, says ALPHONSE DE CANDOLLE, "were worthy of the name she bore." Her observations on the Strawberry and its history are classical, and were summarised by DECAISNE in his *Jardin Fruitier du Muséum*. They are accompanied by numerous beautiful illustrations from her pencil. She died at Verrières on August 5, 1868, venerated and beloved by all her large circle of friends for her abilities, her charm of manner, and her benevolence.

REMINISCENCES OF THE SHREWSBURY SHOW. — This week we publish several photographs, specially taken at Shrewsbury, of some of the more important exhibits at the recent exhibition. That which represents the first prize exhibit in the commemorative Grape class may be accepted as a good illustration of the general appearance of the exhibit, with the decorations used in connection therewith. But the Grapes themselves are necessarily so greatly reduced, that their weight and the extreme finish in berry is not so evident. The information published in last week's issue, together with the photograph, will, however, supply those who were not present with a pretty correct idea of the exhibit. The other two photographs represent exhibits from Mr. J. H. GOODACRE, gr. to the Earl of HARRINGTON, Elvaston Castle, Derby, both of which won first prizes in their respective classes. We had also hoped to illustrate the magnificent group of plants arranged for effect by Mr. PETER BLAIR, Trentham Gardens, Staffordshire, but the exhibit contained so much detail that it is next to impossible to do justice to the subject. By the way, it had slipped our memory that Mr. BLAIR won the 1st prize in a similar class at Shrewsbury eight years ago, and twice previously. The 3rd

prize in this class last week was won by Mr. W. FINCH, of Coventry, and not by Mr. VAUSE, as reported last week. Messrs. ADNITT & NAUNTON have obliged us with the following details of the receipts:—Subscriptions, £420; refreshment contracts, £620; sale of tickets previous to show, £521; taken at gates, first day, £879; do., second day, £1852 (increase over best record); sundry receipts, &c., £380. It is estimated, therefore, that the income of the Society for the year will be £4672.

THE FIRST COLLECTION OF ORCHIDS.—The sale of the interesting collection of Orchids made by the late Major MASON, The Firs, Warwick, is announced to take place on the premises on Tuesday, October 11, and two following days, Messrs. PROTHORP & MORRIS being the auctioneers. The collection contains a great number of rare and some unique specimens. Albinos were a special fancy of Major MASON's, and many of the known kinds are represented in the collection, which also includes many fine Cattleyas and Lælio-Cattleyas.

M. LEMOINE'S NURSERY AT NANCY.—For the following note respecting this interesting nursery we are indebted to Sir TREVOR LAWRENCE, Bart.:—"When at Nancy lately I paid a visit to my old acquaintance, M. V. LEMOINE, whom I found hale and well, and as amusing and as interested in his valuable horticultural work as ever. He has some fine new Gladioli (*Nanoceras* type), many of them running into bright violet and blue. His Montbretias, too, are striking, and among them are many large-flowered varieties I had not seen before. He has, among many other interesting plants, an outdoor foliage Begonia, a seedling from B. Dregei, it is believed, with leaves brown above and red underneath. The fruit crop round Nancy was all destroyed by the May frosts. The summer in the Vosges has been and continues the counterpart of that at home, brilliantly fine, hot, and dry, but now it is cool and pleasant."

SCOTCH-GROWN GRAPES.—How is it that the best Grapes come from Scotland? Scotsmen have claimed for years that Vine cultivation has reached a greater degree of success there than in England. Apparently, it is not that they are grown by Scotsmen, for Mr. LUNT, whose success at Shrewsbury last week entitles him to pass as champion Grape-grower for the year, has not a drop of Scotch blood in his veins. The 2nd prize also went to Scotland, and to a Scotsman. Is the air clearer, the soil more suitable, or how may the matter be explained? Perhaps our Grape cultivators in England will kindly enlighten us.

ALWAYS SOME FAILURES!—In a statistical table attached to the report of the Inspector-General in Bankruptcy, we find the number of failures under the Bankruptcy and Deeds of Arrangements Acts, among gardeners, florists, and nurserymen, in 1897, was thirty-six; and in 1898 there were thirty-five. In 1897 the total unsecured liabilities amounted to £26,238, and in 1898 the total was £27,566. It will therefore be seen that, although there was a decrease of one in the number of failures in 1898, as compared with 1897, yet there was an increase of £1328 in the amount of the unsecured indebtedness.

RISKS AT HORTICULTURAL SHOWS.—The catastrophe that overtook the horticultural exhibition in Aberdeen, as reported in these pages last week, has again reminded us of the amount of risk entailed by the exhibition of valuable plants in marquees. After every such occurrence one hears exhibitors declare that some means must be devised to minimise these risks. Horticultural shows are now so numerous that it would be absurd to hope that permanent structures could be provided in each case. There are still means, however, of protecting exhibitors in some degree. They might refuse to exhibit choice plants before a society which has not a sufficient reserve-fund to contribute

a proportion of the damage in case of disaster. Or would a new insurance society better meet the requirements of the case? The risks of a society formed to insure exhibitors against damage to plants during exhibition under tents, judging by past experience, would certainly not be greater than those at present incurred by the society which insures against damage to glass and plants by hail-storms. Perhaps this society might be prepared to take on the suggested business? But if insurance were attempted, it would probably be necessary for the Society to examine each tent before accepting liability in regard to that particular one. Some day, perhaps, the whole question may be solved by the invention of a new kind of tent—one more fitted to combat the elements, and at the same time more capable of proper ventilation than are those at present in use. No one would be better pleased at such a result than the representatives of the press.

CULTIVATED ROSES, edited by T. W. SANDERS, (London, W. H. & L. COLLINGRIDGE, Aldersgate Street). One of the difficulties attending the production of a book on Roses must lie in the

of the book, giving the name, section, date of introduction, colour, habit, requirements, adaptability, and description of the bloom of each of the best known Roses is likely to be widely consulted. The pages of the book devoted to methods of planting and cultivating Roses are perhaps less interesting, though the directions are clearly given. Insect pests are always with us, and the chapter devoted to them is worth the space it occupies. Mention should also be made of the illustrations to the book, which are numerous. A Rose must always make a pretty picture, and those portrayed are no exception to this rule, though they certainly are not specially flattered. In fact, Mr. Sanders has here put forth information acquired by him, and previously tested through the pages of *Amateur Gardening*, of which he is the Editor, and the result is an acceptable book in a handy form, which may instruct the novice, and be useful as a reference to the professional grower.

APPLE CROPS IN THE UNITED STATES.—There have been current such conflicting accounts respecting the probable yield of this fruit in the

author deals firstly with the botanical side of the question, mentioning that caoutchouc or india-rubber is found in certain families of plants, especially the Euphorbiaceæ, Moraceæ, and Apocynaceæ, contained in laticiferous vessels or tubes, which are quite closed, but which, when wounded, exude the milky latex. The trees cultivated in Ceylon include species of *Hevea*, *Castilloa*, and *Manihot*, and these vary, not merely in the quantity and quality of the rubber they yield, but also as regards the ease with which this can be collected. Thus, *Hevea* contains very pure latex, but many incisions are necessary to obtain all the milk; that of *Castilloa* flows more freely, but is less pure; and *Manihot* is inferior both in quality and quantity. Another question is, how to best draw rubber from the trees without unnecessarily mutilating them. The cuts made may be transverse, or V or X-shaped. For *Castilloa* the first form is sufficient, and the cuts may be further apart than in the other varieties; V-shaped incisions are recommended for *Hevea*. The wound made, a specially-shaped tin is affixed above it, and this receives the flow of the rubber. The main trunk and branches of an adult



From a photograph by Mr. W. W. Nunn, one of the joint Secretaries.]

FIG. 69.—FIRST-PRIZE EXHIBIT IN THE CLASS FOR A "DESSERT-TABLE OF FRUIT," SHOWN AT SHREWSBURY BY MR. J. H. GOODACRE. (SEE P. 176.)

choice of a title, the number of such books making the selection of anything original far from easy. The next and far more important problem is to decide how to write such a book without giving information already repeatedly published. Happily there is an ever changing public who need telling old facts in a new form, and, as regards Roses, there are enthusiasts who can never amass too much literature connected with their hobby. Mr. SANDERS produces a favourable impression in his new book. He deals with many branches of his subject, and his writings are those of one with knowledge and authority. To quote the sub-title he gives "an alphabetical list of species and variety grown in this country, with their date of introduction, classes, colours, adaptabilities and modes of pruning; also chapters dealing with insect and fungoid pests, manures, &c." The list of Roses, classified, and with cultural notes, is valuable and up-to-date, mentioning the best of the new Roses, and as we have found by testing it, many old favourites now rarely met with, yet by no means overlooking old and tried favourites. It is so arranged that the description sought, of a Tea, a climber, a pot-grown Rose, or what not, can be found at once by seeking for it under the heading of its most prominent characteristic, or under the general name by which the class to which it belongs is known. The tabulated index of sorts at the end

United States, that we have to day pleasure in giving a few notes from the very latest reports from the Washington Agricultural Bureau. There are but few States from which the intelligence is not even more unfavourable than those previously issued. Taking the fourteen States having 3,000,000 or upward trees bearing at the last census, there was a further decline during June and July of seven points in New York and Tennessee; three points in Pennsylvania and Kentucky; four in Missouri North Carolina and Mass.; and six in Iowa. The condition in Illinois, Indiana and Kansas underwent an appreciable change, and there was an improvement of two points in this, and of three points in Michigan and Virginia. Altogether, the outlook is a bad one.

THE COLLECTION AND PREPARATION OF CAOUTCHOUC.—The commercial value of Caoutchouc renders the selection and treatment of Rubber-trees worth every attention on the part of the growers; and the Royal Gardens, Kew, have for years taken a foremost part in all questions with the botany, cultivation, and distribution of Rubber-trees. The recent experiments carried on in connection with the Royal Botanic Gardens, Ceylon, should prove especially helpful. Mr. F. PARKIN's report upon these trials, published in the *Bulletin* of that Institution, is now before us. The

tree are still considered the most satisfactory parts upon which to operate, as experiments to obtain caoutchouc by tapping the roots, or using the seedlings on the season's crop of young shoots, have not hitherto proved successful. Proper preparation of the rubber has in time past received but too scanty attention. The plan pursued was rough, and resulted in putrefaction, mould, and imperfect dryness. Hevea-milk is now prepared by means of acetic acid or mercuric chloride, both of which have yielded good results, but the latter substance leaves some of the mercuric salt in the rubber, to the possible deterioration of its market value. As regards *Castilloa* rubber, the number of trees in Ceylon is, it is said, too small to make it worth while to use the centrifugal machine, but creaming yields excellent rubber at a small cost. Mould and putrefaction are guarded against by the use of antiseptics, such as creosote and mercuric chloride, and by rapid drying of the rubber on porous surfaces. Such are, briefly, the main points determined by Mr. PARKIN, and detailed in his paper. Still further experiments and investigations are to be entered upon, as those hitherto made have yielded such decided results. It is considered certain that when growers adopt the advice prepared for them, when the selection of the best varieties of Rubber-trees has been made for them, and the methods of treating these and their yields according to their separate require-

ments have been determined with certainty, and widely published, the result will be an improvement in every way. The trees will be economically managed, the rubber collected and treated antiseptically, will be purer than in time past; and, in short, the caoutchouc will be superior, and yet less costly to produce, than that which is at present in the market. These are not the days when cultivators can safely follow the methods pursued by their forerunners; they must remember the competition of the age, and join in it, and in raising rubber or any other produce must keep abreast of the times. Mr. PARKIN's paper is followed by an appendix in the form of a summary by the Director, Mr. WILLIS, who also adds a list of books and pamphlets on the general subject, which will be useful beyond the limits of Ceylon.

"THE FERN BULLETIN."—The July number of this "quarterly devoted to Ferns," is now published from Binghampton, N.Y., by the Fern Bulletin Co. The contents include the third paper, by A. A. EATON, on "The genus *Equisetum* with reference to the North American species;" "Trichomanes peltatum in Japan," by K. MIYAKE; "How to identify Shield Ferns: variety of *Dicksonia*," by W. R. MASCON; "Pteridophytes of Georgia," by R. M. HARPER; and other articles appropriate to the scope of the magazine.

A MALFORMED BEGONIA FLOWER.—M. G. TOURET-GRIGNAN writes from La Varenne, St. Hilaire, the following account of a "*Begonia erecta cristata* (Vallerand type) cultivated in my garden and that has produced a curious flower. Two petals, the smallest, bear at the edge in the middle a small hirsute yellow cushion, exactly resembling a portion of the stigma. The flower is a male one, and otherwise normal. There is no trace of an ovary, and the stamens are normal and as numerous as in the other flowers. I have never heard of analogous phenomena, so think you will be interested to hear of these."

AGRICULTURAL RETURNS OF GREAT BRITAIN, 1899.—From a preliminary statement for 1899, issued on the 29th ult. by the Board of Trade, and compiled from returns collected on June 5, we extract the following:—

CROPS.	1899.	1898.	1897.
	Acres.	Acres.	Acres.
Wheat	2,000,981	2,102,206	1,889,161
Barley	1,982,108	1,908,666	2,085,790
Oats	2,959,755	2,917,760	3,036,056
Potatoes	547,682	524,591	504,914
Clover & rotation grasses:—			
For hay	2,214,883	2,381,551	2,285,965
Not for hay	2,593,068	2,529,799	2,567,843
Total	4,807,951	4,911,350	4,853,808
Permanent pasture:—			
For hay	4,389,025	4,536,315	4,510,333
Not for hay	12,201,662	12,023,077	12,002,585
Total	16,690,687	16,559,392	16,512,918
Hops	51,848	49,735	50,363

THE CHELSEA PHYSIC GARDEN.—We record with pleasure the fact that this historic garden is now to be placed under the care of a curator, owing to the public spirit of several learned societies, and the London County Council, whose determination to maintain the garden we announced some time ago. The person appointed to the position is Mr. WILLIAM HALES, who has been, during the past three years, in the Royal Gardens, Kew, and previously in the Birmingham Botanic Gardens.

PUBLICATIONS RECEIVED.—*Anne Pratt's Flowering Plants*, Vol. II., No. 10.—*Nuovo Giornale Botanico Italiano*, Vol. VI., No. 3, Luglio (Florence).—*Bullettino della Società Botanica Italiana*, No. 5, 6, Maggio-Giugno (Florence).—*Journal de la Société Nationale d'Horticulture de France*, July.—*Agricultural Gazette of New South Wales*, Vol. X., Part 7. This contains notes on a northern tour, taken by the Hon. J. Cook, Minister for Agriculture, for the purpose of inspecting

the farm at Wallongbar, and a tick-infested district in Queensland; the Valonia Oak, and native Food Plants (Part III.), by J. H. MAIDEN; Market in China for our surplus Wheat; Phylloxera in Goulburn Valley, M. Blunro, &c.—*Michigan Wild Flowers, Collected and for Sale*, by W. A. BROTHERTON, Rochester, Michigan, U.S.A.—*Botanical Gazette*, Chicago, July. This issue includes: Studies on Reduction in Plants, Plates I.—VI., G. F. ATKINSON; Flowers and Insects, XIX., Charles Robertson; and Origin of the Leafy Sporophyte, J. M. COULTER.

PLANT PORTRAITS.

ACALYPHA HISPIDA (A. Sanderi), *Gartenflora*, August 15. Tafel 1465.
CATTLEYA DOMINIANA LARGLEYENSIS, *Garden*, August 19.
CHIMONANTHUS FRAGRANS GRANDIFLORUS, *Garden*, August 12.
NEW VARIETIES OF CACTUS DARTIA.—1, Standard Bearer; 2, Ruby; 3, Laverstock Beauty; 4, Arachne. *Iteva Horticola*, August 16.
SOBRALIA LOWI, *Moniteur d'Horticulture*, August.

NURSERY NOTES.

MR. JOHN RUSSELL, RICHMOND.

If anyone has avoided the risk attending the carrying of all of his eggs in one basket, it is Mr. Russell. He has nurseries at Brentwood, in Essex, at Haverstock Hill, in Middlesex, and at Milford and Richmond, in Surrey. These together provide an area of about 200 acres. A week or two ago, yet another nursery was acquired, namely, that known as Spring Grove, Isleworth, which belonged to Messrs. C. Lee & Son. Fine foliage plants are to be made a specialty at Isleworth.

It is however with the establishment at Richmond that we are now concerned, a branch of the business which is under the management of Mr. L. R. Russell; the other two sons directing the business at Brentwood and Haverstock Hill. The Richmond establishment is not one nursery, but it consists of pieces of land separated from each other. The offices and headquarters face the Kew Road, and are the same that formerly belonged to Mr. Steele. There are here a number of glass-houses which are used chiefly for propagating and growing into moderate-sized specimens many species and varieties of half-hardy and hardy ornamental foliage and flowering plants; also numerous greenhouse species particularly adapted for use in furnishing. One of Mr. Russell's specialties is Ivies, grown in pots plunged in the open, so that but little check is given to plants when transplanted. A large number of Ivies is disposed of annually through the trade and to private customers. Indeed, it occasions some surprise to learn the figures, because Ivies, though the most suitable plants for certain positions, should not be planted where flowering plants will succeed. But the variety of form and colour of leaf in them offer the planter the means whereby he may make even an Ivy-covered wall or fence very interesting. Mr. Russell possesses a very pretty variety of Ivy, which bears his name. It has small lanceolate leaves, with broad, creamy-white margins. There are numerous plants also of *Ampelopsis*, *Passion-flowers*, and other climbing plants.

ASPARAGUS AND SEAKALE.

Mr. Russell has a piece of ground at Richmond that has for many years proved to be excellent for the cultivation of Asparagus and Seakale. When we recently saw the Asparagus it was looking very fine, many of the stems being more than 7 feet in height. There is a stock of 100,000 crowns four years old, and ready for disposal during the coming autumn and winter for forcing. There are, of course, successive batches to provide crowns sufficiently strong for forcing next year and the succeeding one.

The Seakale has not made quite so much progress as usual, owing to the drought; still, there is a good stock of plants on the 5 acres under this crop. A new variety here would appear to be deserving of mention. It originated from a chance seedling four years ago, and in colour is between "Lily White" and ordinary Seakale. The special points of the variety are vigour of growth, and a habit similar to that of a self-protecting Broccoli,

though in lesser degree. In place of the petioles of the leaves extending at right angles to the stem, they incurve.

We noticed much Rhubarb of Early Albert and other varieties, all for disposal for forcing.

ORNAMENTAL TREES, SHRUBS, &c.

In several of the nurseries, and particularly in the larger one on Sheen Common, Mr. Russell has a large variety of ornamental trees and shrubs, including flowering species, and those possessing attractive foliage. Of *Ligustrum* we noted several species; the Japanese Privets for instance, varieties of *L. japonicum*. But the feature of the Privets was the large number of the golden variegated variety of *L. ovalifolium*, of which, it is estimated, there are 40,000 plants of saleable sizes.

Rhus typhina, *R. Cotinus*, *R. glabra*, *R. g. laciniata*, &c., all very pretty deciduous shrubs, were noticed in quantity. The *Forsythias*, including *F. Fortunei*, *F. suspensa*, *F. viridissima*, and a variegated variety of the last-named species, are gaining popularity, but not to the extent they deserve. Also a number of fine standards and bushes of the best of the hardy *Acacias* or *Robinias*, including about 1000 fine plants 7 feet high of the well-known *Acacia inermis*, besides *Bessouiana*, and other "Mop-headed" varieties; also *Robinia neo-mexicana*, *pyramidalis*, *hispida grandiflora*, &c. Maples were noted in considerable variety. *Acer virginicum rubrum*, a picture in spring; *A. colchicum rubrum*, most ornamental in autumn, and *A. pseudo-platanus purpurea*, with its leaves of effective purple colour on the underside, and exceedingly ornamental when disturbed by the breeze, are some of the noteworthy ones. A large stock of standard Limes is possessed for street and avenue planting, including a variety with smooth, glossy leaves, and which retains its foliage exceptionally late in autumn.

Hollies and Aucubas being plants which are greatly in request, are kept in extensive "drifts." Of Hollies, Mr. Russell says he has about 200,000; and of Aucubas we saw instances of 7000 plants in a "drift." *Ailanthus glandulosa*, the very popular *Osmanthus* in variety, *Phillyreas*, *Catalpa aurea*, *Daphne Mezereum*, *D. M. alba*, and *D. M. rubra*, *Arundo Donax*, hardy *Yuccas*, *Viburnums*, *Skimmias*, common and uncommon species of *Quercus*; *Olearias*, *Magnolias*, *Eurya japonica* and *E. latifolia variegata* (in large numbers), *Cratægus*, *Cerasus*, and *Berberis*; *Horse-Chestnuts*, *Cornus*, *Beeches*, *Laburnum*, *Pyrus*, *Syringa*, were also among the evergreen or deciduous species of flowering and ornamental trees and shrubs.

When speaking of the "Mop-head" *Robinia* previously, we should have mentioned a variegated form of "*inermis*." From present appearances it will be likely to become very popular for alternating with the green variety in town or suburban gardens.

The American plants, or most of them, are cultivated in the nursery at Milford, and these we did not see. At Sheen, among the Cedars, were some nice plants, 7 feet high, of *Cedrus Deodara* and *C. atlantica*, and a smaller batch of *C. a. glauca*, one of the most effective of all coniferous trees. Paul's double Scarlet Thorn, the merits of which are well known, is grown in pots for use in the forcing-house. The standard Planes were remarkable for their strong, smooth stems, and would make fine avenue trees.

A considerable variety of herbaceous, perennial, and other border plants was observed in one or the other nursery. The ground on Sheen Common contains a fine lot of fruit trees, and we were very much surprised to find upon these a more than average crop of Plums; the bulk of them were Victorias, and there would certainly be some hundreds of bushels. Apples were also good, and rather better than an average crop; whilst Pears were much under, excepting the variety *Jargonelle*.

Mr. Russell cultivates his Roses and many other plants in Essex, and of these we hope for an inspection at a future time. But one thing is very certain, the business is conducted with great enterprise, and is attended with success.

THOMAS LUNT.

THIS successful Vine cultivator, who was quite a hero in Shrewsbury last week, is the son of English parents, who removed to Scotland. He served his apprenticeship at Ardgowan with his father, under whose tuition he obtained a good groundwork in the principles of plant and fruit cultivation. Leaving his father, young Mr. Lunt gained further experience at Dalkeith, Drumlanrig, Thoresby, Mentmore, and Crichel House, all of which are first-class well-appointed establishments. Mr. Lunt was appointed to his present position at Keir eleven years ago, and was there but a very few years before he entered the exhibition field, where he has met with extraordinary success at the shows in Edinburgh of the Royal Caledonian Society, and at the Chrysanthemum shows also in

it seems to luxuriate here (at Burford) in the open air—and so does *Aristolochia elegans*. The experience of most gardeners is, I expect, the same as mine—that we fail in growing plants more often from coddling them too much than from any other reason. This year our Iris-flowered Cannas have been a sight all through the summer, and will continue in vigour and abundant flower until frost visits us. The result of our experience is that Martin Cahusac is by far the best variety for outdoor cultivation. It is very floriferous, and bears very large heads of fine flowers, which are more persistent than those of most varieties. I have several times tried to induce the trade-growers of Begonias to introduce into this country the beautiful variety "Bavaria," which is of German origin. I first saw it in the Palm garden at Frankfort, and being much struck by it I procured a supply, I think, from Erfurt. It is a compact, low-growing variety, vigorous and very free-flowering, with

the Kew plant has. I would suggest that other positions be tried, and a longer period of flowering should result. A most important item is to plant the seedlings out very early, not allowing them to long remain in small pots to starve. *E. H. Jenkins, Hampton Hill.*

A MONCECIOUS ARAUCARIA IMBRICATA.—I send you a photograph of a portion of an *Araucaria imbricata* growing at Pencarrow, Rodmin. The tree bears two very fine female cones, and a great number of male catkins. The second cone is just below the prominent one, but unfortunately it is hidden by the crossing of the branches. These cones contain an unusually large proportion of good seeds, due, no doubt, to the close proximity of so many pollen-bearing catkins. The tree is situated at the foot of the famous Pencarrow rockery, quite 50 yards distant from any other examples of the same species. The nearest is a fine female tree, which has over forty cones; these are rather small, and contain a very small proportion of fertile seeds. I attribute this to the distance—quite 40 yards—from the nearest pollen-bearing tree. The moncecious tree was purchased by Sir William Molesworth, the well-known Secretary of State for the Colonies, from Messrs. Knight & Perry, the predecessors of Messrs. Veitch & Co., for £25, in 1834. My employer, Mrs. Ford, a sister of Sir William, graphically describes the ceremony of planting this, at that time, most rare and curious tree. There was a large and distinguished house party at Pencarrow, and they assembled in solemn state to witness the ceremony of planting. Among them was Mr. Charles Austin, the eminent lawyer, who after carelessly handling the plant, feelingly remarked, "It would be a puzzler for a monkey." The name "caught on," and now *Araucaria imbricata* is more generally known as "Monkey Puzzle" than by any other appellation, scientific or otherwise. *A. C. Bartlett, Pencarrow.* [We thank you for your interesting note, but do not reproduce the photograph, as a fine specimen of a Moncecious *Araucaria* was figured in our columns Mar. 1, 1873, p. 291. Ed.]



THOMAS LUNT,

Winner of the Gold Medal and First-prize in the Great Grape Class at Shrewsbury.

Edinburgh, for Mr. Lunt has displayed equal skill in the cultivation of Chrysanthemums as of Grapes. In England he made his *début* at Shrewsbury last week, and at a single bound easily obtained a prize that has been discussed and coveted during the greater part of the year. There is no apology needed for publishing the photograph of so excellent a gardener.

HOME CORRESPONDENCE.

CAMPANULA MIRABILIS AND OTHER PLANTS.—I hope your readers will not be discouraged by Mr. Wolley Dod's and Herr Max Leichtlin's experiences from cultivating *Campanula mirabilis*. Out of the few plants I have, one flowered at Burford this summer, and formed a lovely mass of pale blue flowers, spreading over the ground for some distance on all sides. Experience will doubtless teach the conditions requisite to ensure it flowering. Last year, and again this, we have had a strong plant of the lovely *Solanum Wendlandi* in full flower in a warm and sheltered corner ever since the summer set in. Though a native of Costa Rica

pretty foliage and charming bright pink flowers, and is, moreover, a good doer. It makes a really lovely edging, and strikes everyone who sees it. *Trevor Lawrence.*

CAMPANULA MIRABILIS.—Notwithstanding the tropical heat of the past two seasons, I believe no really fine plant like that at Kew has flowered at an earlier age than three years. But this species is so unique in its aspect generally, that it is not wholly uninteresting before it flowers. I believe that the longer a plant is, before reaching the flowering stage—assuming that it is planted out, the finer is the flowering, owing to the greater degree of development of the plant. But flowers may be had each year if seeds be sown annually, and plants of different ages thus obtained. The great flat rosette of almost succulent leaves is a very remarkable circumstance in the bell flowers, if not in the whole Campanulaceae. In spite of the fact that the Kew example was one of the finest plants that have yet flowered, I am not sure that the position it is in would prove the most suitable generally. Many bell-flowers delight in a little shade, and with such environment develop even more rapidly than in the hot sunny position that

FLAVOUR IN TOMATOS.—I have a good deal of sympathy for those persons who are unable to find flavour in modern Tomatos. I had thought that there were cases in which, during the past ten years, appreciable advance had been made in true flavour production. Those whose privilege it has been from time to time to test the merits of the smaller fruited varieties grown at Chiswick, have been fortunate enough to find very pleasant flavour in some of them. The large ones, found so useful for market purposes and ordinary kitchen uses are not tested for flavour, as these do not display any distinction in that respect, one from the other. A less ripe fruit may be a little more acid than is an over-ripe one, and that is all. These are regarded purely for their productiveness, appearance, and solidity of flesh. Very sensible and practical requirements, as all engaged in Tomato production know. [Is it sensible to grow and sell inferior products? Ed.] But real flavour is looked for only in those which have fruits of moderate or smallish size, such as are best fitted for the dessert-table, and of these very excellent ones are Red Dessert, Golden Nugget, Red Peach, and now the New Chiswick Peach. But to get the best flavour from Tomatos, they should be gathered direct from the plant, and when the fruits are cool. Warm fruits are never so pleasant to eat. Tomatos do not, and never will, compare in flavour with what is found in the higher or standard fruits, but when palates are natural, and have not been vitiated by port, sherry, whisky, strong condiments, sundries, &c., there are less prominent flavours highly appreciated. Flavour is not always an inherent property; it depends very much also on the condition of the palate. Only the other day I was enabled to taste fruits of the Old Red Tomato, grown out-doors, and fully ripened, and I found that it was absolutely flavourless—quite inferior to newer ones. When so much is being done to seek to impart high flavour to Tomatos, it is unkind to regard such efforts as sheer waste labour. *A. D.*

BOWLING-GREENS: HOW TO FORM THEM.—In reply to "Bowler" in your last issue, I may say that this game, although enjoyed by so many, appears to be most diverse in its rules and regulations, some "greens" being flat, whilst others are raised in the centre. In Scotland the game is played by each set of players across the green, side by side, each set retaining the same plot for play. In the South of England the bowls have a greater bias, and the

players are divided, half of each side contending against half of their opponents, on each side or end of the green. In Lancashire, Cheshire, &c., where the game is very popular, the practice is quite distinct from either of these mentioned above, the leading player selecting any portion of the green he chooses, so that the length is over 21 yards, and the Jack not within a yard of the edge. A few particulars of the form and size of Lancashire "greens" are here given. So far as can be gathered there are no regulations as to form or size—in fact, it is most difficult to find two "greens" approaching uniformity; often the designer has no choice, but must make his "green" to fit a certain space, which may be square or irregular in outline. Size is as variable as form, ranging from 400 to 2000 square yards; therefore, the directions here given can be altered according to circumstances. The shape recommended is a long square, because of the greater variety in the fall of the land, which mean increased skill required; the following dimensions will be ample for four, five, six, or seven, sets of players (four to a set), 38 by 28, 43 by 33, 46 by 37, 50 by 41 yards. Of course, in matches it would be desirable to have fewer players. The centre of the "green" is usually termed the "crown," and varies from 3 to 16 inches higher than the corners. Of course, it will be readily understood the higher the "crown," the more difficult to play. Before commencing the work, the ground should be pegged out with boring rods. Select the centre, drive a peg level with the surface when completed, and level to each corner. Afterwards, lower the peg 1 inch to every 6 yards, so that a green 38 by 28 yards will fall 4 inches. Next, find the middle of the side and drive a peg in 3 inches below the centre peg, the middle of the ends $3\frac{1}{2}$ inches below the centre; then with the boring-rods level from the corners to the middle of the sides and ends, putting in pegs every 7 to 9 feet; from the outer pegs to the centre, insert pegs at convenient distances, which will give the level of the "green." Of course, if necessary, the ground will have to be drained, and an inch of ashes under the turf is most desirable to check worms. A couple of feet of the edge should be kept well up, as the extra rolling has a tendency to make the edge drop, so that the bowls cannot stop on near the edge. The very best turf should be selected, or the bowls will never run true; if good sod cannot be obtained, sowing with selected seeds is preferable. A gutter or channel round the edge about 6 inches wide and 1 inch deep, with a wooden edging is necessary, to stop the bowls when they run off the "green." R. G. W.

HYDRANGEA MORTENSIA.—I forward a head or two of the above, and think you will agree with me that the blue tint is far more intense than what is usually met with. The plant stands somewhat in the shade, and we always find that plants so situated are a far better blue than those in a sunnier aspect. Two years ago I had pruned this bush, as it was trespassing over the walk too much; last year it only had ten or a dozen heads, while this season it carries no fewer than 290, and measures $7\frac{1}{2}$ feet across. I think this close pruning worth repeating, even if one has to wait two years, as the quantity of flower and intense blue is the admiration of all who have seen it. J. Mayne, Bicton. [With this came specimens of a more intensely blue colour than we have ever seen before. Ed.]

A VISIT TO BIRDSALL HOUSE GARDENS, YORKS.—Quite recently I had an opportunity of seeing these gardens. The glass-houses are built on the corridor principle, which runs east and west, with span-roofed houses opening out from it. In the vineries were heavy crops of Grapes, Muscat of Alexandria and Black Alicante being chiefly grown for a late supply. The Strawberry-Grape is represented by a few canes, and is highly appreciated by Lord and Lady Middleton. Figs are grown in quantity; two span-roofed houses being devoted to them. The trees are grown in large pots, plunged nearly to the rims in a bed, and were carrying a fine second crop of fruits. Brown Turkey is the most reliable cropper, but several other varieties are grown, including Negro Largo, St. John's, Violette de Bordeaux, and Bourjassotte Grise. In one part of the garden with an east aspect is what Mr. Wadds called the Apricot-shed (fig. in *Gardeners' Chronicle*, Feb. 2, 1895, p. 133); this is like a lean-to shed with a glass roof, the front (about 3 feet high) being open. The trees are planted outside, and trained on a trellis under the

glass. Quantities of fruit had already been gathered. To anyone wishing to grow this delicious fruit, I would advise the adoption of the above system. Amongst the Apricots, here and there, I noticed several Plum-trees bearing heavy crops, the varieties being Green Gage, Prince of Wales, Kirk's, and Golden Drop. Out-of-doors fruit-trees are numerous, but this season there is not an average crop. Carnations are largely grown, especially those of the Malmesbury type. A large bed of dwarf Dahlias, called "Rising Sun," was ablaze with fine blooms of a bright scarlet colour; none of the blooms exceeded 18 inches in height, but were yet quite clear of the foliage. Geo. Taylor, *Byram Gardens*.

WASPS.—On a recent sunny afternoon, after the tea was cleared, it was found that a small portion of honey had been spilt on the table-cloth by the waiters, whose notice it had escaped. The attention of the writer, who, by the way, was reading the *Gardeners' Chronicle* in the same room, was attracted to the coming in and going out by one of the windows of a wasp; and upon watching its movements closely, it was found that the honey had caught its eye. The repeated visits on the part of the wasp, which were at intervals of about ten minutes, were evidently for the purpose of carrying off the dainty to its cells, for in the course of an hour every particle of the honey had disappeared. The wasp's nest must have been at no great distance. The lesson learned had reference to the amount of damage these creatures are capable of doing to fruit or anything else that is palatable to them. Geo. Paxton.

DIANTHUS KNAPPIL.—On p. 168 I read with surprise that the flower-stems of this species "scarcely ever exceed 9 inches in height." I have grown it for several years, and though it ripens seed here very sparingly, I now have some two dozen plants in flower in different positions on rockeries and raised beds. I have just been to measure their stalks, and find that they nearly all range from 12 to 18 inches in length. I regret that it is so, because their leggy stalks and their inability to hold up their heads is the great defect of this and of most of these cluster-bearing alpine Pinks, which might otherwise be fairly good rock plants. Can any of your correspondents give me recent authority for the name? I find in Nyman's *Conspectus* D. Knappii (Asch. and Kan.), a native of Montenegro, &c., given as a synonym of D. liburnicus (Bartl.); and in *Index Kewensis*, D. Knappii (Asch., in Nyman's *Conspectus*) is referred to D. liburnicus (Bartl.). In the *Kew Handlist of Herbaceous Plants*, D. liburnicus (Bartl.) is mentioned as cultivated in Kew Gardens, but not D. Knappii. I also find on reference to authority that the name D. liburnicus (Bartl.) is about forty years prior to D. Knappii (Aschers), but do they belong to the same plant? C. Wolley Dod, *Edge Hall, Malpas*.

THE TOMATO UNDER GLASS.—I have read with interest what "A Traveller" writes on p. 174. I fully agree with your correspondent as to flavour, and his remarks thereon, and equally so as to the practice of denuding the plants of their leafage, which alone may be responsible for a great deal more than even "A Traveller" would appear to claim. With the great, pinnate leaves of these vigorous subjects reduced to the veriest scrap of their strongly formed rachis, how is it possible for such mutilated subjects to properly perform the functions for which such things were by Nature intended? In not a few market places it is the common practice to plant out Tomatoes at about one foot apart, then with the generous assistance of hose-pipe, an equally generous—if unfruitful growth quickly follows. Then a boy or youth, from 14 to 18 years, is set in this thicket to "let in a little light," and usually he does it with some idea of liberality. I have more than once counted from eight to ten plants across a central bed in a span-roofed house, the width of which was not more than 8 ft. or 9 ft. inclusive of brickwork. In such a space five plants would have been ample, and better still only four, so that a centre pathway could have remained in the middle. In these dense thickets of growth, light and air, the greatest essentials to free setting, never penetrate, and dozens of plants never carry a fruit. Then follows the wholesale thinning, and the work of destruction is well nigh completed. Market gardeners who have never served a days apprenticeship in any garden, are not

one bit worse than many experienced gardeners who have taken to the trade. Let the plants be grown with full light and full foliage before we say in this wholesale fashion that there are no good Tomatoes to be had by cultivation under glass. Many marketed fruits are gathered half ripe, hence another reason for poor flavour. And now a word as to the single-stem system of culture. "A Traveller" refers to this as "the stupid plan of reducing the plant to a single stem by removing the lateral shoots." But your correspondent does not attempt to show how it is stupid. Is not the natural growth of the seedling the erect, single stem, or main stem? How does "A Traveller" secure his "six to ten main shoots per plant?" Not by letting the plant grow its way naturally. No; he has to stop, and pinch, and stop again, to get the number of shoots he requires, which is not a natural process, but the reverse. At the same time, this fan-shape system is a greater consumer of time—an item your correspondent appears to lost sight of—than is the single-stem, even with five plants to one. I am not denying the suitability of the fan-trained plant for low walls; this is obvious, but space for space and weight for weight, till the crop is finished, the fan-trained would not have the smallest chance with the single cordon under glass. Here, again, is only needed the reasonable and feasible to secure the obvious; and I think the strongest possible reason of all for the single-stem culture is that it is the nature of these plants to produce flowers and fruits on the main stem, between the joints, and not from axillary buds from the joint. This is a remarkable fact generally little recognised. Were it otherwise, the fruiting taking place from the axils, there would be more reason in training out the lateral branches for fruiting purposes. One decided advantage of the single stem to the cultivator is, that he thereby secures the earliest fruit the plant is capable of producing. On the other hand, by the fan-shaped method, time is certainly lost or taken up in converting the plant into the required size or shape. It is this latter that is the unnatural, because if "A Traveller" never removed the point of the middle stem, he would be quite unable to get his "six to ten main shoots" from a plant that naturally produces but one main shoot. All else is subordinate. This one rod in an extended season will readily produce from a dozen to sixteen bunches of fruit; and of good quality if rationally grown. Moreover, the Tomato is self-asserting in this way, that if you give a plant the necessary light, the first bunch will be within a few inches of the soil, the fruit touching it long before it is ripe. We see this in no other plant in the same degree, for the Melon and the Cucumber, fruiting from axillary buds on laterals, and not on main buds, do not in the least compare with the Tomato. Yet numbers of solanaceous things fruit thus, and it is here that the Tomato is unique. E. H. Jenkins, *Hampton Hill*.

RASPBERRY, FILLBASKET.—The above variety of Raspberry undoubtedly bears out its good name at Bowhill, Selkirk, N.B., and as grown by Mr. Lunt it is truly a Fillbasket. When visiting at Bowhill a few days ago, I was very much surprised to see the marvellous growth the plants have made during the present season, canes averaging from 10 to 12 ft., and of corresponding thickness. The fruiting canes, I was informed, had carried enormous crops, and judging from their present appearance they are likely to give a fine succession of ripe fruits for a considerable time. The system of training is that of tying several canes to a strong stake in the centre of each clump. The position for the plantation was wisely selected when the canes were planted six years ago. It is sheltered from the north-east by high garden walls, and on the west by some tall trees, which cast their grateful shade over the canes during the afternoon; in fact, the only direct sunshine they receive is for a few hours in the middle of the day. R. T. S.

FRUITS IN YORKSHIRE.—The three most important of British fruits—Apples, Pears, and Plums—are fewer here than they have been for ten years. The result is unquestionably due to the severe frost and cold winds experienced in May. Small fruits, excepting Gooseberries, have been a fairly good crop. Superlative Raspberry stood the drought well, and is the finest variety grown here. J. Elworthy, *Newton Hall Gardens, Yorkshire, East Riding*.

FRUIT IN CORNWALL.—Peaches and Nectarines are remarkably good in quantity and quality. The trees have made clean and healthy growth, and I have never known them to be so free from blight; but they would not mature their heavy crop without most liberal supplies of water to root and branch. Apples, Plums, and Pears are a very partial crop. Cherries a complete failure, but the trees are making good growth for next year. Strawberries, especially Royal Sovereign, very good. Bush fruits abundant, and we have still plenty to gather of Gooseberries and Red Currants from under permanent wire net protection to present date (August 27). *W. Sangwin, Trelinick Gardens, Truro.*

FRUIT IN COUNTY ROSS AND CROMARTY.—Apples and Pears are good, notwithstanding the east winds prevalent during the time the trees were in blossom. Small fruits were abundant. Plums are quite a satisfactory crop. Apricots are a grand crop, and with the good weather we have had lately, they are ripening well. *H. Henderson, Cromarty House Gardens, N.B.*

PLANT NOTES.

CORONILLA VARIA.

THIS plant is unfortunately too rambling in its growth for the ordinary herbaceous border, the roots travelling a long distance, and throwing up suckers, which soon smother other plants; it has, however, the merit of flourishing on a dry, sunny bank, where many other species would fail, and is on that account worthy of cultivation. The flowers are produced in heads similar to *C. glauca*, which they resemble with the exception of their colour, which is a pleasing shade of pink marked with white. It is strictly herbaceous, and of a spreading habit, seldom exceeding 1 foot in height; a good succession of flowers is maintained throughout the summer months. I recently saw a nice plant of it in the beautiful Abbey Park, Leicester, where Mr. Burn has introduced it into the shrubby border with success. *W. H. Divers.*

VEGETABLES.

PEA THOMAS LAXTON.

THE varieties of culinary Peas are far too numerous, and few of the later additions are equal to the older varieties; but Thomas Laxton is a variety which has afforded me much satisfaction this season. It possesses the best qualities of my old favourite, Ne Plus Ultra, with the advantage of coming into use much earlier, and grows only 4 ft. high, whereas Ne Plus Ultra grows from 6 to 8 ft. Sown on April 5, the first flowers opened on June 10, and the first pods were ready for use on July 4—that is, only two days later than Exonian, the quickest Pea I know of, and twelve days earlier than Ne Plus Ultra, sown at the same date; the pods contain eight or nine Peas, of excellent flavour when cooked, and it bears well. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

SOCIETIES.

ROYAL HORTICULTURAL. Floral Committee.

AUGUST 25.—The Floral Committee met at Chiswick on this date, and inspected the large collection of Pompon Dahlias grown there this season for trial. Unfortunately they could not be seen to the best advantage, owing to the drought, and though Mr. Wright had done his utmost to have the plants ready for inspection, they were generally of spare growth, and only partially in bloom. The following, however, were considered worthy of three marks:—*Euphonia*, *Vulcan*, *Opal*, *Ganymede*, *Ceres*, *Claribel*, *Florence Woodland*, *Admiration*, crimson, tipped with white, specially recommended for border decoration; *Bacchus*, bright scarlet; *Captain Boyton*, one of the very best dark varieties; *Emily Hopper*, *Eurydice*, *Fabio*, *Little Sweetheart*, *Mars*, *Nerissa*, soft rose, tinted with silver, a charming variety; *Sunny Daybreak*, *Tommy Keith*, red, tipped with white, very pretty; *Annie Holton*, *Darkness*, *Dagmar*, *Madeline*, *Irene*, rosy purple, tipped with white,

also specially recommended as a charming border variety; *Iris*, *Nancy*, *Fashion*, pale orange, one of the best; *George Brinckman*, *Grace*, *Tolantia*, *Isult*, *Phoebe*, *Red Indian*, *Rosena*, *Whisper*, and *White Aster*. Another examination of the plants will be made a fortnight hence; meanwhile it is hoped there will be a fall of rain, which is very greatly needed at Chiswick for many other things. A plantation of leading varieties of Cactus Dahlias is not yet ready for inspection, and greatly need a good soaking of water. A Cactus variety named *Britannia*, should be noted as a dwarf-growing, free-blooming sort, throwing its flowers well above the foliage, and admirably adapted for border decoration.

DRILL HALL.

AUGUST 29.—It was quite a vacation meeting that of the Committee of this Society in the Drill Hall, Westminster, on Tuesday last. In extent the display was less than has been the case for a twelvemonth, and the number of visitors just showed how few there are, comparatively speaking, in London at the present time. Horticulturists give themselves a holiday occasionally, like most other folk, and the present season is a favoured one for the purpose. Business, however, proceeds through it all, and though the show was a small one (especially after Shrewsbury), there was a show. An exhibit of *Nepenthes* from Messrs. JAS. VEITCH & SONS was worthy every praise, and certainly of a wider body of spectators, and some New Zealand plants, mostly new species, from the same firm, had much interest. The Floral Committee recommended six Awards of Merit—two to Dahlias, one to a *Gladiolus*, one to *Robinia inermis alba marginata*, one to a *Canna*, and one to *Polygonum Baldschuanicum* (see *Gardener's Chronicle*, Jan. 9, 1897, p. 17).

There were few Orchids, and the only award made was an Award of Merit to *Cypripedium* × *Captain Holford*. The Fruit and Vegetable Committee did less even than that, for no novelty was certificated.

The lecture announced to be given by M. GEORGES TRUFFAUT upon "The soil considered as plant food and its exhaustion," was postponed, owing to that gentleman being detained at present by his military duties.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. R. Dean, W. Howe, Jas. Hudson, C. J. Salter, Chas. E. Pearson, W. Bain, J. D. Pawle, Jas. Walker, Geo. Gordon, E. H. Jenkins, and E. T. Cook.

Mr. S. WARE, Hale Farm Nurseries, near Tottenham, made an exhibit of Cactus and Pompon Dahlias: sprays of *Cannas*, the latter of newer varieties; sprays of *Lilium speciosum*, in varieties; also many bunches of *Helianthus multiflorus*, in as many varieties (Silver Flora Medal).

Messrs. BARR & SONS, 12 and 13, King Street, Covent Garden, London, had a few varieties of hardy flowers in bunches. Some of the choicer herbaceous *Phloxes* were represented, and *Lathyrus latifolius albus* was conspicuous; *Gladioli* in a few varieties were also good (Silver Banksian Medal).

The most imposing group in the hall was one of *Nepenthes*, from Messrs. JAMES VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea. The plants were better than any the firm has shown this season, with finer, more-developed pitchers. Each plant was raised on a stand over a groundwork of *Adiantum Ferns*. *N. Mastersiana* × (the dark-coloured variety) had about twenty-five pitchers, and was a handsome object. Quite a different one in form and colour is *N. Chelsoni* ×, with globular mottled pitchers depending from the basket upwards of 2 feet, of which a very fine plant was shown. *N. mixta* × and *N. mixta sanguinea*, both from seed from the same plant, were magnificent. They have handsome pitchers almost 1 foot in length, the variety *sanguinea* being darker in colour, but otherwise much the same as *N. mixta*. The well-known *N. Hookeriana* and *N. Rafflesiana*, the latter with pitchers upon stems 2 feet or more long. *N. Balfouriana*, the new hybrid (figured in *Gardener's Chronicle*, July 29, 1899, p. 91), was again shown, and this time with longer pitchers. *N. Amesiana* was represented by an enormous plant with abundance of pitchers. *N. Dicksoniana* ×, *N. Wrigleyana* ×, *N. intermedia*, and the pretty little *N. Sedani*, were others shown in this remarkable group. The only species shown were the excellent *N. Curtisii superba*, *N. Burkel*, an exceedingly pretty pitcher, with peculiarly tinted rim; *N. bicalcarata*, the horned species from Borneo; *N. Hookeriana*, and *N. sanguinea*, one of the brightest-coloured of any. The rest were hybrids (Silver-gilt Flora Medal).

Messrs. VEITCH had also a group of New Zealand plants in pots. These included *Pittosporum*, *Olearias nummularifolia* and *moschata*, *Plagianthus betulinus*, a very graceful plant; *Melaleuca*, *Senecio*, and *Adaphylla squarrosa*, &c. We hope to refer to these plants again.

On the centre table was a large group of ornamental foliage plants, shown by Messrs. WILLS & SGOAR, Onslow Crescent, South Kensington. Attractive features in this exhibit were the fine plants of *Alcornoques*, including *A. Sanderiana*, *Thibautiana*, *Watsonii*, *Rodrigueziana*, *Sedeni*, *Argyra*, *Mortfontainensis*, and *Mrs. Martin Cabauzac*. Fine plants of *Draena Goldiana*, *D. Godseffiana*, *Phrynium variegatum* (very good), *Begonias Arthur Malet* and others, *Gymnostachyum Verschaffeltii*, *Licuala grandis*, *Stevensonia grandifolia*, *Ananasia sativa variegata* (a splendidly-coloured plant), excellent *Codibeums*, *Aralias*, *Ferns*, &c. (Silver-gilt Banksian Medal).

From Sir TREVOR LAWRENCE's garden, Burford, Dorkin

(gr., Mr. Bain), was shown, a collection of cut sprays of eighteen varieties of *Lobelia cardinalis*. These offered a great variety in shade and colour, from Queen Victoria, *Ignes Firefly*, and *Amethyst*, to paler forms, as *Syphillitis*, *Orion* and others. *L. seasiliflora* has flowers of a purple shade of blue. Flowers of *Cianthus Dampieri*, grown out of doors, were also from the society's President.

Sir TREVOR LAWRENCE also showed plants of *Crowea saligna* (latifolia), a very pretty evergreen greenhouse plant (*Rutaceae*), usually grafted on *Eriostemon* or *Correa*. The flowers are beautiful clear pink, widely expanded, about 1 inch across. In habit of growth the plant greatly resembles *Eriostemon*. It deserves wider cultivation. Also *Euphorbia corollata*, a hardy slender old-fashioned plant, with small white flowers, on numerous flowered spikes.

Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton, showed a group of plants upon one of the tables, including a number of plants of *Golden Fleece Abutilons*, a yellow flowered variety. *Acalypha hispida*, the new *Campanula isophylla*, *Mayil*, *Bouvardias*, *Begonia Dregel*, a fibrous rooted variety with abundant small white flowers, and some choice Ferns (Silver Banksian Medal).

Messrs. THOS. CAIRNS & SON, Tunbridge Wells, showed two plants of a golden variety of *Retinospora obtusa* named *aurea* Crippsii. It is contended that this is the only golden coloured form of *obtusa* (true), though one has been certificated under this name. The variety is very pretty and will probably be shown again with the certificated variety for comparison.

Messrs. PAUL & SON, Old Nurseries, Cheshunt, made an exhibit of cut Roses. The blooms filled six large exhibition boxes. Also some hardy herbaceous flowers, and sprays of *Kolreuteria paniculata*, &c. Also flowering sprays of *Tamarix odessana*, very like the familiar seaside shrub, flowers light purple (Silver Flora Medal).

Mr. PHILIP FAY, Addington, West Malling, showed several new Fuchsias, but none of them were noteworthy.

AWARDS.

Canna Beauté Pottevine.—A very brightly coloured variety; almost vermilion. From T. S. WARE, Ltd. (Award of Merit).

Dahlia Mrs. J. H. Lumcombe.—A Cactus-like variety, with mauve-pink flowers. From Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley (Award of Merit).

Dahlia Mrs. Stephenson Clarke.—A Cactus-like variety, old gold colour, tips of petals red. Very pretty variety, but rather thin flower. From Messrs. J. CHEAL & SONS (Award of Merit).

Gladiolus James H. Veitch.—A very large handsome variety, with flowers of much substance, deep salmon-rose in colour, with white about throat, which is much spotted with red. From Messrs. JAS. VEITCH & SONS, King's Road, Chelsea (Award of Merit).

Polygonum Baldschuanicum.—A Turkestan species, growing wild at an altitude of 8000 to 5525 ft., and discovered in 1883 by Dr. Albert Regel. It was awarded a First-class Certificate by the Société Nationale d'Horticulture de France in 1894, and a figure of the plant was given in the *Gardener's Chronicle*, January 9, 1897, p. 17. It is a herbaceous species, and grows from 13 to 16 feet high. The flowers are white, or very faintly rosy, produced in long handsome trusses, and succeeded by winged fruits, white at first, afterwards red. Further particulars of this species may be found on reference to the issue of *Gardener's Chronicle* above quoted. From Messrs. BARR & SONS, and Mr. T. S. WARE, Ltd. (Award of Merit).

Robinia inermis alba variegata.—A freely variegated form of this well-known and popular hardy tree. From Messrs. TEEC, Cairns & Son, Tunbridge Wells (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair), and Messrs. JAS. O'BRIEN (Hon. Sec.), De B. Crawshaw, J. Gurney Fowler, A. H. Smees, H. Little, H. J. Chapman, A. Outram, T. W. Bond, E. Hill, W. Cobb, J. Colman, J. Douglas, H. M. Pollett, and T. B. Hayward.

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a Silver Banksian Medal for a small group composed principally of six finely flowered plants of *Lelio-Cattleya* × *callistoglossa* var. *ignescens* (L. purpurata × C. Warscewiczii), which, together with L. C. × *Nyssa* (L. crispata × C. Warscewiczii), some plants of which were shown, are the showiest hybrids of the season, their large, handsome flowers in each case having brilliant purplish-crimson labellums. Shown for the first time was *Phalio-Calanthe* × *insperata* (*Calanthe Masuca* × *Phalio grandifolius*?). The change which the cross made in *P. grandifolius* was extraordinary, the plant and flowers more nearly resembling the pollen parent. The inflorescence was on an ascending scape, arranged like *P. grandifolius*, though the flowers were much nearer to those of *Calanthe Masuca*, but larger. The change from the tubular form of lip in the *P. grandifolius* to the perfectly flat form was a remarkable feature. The sepals were white, tinged with lilac, the smaller petals similar in colour, though darker; the lip light rose, tinged with orange, darkening towards the disc to reddish-orange. Another remarkable hybrid was *Cypripedium* × *Janet*, said to be *C. glanduliferum* × *C. Spicerianum*, but which some thought to be out of *C. Rothschildianum* × *C. villosum*. The dark green foliage favoured the former record. The dorsal sepal was ovate, acuminate, slightly twisted, yellow, with dark purple lines; the petals extended and deflexed, wavy at the edge, yellow, with purplish markings, darker on the upper half; lip cream coloured, tinged and veined with rose. Messrs. Veitch also showed *Lelio-Cattleya* × *Phryne* (C. Warscewiczii ×

L. xanthina &c.), a strong-growing plant, tinged with red-brown, and bearing flowers with pale yellow sepals and yellowish-white petals, the base of the lip being yellow, the front bright rose colour.

Sir F. WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), showed *Cattleya Warszewiczii* "Prince of Wales," a very handsome and richly-coloured variety with flowers of fine form; a very good *Cattleya* × *Hardyana*, and *Cattleya* × *mollis* (superba × *Gaskelliana*), having flowers in outline partaking much of *C. superba*, but of a much lighter tint. The sepals and petals were pale lilac; the lip, the front lobe of which was rounded and crimped, dark rose.

H. S. LEON, Esq., Bletchley Park, Bucks (gr., Mr. Hishop), showed *Lelio-Cattleya* × *Bletchleyensis* (*L. tenebrosa* × *C. Warszewiczii*), a showy hybrid with the form of *L. tenebrosa*, but more of the colouring of *C. Warszewiczii*. The sepals and petals were warm rose colour, the lip much darker; the front lobe veined and tinged with crimson.

JEREMIAH COLMAN, Esq., Gatton Park, Reigate (gr., Mr. W. King), showed *Cattleya* × *Hardyana* "Mrs. Jeremiah Colman," one of the finest of its class, the showy labellum being dark ruby-red tinged with purple; also *Honillea odoratissima*.

H. S. SIMONDS, Esq., Woodthorpe, Beckenham (gr., Mr. Geo. M. Day), showed two good forms of *Cattleya* × *Hardyana*, that called *Symonds* variety being especially fine.

WALTER COBB, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howe), showed *Zygopetalum Protheroeum*, a singular plant of the *Z. brachypetalum* class, with flowers having the sepals and petals of a dark chocolate colour, the lip being violet with reddish markings at the base. Mr. Cobb also showed spikes of a distinct light-coloured form of *Epidendrum prismatocarpum*.

Mr. A. J. KEELING, High View Nursery, Cottesley, Bingley, Yorks, showed two plants of *Cypripedium* × *Bingleyense* (*Charlesworthii* × *Harrisonianum*), a decided acquisition to hybrid *Cypripedium*. In form and colour the flowers resembled a good dark *O. Charlesworthii*, but they were larger. The upper sepal was green at the base, surrounded by a dark purple zone extending upwards into a fine rich rose-coloured veining running into the white margin. The petals were bright rose, tinged with brown on the lower halves; lip greenish, flushed with red; the singular triangular staminode bluish-white.

Mrs. MASON, The Firs, Warwick (gr., Mr. Lambert), showed flowers of an alpine form of *Cattleya superba splendens* and *C. Harrisoniana superba*.

Capt. G. W. LAW-SCHOFIELD, New Hall-Hey, Rawtenstall, Manchester (gr., Mr. Shill), sent flowers of *Cypripedium* × *Juno*, Schofield's var., larger than the ordinary form; and *C. x Veitchii-Morganie*, a decided improvement on *C. x Morganie* in most respects.

Mr. ED. KROMER, Roraima Nursery, Bandon Hill, West Croydon, showed a specimen of *Miltonia Regnellii* purpurea with six spikes.

Messrs. F. SANDER & Co., St. Albans, showed *Lælia* × *pulcherrima* (*Boothiana* (lobata) × *purpurata*), with a fine four-flowered inflorescence, the blooms equal in size to those of *Lælia purpurata*, but with a more trumpet-shaped and showy lip. The sepals and petals were of a delicate lavender tint; the showy lip, handsomely veined with rose colour.

AWARD OF MERIT.

Cypripedium × *Captain Holford* (*hirsutissimum* & *superbians*?).—A very showy hybrid, with flowers equal in size to *C. Curtalii*, but clearer in colour, and with decided indication of *C. hirsutissimum* in the dorsal sepal, which is white, with a greenish tinge, and the obscure dark shading over its surface seen in *C. hirsutissimum*. The broad sepals were white, tinged with green at the lower, and rose on the upper half, the surface being closely spotted with dark purple. Lip dull rose. (From Messrs. JAS. VEITCH & SONS.)

Fruit Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. R. Parker, Jas. Cheal, Jno. Basham, Jas. H. Veitch, A. F. Barron, Alex. Dean, B. Mörtimer, H. Balderson, F. Q. Lane, Geo. Norman, Robert Fife, and Geo. Bunyard.

Messrs. GEO. BUNYARD & Co., Royal Nurseries, Maidstone, showed eighteen ripe fruits of Lady Sudeley Apple. Also some fine specimens of the Wineberry, and an agreeable conserve prepared from this fruit.

Some excellent fruits of Jargonelle Pears were shown by Mr. Geo. Neville, gr. to Lord ONSHAM, Latimer, Chesham, Bucks.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, showed plants in fruit of a new Tomato named Cheal's Prolific. It is described as a seedling from Laxton's Open Air, and recommended for outside cultivation as more prolific than Laxton's. The fruits are rather flat in form, and corrugated.

Mr. H. BROWN, gr. to F. LUCAS, Esq., The Grange, New Barnet, showed some good fruits of Chemin Rouge Tomato. Mr. J. ESCOMBE, The Grove, Penaburtt, showed eleven varieties of Potatoes, most of them "scabby," with particulars as to the manures used in each case, and their effect.

There were two Melons submitted for Certificate, but neither of them of extra quality.

Some fine fruits of Peach Hale's Early were shown by Mr. McGuffog, gr. to the Countess of SELKIRK, Balmoe, Kirkcudbright. The Peach succeeds very well in that district upon south walls, protected with 14-inch coping. In the case of the fruits shown the trees commenced to flower on March 15, and the fruits were ripe on August 10.

Samples of Tomato jam from Mr. ROSE, Fife, Orpington, Kent, were sweetened preserves, but retained the full flavour of Tomato.

Apple Early Victoria, a large, soft fruit, very suggestive of Lord Grosvenor, was shown by Mr. W. CROSS, Wisbech, who had a dozen fruits. It should make a first-class culinary Apple, especially for making dumplings.

Messrs. HARRISON & SONS, Leicester, were awarded a Silver Bankian Medal for a collection of Onions, including thirty-four varieties. The bulbs were fine ones for use rather than of exhibition size. They were not monstrous. In the collection were noticed many very good varieties, some of the firm's own introduction, and many others.

ROYAL HORTICULTURAL OF IRELAND.

AUGUST 22.—The annual autumn exhibition was held in Merrion Square, Dublin, on the above date, and in cloudless weather. The display this year surpassed in excellence any preceding one.

Deserving of note was a superb stand of forty-eight blooms of Begonias, shown by Lord ASHTOWN, and to which the Ashtown Cup was awarded. The Carnations exhibited by Mr. JOHN FORBES, Hawick (Scotland), were much admired. Dahlias were a very creditable show, and the Cactus section was by far the most popular. Gladioli and Sweet Peas were excellent, and Roses were well exhibited, especially by Messrs. DICKSON & SONS, Newtownards. Fruits in some classes were fine, Peaches, Apples, Plums, Melons and Grapes, but there was not much shown. Vegetables were better than usual.

PLANTS IN POTS.

Mr. GEORGE DRIMMIE displayed a fine collection of Ferns, including *Davallia bullata*, *Polypodium aureum*, and *Adiantum*. For these he was awarded 1st prize; as also for a superb collection of *Coleus*. Mrs. MOORE, Phoenix Park, was 2nd.

The Right Hon. J. T. MEADE, Allesbury Road, Dublin, staged a 1st prize group of Zonal and Ivy-leaved *Pelargoniums*. For a specimen Orchid the 1st prize was captured by GEORGE DRIMMIE, Esq., J.P., Bellevue, with a well-grown plant of *Cattleya crispata*.

CUT BLOOMS.

LORD ASHTOWN, Darrow Castle, Darrow (J. L. McKellar, gr.), took premier honours for his stand of twenty-four blooms of DAHLIAS, the varieties including Harry Keith, R. J. Rowley, Majestic, Joe Chamberlain, Norma, Gaiety, Chieftain, Buttercup, Mrs. Morgan, Colonel, and Gloria de Lyon. Lord ASHTOWN, Woodlawn, Galway (Mr. A. Porter, gr.), had to be content with 2nd place.

LORD ASHTOWN was 1st for a group of Dahlias (other than show or fancy varieties); and LORD ASHTOWN was 2nd.

C. S. SPEAR, Esq., (Mr. Wm. Maher, gr.), displayed a nice stand of Cactus Dahlias, including Beatrice, Arachne, Claribel, Alfred Vasey, and Ruby.

For Pompons, C. SPEAR, Esq., was also 1st, and included Donovan, Mary Kirk, Rosea, Midnight, Irene, Euridyce, Hedwig, Polwig, and Bacchus; the Right Hon. Colonel CRICHTON, Ballymore Eustace, Mullaboden, was 2nd.

Mr. WATSON, Clontarf, took the Society's Medal for a stand of Dahlias; Messrs. A. DICKSON & SONS being 2nd in this class.

ROSES.—ERNEST BEWLEY, Esq., 5, Cowper's Road, Dublin, displayed a nice stand of Roses, and took the lead with Al red, Co'omb, Kaiserin Victoria, Edith Gifford, Caroline Testout, Madame Hoste, Mrs. W. J. Grant, and Beale Brown; Mr. GEORGE DRIMMIE followed.

LORD ASHTOWN staged a collection of Tea Roses, and Mrs. MOORE, Phoenix Park was 2nd in this class.

For Roses, Messrs. DICKSONS were, needless to say, unbeaten, and easily won the Society's Medal. Their stand included Duc de Rohan, Queen of Queens, Horace Vernet, Mrs. John Laing, Madame Joseph Combet, Beale Brown, François Michelin, John Stuart Mill, Star of Waltham, Alfred Colomb, Etienne Livet, François de Courtin, Maréchal Niel, Senateur Valase, Alice Lindzell, Her Majesty, Ulrich Brunner, and Rosteriste Jacobs. Their stand of Gladioli was also awarded a Medal.

GLADIOLI.—For Gladioli, Lieut.-Colonel JERVIS WHITE, Healthfield, Wexford, easily took 1st prize; his stand was excellent, the spikes being one mass of flowers.

BEGONIAS.—LORD ASHTOWN's stand of forty-eight Tuberous Begonias (Doubles and singles) was awarded the Ashtown Cup. The varieties were very choice. LORD ASHTOWN, was 2nd in that class, but showed a fine collection of hardy cut flowers taking 1st place, and the Lord Ardilaun Challenge Cup.

ASTERS were not well represented, the 1st prize collected from Mr. GEORGE DRIMMIE, were good but not exceptional.

Mrs. ARMSTRONG, Hollywood, Carrickmines, staged a magnificent group of Sweet Peas, which easily outdistanced her competitors, and besides 1st prize she also won the Tuogood Bronze Medal.

FRUITS AND VEGETABLES.

LORD ASHTOWN staged a superb stand of Grapes of the varieties Muscat of Alexandria, Black Alicante, and Mrs. Pearson, six bunches in all, and was easily 1st.

Lady EMILY BURY, Charleville Forest, Tullamore, took 1st and 2nd prizes for her Muscat of Alexandria and Buckland Sweetwater Grapes, but they were not perfectly finished.

The Right Hon. J. T. MEADE won 1st prize with some excellent bunches of Black Hamburgs.

Peaches formed an excellent exhibit; the fruit was well grown. Master FRED L'ESTRANGE, with a dish of Bellegarde, took 1st prize. WILLIAM IVY, Esq., J.P., displayed a dish of

good early silver Peaches, which were grown and ripened in the open air.

For Nectarines Lady EMILY BURY, with her Downton's, was 1st.

The best Apricots were Moor Park, from Lady EMILY BURY.

Apples, including dessert and culinary varieties were good, the culinary fruits were well above the average. Mrs. MILLER, Baggottrath House, with her specimens of Peach, took 1st place in the dessert class; H. J. GILL, Roebuck House, Clonskeagh, with Lady Sudeley, was 2nd.

Mrs. MILLAR was 1st for culinary varieties with Ecklinville; Lady EMILY BURY, with Lord Suffield, took 2nd place.

Currants, both red and white, formed an excellent stand: the berries were very large.

LORD ASHTOWN's stand of sixteen dishes of fruit was excellent. The Muscat Grapes were splendid; also Pears (Jargonelle), Plums (Pine-apple), Melons (Eureka), Cherries (Morello), Apples (Peach), were the leading dishes. Besides taking 1st place, he won the Hume Dudgeon Challenge Cup.

In the vegetables, the honours of both classes were awarded to LORD ASHTOWN (who took the Tuogood Silver Medal) and W. GORR PIM, Summer Grove, Mount Mellick (who took the Tuogood Bronze Medal).

MISCELLANEOUS EXHIBITS.

Messrs. CLIBRAN & SON, Altrincham and Manchester, staged a fine collection of Carnations, herbaceous plants, and ornamental trees and shrubs.

Mr. F. W. MOORE, Curator of the Botanic Gardens, Dublin, as usual, staged a very fine collection of stove plants.

Messrs. W. DRUMMOND & SONS, 58, Dawson Street, Dublin, occupied a medium-sized marquee to themselves. Herbaceous plants here formed a very creditable display. Also some very fine *Sarracenas*, China Roses, Lobelias, *Montbretias*. A feature in their stand was a new hybrid Rose raised by themselves from *R. rugosa* and *R. frutescens*; it fruits very freely, but the fruits in point of size are much smaller.

The display from Messrs. J. HENDERSON & SONS, Templeogue, Dublin, was divided. They exhibited a very fine collection of Cactus Dahlias, also a group of single Begonias, seedlings of their own strain, having both an erect flowering habit and fine blooms. Stove plants from the same firm were superb.

Messrs. HOOGE & ROBERTSON, 22, Mary Street, Dublin, showed fifty varieties of Sweet Peas, forty varieties of Gladioli, and sixty varieties of hardy annuals.

Messrs. C. RAMSAY & SONS, Balls Bridge, Dublin, exhibit suffered somewhat from want of space. Their plant's comprised *Caladiums*, *Coleus*, and *Codiums*, also several specimens of *Dracena* hybrids; also *Lilium roseum* and album. Their stand of cut blooms included Dahlias and hybrid Gladioli.

Mr. JOHN FORBES (Hawick) had an exhibit of Carnations (border), Pentstemons, and Phloxes.

Mr. Wm. WATSON, Clontarf, co. Dublin, had an exhibit composed largely of Dahlias, also a very nice collection of stove plants.

Messrs. ALEXANDER DICKSON & SONS (Newtownarl.), apart from their superb stand of Roses, staged a few new varieties, Beryl and Irish Fidelity, and Irish Innocence; also a magnificent collection of herbaceous plants, and a group of hardy flowers, at least 150 distinct kinds.

BRIGHTON AND SUSSEX HORTICULTURAL.

AUGUST 22, 23.—This Society was established as far back as 1853, and since then has continued to hold exhibitions each year. It is fortunate in having the Pavilion and its grounds in which to hold the shows, for the circular hall under the dome and the spacious Corn Exchange are much cooler than tents, and cut flowers especially stand better in consequence. There were also two large tents in the grounds, one occupied by plants and groups arranged for effect, and the other containing cut flowers and vegetables. It cannot be said that the exhibits generally were up to Brighton's usual form, but this was due to the drought.

GROUPS OF PLANTS.

Groups arranged for effect were somewhat flat and formal. The best came from Mr. GEORGE MILES, Nurseryman, West Brighton. There was a background of Palms and *Humera elegans*, and the foreground was formed of *Lilies*, bright *Codiums*, *Caladiums*, *Acalyphas*, *Gloxinias*, with Carnations, &c.; 2nd, W. GOODLIFF, M.A., Worthing.

Groups of Ferns were a good feature, Mr. Geo. MILES being again 1st, with a neat and well-finished arrangement; Mr. W. GOODLIFF was again 2nd, making use of larger specimens than Mr. Miles.

Tables of flowering and foliaged plants were very effective, arranged under the dome, where they imparted a pleasant relief to the lines of cut flowers.

The best six Ferns came from J. WARREN, Esq., Handcross Park; he had fine plants of *Davallia polyantha*, *Microlepia hirta cristata*, *Cibotium barometz*, *Adiantum sancta catharinae*, &c.; Messrs. W. MILES & Co., Hove, were 2nd.

Begonias of very fine quality were shown by Mr. W. GOODLIFF, dwarf, well grown and flowered; Mr. T. FAIR, gr. to R. CLOWES, Esq., was 2nd, also with good specimens. Very good *Gloxinias* for the time of year won a 1st prize for Mr. FAIR.

CUT FLOWERS.

Boxes of cut stove and greenhouse flowers were attractive, but call for no special remark. Some good blooms of Roses

were staged by Messrs. D. & W. CROLL, Dundee. It would perhaps be well in the future to admit duplicates in a class for twenty-four blooms, shown so late in August; Mr. H. HARRIS, Denny Park, Horsham, was 2nd.

Mr. HARRIS had the best collection of twelve Tea-scented Roses.

Gladioli were somewhat numerous shown. The best twelve were staged by Mr. H. J. STENNINO, Tunbridge Wells; Messrs. R. WALLACE & Co., Colchester, 2nd.

It has probably never before occurred in Brighton experience, that show Dahlias were so few and poor, and that the 1st prize for twenty-four blooms was withheld. A really superb collection of single Dahlias, in twenty-four varieties, was set up by Messrs. J. CHEAL & Sons, Lowfield Nurseries, Crawley. Equally fine was the collection of twelve bunches of Pompon Dahlias staged by this firm.

Cactus varieties were remarkably good. The best twelve bunches were shown in very fine character by Mr. J. STRUNWICK, Silverhill, St. Leonards; the collection comprised some very promising new varieties. Messrs. CHEAL & Sons were 2nd.

With twelve varieties of single Cactus Dahlias, Messrs. CHEAL & Sons were 1st.

Hardy Perennials and Bulbous Flowers, shown in bunches, are always a good feature at Brighton. Mr. G. H. SAGE, The Gardens, Bayham Abbey, Lamberhurst was 1st, with bold and striking bunches of Lillium speciosum, Tritoma Uvaria, Galtonia candicans, Gaillardias, Everlasting Pea (white), Montbretia, Gladiolus, &c; Messrs. R. WALLACE & Co. were a good 2nd.

Annuals in bunches were a good feature. An excellent collection of twelve varieties came from Mr. W. E. ANDERSON, gr. to B. PARRISH, Esq., Brighton.

FRUIT.

Fruit consisted largely of Grapes. A class for a collection of fruit arranged with plants, flowers, and foliage, contained but one collection, from Mr. T. OSMAN, The Gardens, Otter-shaw Park, to which a 1st prize was deservedly awarded.

Three very fine bunches of Muscat of Alexandria Grapes, but not perfectly "finished," came from Mr. G. DUNCAN, gr. to C. J. LUCAS, Esq., Warrnam Court.

The best three bunches of any other white Grape were excellent bunches of Dr. Hogg, even and well finished, from Mr. T. OSMAN.

Mr. C. LAKER, Horsham, had the best three bunches of Black Hamburgh, very good.

The best three bunches of any other black Grape were Madresfield Court, from Mr. MITCHELL.

There were as usual many Melons shown. The best two dishes of Peaches were Noblesse and Barrington, from Mr. F. POTTER, gr. to R. WORSLEY, Esq., Cuckfield. Mr. MITCHELL had the two best dishes of Nectarines, staging fine fruits of Pine-apple and Pitmaston Orange.

The best four dishes of dessert Apples came from Mr. G. H. SAGE, who had William's Favourite, Beauty of Bath, Quarrenden, and Mr. Gladstone. Mr. SAGE also took the 1st prize with four dishes of culinary Apples.

VEGETABLES.

filled a considerable space, and were generally good. Potatoes especially. The best collection of nine dishes came from Mr. E. DRAYCOTT, gr. to Col. SAMSON, Lindfield, who had fine Ailsa Craig Onions, Carrots, Leeks, White Celery, Byron House Potato, &c.

There were ten entries of six dishes of Potatoes, Mr. DICKER taking the 1st prize with excellent samples of Duke of York, Windsor Castle, Satisfaction, The Canon, Up-to-Date, and Pride of Tonbridge.

Onions and Tomatoes were very fine; Mr. DRAYCOTT was 1st for Onions with Ailsa Craig, which was generally finely exhibited.

MISCELLANEOUS EXHIBITS.

Messrs. W. BALCHIN & Sons arranged a collection of plants from their Hassecks Nursery, forming a noble pile at one end of the Corn Exchange—Acalypha hispida, a fine central specimen of Phenocoma prolifera Barnesii, Lilies, Codiaeums, Palms, &c.

Messrs. JAMES VEITCH & Sons, King's Road, Chelsea, filled a large table with plants—Pitcher-plants, Orchids, cut-rose-house Rhododendrons, Streptocarpus, &c.—all in fine character.

Messrs. CHEAL & Sons had fruit-trees in pots, Dahlias in great variety, Gladiolus, fruit, &c.

Messrs. WALLACE, Colchester, had a table of choice bulbous flowers.

KINGSWOOD ST. GEORGE HORTICULTURAL.

AUGUST 23.—Kingswood is a large industrial centre of Bristol; it is on the east side of the city, and occupies a portion of the ridge which takes in Bliton as it stretches away to Bath. The shoe trade is the staple business of Kingswood, and the suburbs grow with astonishing rapidity. The amateur element exhibits largely and well, but the effects of the drought have been felt here, and some things were smaller in size than usual.

Mr. CYPHER, from Cheltenham, brought his stove and greenhouse plants, and took the handsome 1st prize offered for ten plants in bloom and six fine-foliated subjects; 2nd, Mr. W. VAUSE, Leamington, who had a very good collection.

The latter beat Mr. CYPHER in the class for a 100-foot group; and though the materials were much the same, Mr. VAUSE had a better background, and a better finished foreground.

Messrs. PALMER & Son, Fishponds, were 1st with six Exotic Ferns; Mr. Rye, gr. to Capt. BELLEFIELD, Malmains, Bristol, was 2nd.

Mr. J. ROOKER, a local grower, was 1st for Begonias, and his plants were finely grown and bloomed, and of excellent quality; the Rev. F. FAWCETT took 2nd. Good specimens of zonal Pelargoniums were shown, and of Gloxinias; Fuchsias were quite poor.

Several special prizes were offered for amateurs, and Mr. RYE proved highly successful, being 1st for six specimen stove and greenhouse plants in flower, six exotic Ferns, and six fine-foliated plants.

CUT FLOWERS.

Cut flowers in the "open to all" division fell below Kingswood mark, mainly owing to the drought and heat. Roses were small, the best twenty-four varieties coming from Mr. G. GARRAWAY, of Bath, and he was 1st with twelve varieties also.

Mr. JOHN WALKER, Thame, had the best stand of twenty-four show Dahlias, Mr. G. HUMPHRIES, Chippenham, was 2nd; and these two occupied similar positions with twelve fancy Dahlias. Mr. WALKER also had the best six bunches of Pompon Dahlias, and the same of Cactus.

Herbaceous Phloxes, shown in collections of twelve spikes, were good, considering the weather. Mr. A. A. WALTERS Bath, was 1st with twenty-four quilled Asters, and with the same number of French varieties.

Hardy flowers in twelve bunches made a good feature, and there were very creditable Hollyhocks, although as many as twenty-four blooms were required.

FRUIT AND VEGETABLES.

The best eight dishes came from Mr. A. CROSE, gr. to H. O. WILLS, Esq., Bristol, who had Madresfield Court and Foster's Seedling Grapes, Peaches, Nectarines, Apples, &c., and he also won a special prize with the same number of dishes, but substituting Black Hamburgh and Muscat of Alexandria Grapes. Mr. E. HALL took the second prizes in the former class. Mr. J. MARSHALL, gr. to H. STEVENS, Esq., had the best two bunches of Black Hamburgh Grapes, having Gros Maroc, and Mr. C. O. TUDWAY was 2nd with the same. Mr. T. WILKINSON, gr. to Mrs. TALBOT GREAVES, was 1st with two bunches of White Grapes, showing Muscat of Alexandria. Mr. MARSHALL, came 2nd with Buckland Sweetwater. Mr. C. C. TUDWAY, had the best fine Culinary Apples, showing fine Peasgood's Nonsuch; the best Dessert Apple was Lady Sudeley, shown by Mr. G. GARRAWAY.

Vegetables were fairly numerous, but not so good as we have seen them elsewhere.

SWANSEA HORTICULTURAL.

AUGUST 24.—The annual show of this old-established Society was held in the new Market Hall on the above date. The Market Hall is a spacious, well-ventilated building, covering about 5 acres, and suitably adapted for the purpose of exhibitions.

The Show was opened at 1 P.M. by Sir J. T. D. Llewellyn, Bart., M.P., and Mayor of Swansea. The Secretaries, Messrs. Drummond and T. Foote, assisted by an energetic committee, made every arrangement desirable for the success of the Show.

Although the season has been exceptionally hot and dry, the quality and number of exhibits were in advance of last year. Some fine trade exhibits were put up by Messrs. KELWAY & Sons, Langport, Somersetshire; CLIBBON & Son, Manchester; TUPLIN & Sons, Newton Abbott; PARSONS & Co., Swansea; and JAMES HARRIS, Blackpill.

The Show was in every way a great success.

MARKETS.

COVENT GARDEN, AUGUST 31.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. & d.		s. d. & d.
Arum Lilies, dozen blooms	3 0-4 0	Odontoglossums, per dozen	3 6-5 6
Asparagus "Fern," bunch	2 0-2 6	Marguerites, p. doz.	8 0-4 0
Carnations, per doz. blooms	1 6-8 0	Mignonette, dozen	4 0-6 0
Cattleyas, per dozen	10 0-15 0	Pelargoniums, doz.	4 0-6 0
Eucharis, per dozen	4 0-6 0	Roses indoor, per dozen	2 0-6 0
Gardenias, per doz.	2 6-3 6	— Red, per doz.	3 0-5 0
Gladiolus The Bride, dozen bunches	5 0-6 0	— Tea, white, per dozen	2 0-3 0
— Brencleyensis, dozen spikes	1 6-2 6	— Yellow, Perles, per doz.	2 6-3 3
Lilium Harrison, per dozen blooms	4 0-5 0	— Saffrano, per doz.	2 0-3 0
Lilium longiflorum, per dozen	4 0-6 0	Smilax, per bunch	8 0-4 6
Maidenhair Fern, per doz. bunches	4 0-6 0	Tabacums, per doz. blooms	0 8-0 9

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. & d.		s. d. & d.
Adiantums, p. doz.	5 0-7 0	Foliage plants, var., each	1 0-5 0
ArborVita, var., doz.	6 0-36 0	Fuchsias, per dozen	4 0-6 0
Aspidistras, p. doz.	18 0-36 0	Heliotropes, p. doz.	6 0-8 0
— specimen, each	5 0-10 6	Heliconias, each	15 0-105 0
Crotons, per doz.	18 0-30 0	Hydrangea paniculata, each	2 6-3 6
Dracenas, var., doz.	12 0-30 0	Lilium Harrison, doz.	18 0-24 0
— viridis, per doz.	9 0-18 0	Lycopodiums, doz.	8 0-4 0
Erica, var., per doz.	18 0-36 0	Marguerite Daisy, per dozen	6 0-9 0
Eucynymus, various, per dozen	6 0-18 0	Myrtles, per dozen	6 0-9 0
Evergreens, var., per dozen	4 0-18 0	Palms, various, ea.	1 0-15 0
Ferns, in variety, per dozen	4 0-18 0	— specimens, each	21 0-68 0
— small, per 100	4 0-6 0	Pelargoniums, scarlet, per dozen	4 0-6 0
Ficus elastica, each	1 6-7 6		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. & d.		s. d. & d.
Apples, all home-grown:		Lyches, Chinese, packet, 1 lb.	1 8 —
— Ingestres, bus.	6 0-8 0	Melons, in cases 24 or 36	8 6 10 0
— Julien, bushel	3 0-4 0	— each, English...	0 9-1 6
— Keswick, bush.	2 0-3 6	— F. Canteloupe, each	0 7-0 9
— Mans, bushel...	3 6 —	Nectarines, A., doz.	7 0-10 0
— Suffield, bushel	3 6 —	— B., per doz.	8 0-5 0
— Quarrenden, bus.	8 0-12 0	Oranges, Italian, case 100 or 200...	12 6-15 0
— Worcester Pearmain	8 0-9 0	Peaches, A., doz.	6 0-8 0
— Various Cookers, per bushel	2 6-3 6	— B., per dozen	2 0-4 0
Apricots, dozen	3 0-2 6	Pears, Californian, cases	6 6 —
Bananas, per bunch 10 or 12	0 10-12 0	— Duchesne, 48 cases	8 6 —
Figs, per dozen	2 0-8 0	— Hazels, bushel	6 0-7 0
— Italian, in boxes	2 0-2 9	— Williams, 36, 48, 66 cases	3 9-5 6
Grapes, English, Hamburgh, lb.	1 0-1 6	Plums, English, Gisborne, sieve	2 6-3 0
— Alicante, per lb.	1 0-1 3	— F. Wales	4 0-4 6
— Gros Colmar, lb.	1 0-2 6	— Victoria	2 6-3 0
— Muscats, A., per lb.	2 0-2 6	— Violet	3 6-4 0
— B., per lb.	1 0-1 6	— Blue, sieve	3 0-3 6
— Belgian, per lb.	0 6 —	— Orleans (English), per sieve	4 0 —
— Channel Islands	0 6-0 8	— Black Diamond, per sieve	4 0-4 6
— Muscats, lb.	1 0-2 6	— Gages, sieve	7 0-10 0
— Lisbon, Black or White, boxes	10 0 —	— pecks	4 0-5 0
Lemons, Naples, per case of 420	18 0-20 0		
— Messina, case of 150	18 0 —		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. & d.		s. d. & d.
Artichokes, Globe, per doz.	1 6-2 0	Mint, per dozen bunches	8 0-4 0
Beans, English, Dwarf, per sieve	2 0-3 6	Mushrooms, house, per lb.	1 3-1 6
— Scarlet Runners, per bush.	4 0-5 0	Onions, Dutch, bags 8 or 40	3 0-4 0
Beetroots, new, doz. bunches	3 0-4 0	— Onions, picklers, in bags	3 0-4 0
— in bus.	3 0-3 6	— Oporto and Valencia, cases	5 0 —
Cabbage, tally	8 0-10 0	— new, bunches...	2 6-3 0
— dozen	1 0-2 0	Parley, per dozen bunches	2 6-3 0
Carrots, new English, per dozen bunches	2 6-3 0	— per sieve	1 0-1 6
— good, cwt. bags	8 0-8 6	Peas, blue, per bushel	5 0-8 0
Cauliflowers, dozen	2 6-3 0	Potatoes, Hebrons, Snowdrops, &c. per ton	55 0 00 80 00
Celery, new, per bundle	1 6 —	Radishes, round, breakfast, per dozen bunches	1 6 —
Cress, per dozen punnets	1 6 —	Salad, small, punnets, per dozen	1 8 —
Cucumbers, doz.	1 6-3 0	Shallots, per sieve	1 6 —
— ridge in pots	2 0 —	Spinach, New Zealand, per peck	0 9 —
Endive, new French, per dozen	1 6-2 0	— sieves	1 6 —
Garlic, new, per lb.	0 2 —	Tomatoes, new English, per lb.	0 3-0 2 1/2
Horseradish, English, bundle	2 6-3 0	— Channel Islands, p. lb.	0 2-0 2 1/2
— foreign, per bundle	2 0-2 6	— French, in sieve	1 6-2 0
Leeks, new, per doz. bunches	2 0 —	— boxes	1 6-2 0
Lettuce, English, Cabbage, dozen	2 0-2 6	Turnips, dozen	5 0 —
Lettuce, Cos, doz.	3 6 —	— cwt. bags	3 6 —
Marrows, Veg., doz.	1 3-1 6	Watercress, p. doz. bunches	0 4-0 6
— tally	6 0 —		
— in pads or pots	1 6-3 6		

REMARKS.—Apples still continue a very bad trade. Potatoes are much lower in price, even to 55s. per ton. Snowdrops and Up-to-Date realise 70s., 75s., and 80s. per ton.

SEEDS.

LONDON: August 30.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report to-day's market thinly attended. Trifolium continues in moderate request at unchanged rates. Winter Tares and seed Rye being in brisk demand, and moderate supply favours holders. There is a somewhat improved inquiry for Mustard and Rape. Canary seed is firm at the recent advance, whilst Hempseed keeps scarce and dear.

FRUIT AND VEGETABLES.

GLASGOW: August 30.—The following are the averages of the prices recorded since our last report:—Lemons, 6d. to 1s. per dozen; Cobnuts, 4d. to 8d. per lb.; Pears, 2s. to 3s. per sieve; Plums, Dutch, 2s. 9d. to 3s. do.; Victoria, 3 1/2d. to 4d. per lb.; Apples, Dutch, 12s. per barrel, and 2s. 4d. per bushel; do., English, 14s. per cwt.; Grapes, English, 1s. to 2s. per lb.; do., foreign, 4d. to 8d. per lb.; Mushrooms, 10d. to 1s. 6d. do.; Tomatoes, English, 3d. to 5d. do.; do., Scotch, 4d. to 6d. do.; Carrots, Dutch, 8s. per bag; do., Scotch, 1s. per bunch;

Onions, white, 2s. 9d. do.; Cabbages, 9d. to 1s. per dozen; Leeks, 3s. 6d. per dozen bunches; Parsley, 1s. to 1s. 6d. per stone; Cucumbers, 4d. to 5d. each; Lettices, round, 6d. to 1s. per dozen; do., Cos, 9d. to 1s. 3d. do.; Beetroots, 6d. to 1s. per dozen; Syboes, 9d. to 1s. per bunch.

PLANT AND FLOWER MARKET: August 30.—The following are prices current during the past week.—*Oenothera*: *Latania borbonica*, 1s. 6d. per pot; *Corypha australis*, 4s. dozen do.; do., small, 3s. 6d. do.; *Clivia*, 6d. do.; *Aspidistra*, green, 1s. 6d. do.; *A. variegata*, small, 2s. 3d. do.; *Dracena discolor*, 8d. do.; *D. rubra*, 6d. do.; *A. Massangeana*, 2s. do.; *Nidularia*, large, 1s. 7d. do.; small, 1s. do.; *Araucaria excelsa*, 1s. each; *Ficus elastica*, 6d. do.; *Scotch*: *Roses*, *Pelargoniums*, *Fuchsias*, *Begonias*, and *Azaleas*, about 2s. per dozen; *Ferns*, 6d.; *White Heather*, 4d. bunch; *Scotch Lillium Harrisii*, 1s. 6d. to 4s. per dozen; *Arums*, 1s. 6d. to 3s. do.; *Orchids*, 1s. 8d. per dozen blooms; *Carnations*, 2d. to 6d. per bunch; *Roses*, white, 6d. to 2s. per dozen, do.; red, 1s. to 2s. do.; and boxes, 2s. to 4s.; *L. lancifolium*, 9d. to 1s. 3d. per dozen; *Asters*, 1s. to 8s. per dozen bunches; *Sweet Peas*, 1s. to 2s. do.; *Maidenhair Fern*, 8s. to 6s. per dozen; *Gardenias*, 1s. per dozen; *Marguerites*, 1s. 6d. per dozen; boxes of mixed flowers, 6d. to 4s. per box; *Asparagus Ferns*, 6d. to 2s. per bunch.

LIVERPOOL: August 30.—*Wholesale Vegetable Market*.—Potatoes, per cwt.: Early Regents, 2s. 3d. to 3s. 8d.; Main Crop, 2s. 9d. to 3s. 6d.; Kidneys, 2s. 9d. to 4s.; Turnips, 8d. to 1s. per doz. bunches; do., Swedes, 2s. to 2s. 6d. per cwt.; Carrots, 8d. to 9d. per dozen bunches; Parsley, 6d. to 8d. do.; Onions, foreign, 4s. to 5s. per cwt.; Cucumbers, 1s. 8d. to 2s. 9d. per dozen; Cabbages, 10d. to 1s. 9d. do.; Celery, 1s. to 2s. do.; Peas, 4s. to 4s. 8d. per bushel; Beans, 1s. 3d. to 1s. 6d. do.; do., Kidney, 1s. to 1s. 8d. per peck; Scarlet Runners, 1s. to 1s. 3d. do.; St. John's.—Potatoes, 1s. 2d. per peck; Grapes, English, 1s. 6d. to 2s. per lb.; do., foreign, 4d. to 8d. do.; Pines, English, 4s. each; Peas, 1s. 4d. per peck; Cucumbers, 2d. to 4d. each; *Birkenhead*.—Potatoes, 10d. to 1s. per peck; Peas, 1s. do.; Cucumbers, 2d. to 4d. each; Filberts, 10d. per lb.; Grapes, English, 1s. 6d. to 2s. do.; do., foreign, 4d. to 8d. do.; Pines, 4s. to 6s. each; Mushrooms, 1s. per lb.

CORN.

AVERAGE PRICES OF British Corn (per imperial qr.), for the week ending August 26, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
Wheat	s. d.	s. d.	s. d.
Barley	30 7	24 7	- 6 0
Oats	37 6	26 5	- 1 1
	19 3	17 1	- 2 2

THE WEATHER.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 48° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DIRECTIONS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
	Above (+) or below (-) the Mean for the week ending August 26.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since January 1, 1899.				
0	8 +	141	0	+ 306	- 6	134	26.5	49
1	7 +	140	0	+ 196	- 20	123	19.8	54
2	5 +	142	0	+ 316	- 93	112	14.4	51
3	4 +	150	0	+ 343	- 196	5	99	12.7
4	7 +	164	0	+ 376	- 141	6	97	15.0
5	5 +	167	0	+ 480	- 183	5	83	12.8
6	7 +	151	0	+ 245	- 49	9	182	29.2
7	8 +	109	0	+ 385	- 146	7	119	20.7
8	6 +	162	0	+ 496	- 121	7	106	22.9
9	8 +	157	0	+ 292	- 72	5	139	22.0
10	6 +	156	0	+ 412	- 54	0	aver	117
*	7 +	182	0	+ 665	- 67	3	100	16.0

The districts indicated by number in the first column are the following:—

- 0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London. Principal Graving, &c. Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

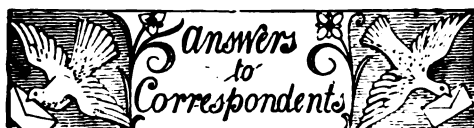
THE following summary record of the weather throughout the British Islands for the week ending August 26, is furnished from the Meteorological Office:—

"The weather continued very fine and dry until towards the end of the week, when rain was experienced over Scotland, Ireland, and the extreme of 'England, W. and S.W.' At the Scotch stations the rain was accompanied by much thunder and lightning.

"The temperature continued above the mean in all districts, the excess ranging from 4° in 'England, E.,' and 5° in 'England, N.E. and S.,' to as much as 7° in 'Scotland, E. and W.,' the 'Midland Counties,' and the 'Channel Islands,' and to 8° in 'Scotland, N.,' 'Ireland, N.,' and 'England, N.W.' The highest of the maxima were recorded on the 25th over England, but earlier in the week in most parts of Ireland and Scotland. They ranged from 90° in 'England, E., S., and S.W.' (at Cambridge, in London, and at Llandoverly), and 80° in the 'Midland Counties,' to 82° in 'England, N.E.,' and 80° in 'Scotland, W.' and 'Ireland, S.' The lowest of the minima, which were registered, as a rule, on the 22nd, ranged from 40° in 'Scotland, N.,' to 52° in 'England, N.W.,' and to 58° in the 'Channel Islands.'

"The rainfall was again almost entirely absent from England, and much less than the mean in all parts of the Kingdom, excepting 'Ireland, S.' In this district, the fall was equal to the normal, owing chiefly to a measurement of 2.22 inches, which fell at Valencia on the 24th, and during the early morning of the 25th.

"The bright sunshine was much above the mean in all parts of the Kingdom. The percentage of the possible duration ranging from 88 in 'England, S.' and the 'Channel Islands,' and 80 in 'England, S.W.,' to 51 in 'England, N.E.,' and 49 in 'Scotland, N.'



BOOKS: *R. C. D. The Amateur Orchid Cultivator's Guide Book*, second edition, by H. A. Burberry published by Blake & Mackenzie, Liverpool, price 5s.

CELERY: *W. J.* If your crop is so badly attacked as you describe, we fear there can be little done to save it. When once the maggots are in the leaves, you can only get rid of them by removing the leaves. Of course, dressings are useful as a preventive. But they are most valuable early in season; and if then the foliage be made distasteful to the fly, the crop would never become so badly infested with maggots. Soot is as good as anything; but bear in mind that it is well to manure and water heavily, or do anything to encourage quick growth in the plants, as this will help greatly to save them. Miss Omerod recommended the following mixture as useful:—One part unslaked lime, one part gas-lime a month from the works, and two parts of mixed dry earth and soot. Stir all well together, and scatter liberally on the plants and the ground.

CLEMATIS: *A. T.* You do not say what species of Clematis it is to which you refer. If you transplant them to a position out-of-doors, and must cut them down, the work should be done early in the autumn, or in spring before growth commences. But from the filthy condition the plants are in, it would be best to destroy them.

GRAPES: *J. McL.* The slight disfigurement to your excellent berries of Muscat Grapes is due to some physical cause. There appears to be no fungus in the case, and so far as can be judged here in the absence of precise knowledge of the circumstances, we should suspect that there was a little "rubbing" done when the Grapes were thinned, or it may have been due to cold draughts. The injury has affected the skin alone.

INSECTS: *Herts.* One of the Hawkmoths.

IS CORNFLOWER (CENTAUREA CYANUS) A WILD FLOWER? A Disqualified Exhibitor. We think the judges were technically right. It is not a true native plant, but one that has been introduced with foreign seeds, &c. Nevertheless, it has made itself very much at home.

MELON WITH SEED GERMINATING WITHIN: *Jno. McL.* You ask why the seeds have commenced to germinate before the Melon was opened? The opposite question would be just as fair one. For the conditions in the interior of a Melon, or such-like fruit, are just those necessary to the germination of seeds, except that there is little air. But why in certain

instances germination does take place, and in others it does not, is not known. However, it is much more common than you suspect, and we have known instances of the like in Melons, Tomatoes, Papaws, Oranges, Pernettyas, and other succulent fruits.

NAMES OF FRUITS: *H. F., Moortown, Leeds.* 1, Margaret; 2, Crimson Quoining.—*G. H. T. Market Harboro' and Red Astrachan.*—*A. H.* 1, Liver Pearmain; 3, Early Strawberry; 4, Evargil; 7, Radford Beauty; 8, Trumpington; 9, Pineapple Pippin; the other specimens were not in character.—*R. H. W.* The Grapes were insufficient to form a positive opinion upon. No. 1 was apparently Gros Guillaume; 2, Black Prince; 3, White Frontignan. Plums: No. 4, Kirk's; 5, Jefferson's; 6, Prince of Wales; 7, Violet Damask.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*F. C. W.* Your Crotons are:—1, Baron Frank Seiliere; 2, Veitchii; 3, Mrs. Swan; 4, Etna; 5, looks like a seedling; 6, *Interuptus elegans*.—*A. L.* *Cassinia fulvida*; 2, probably *Lonicera sempervirens*.—*C. G.* 1, *Phleum pratense*; 2, *Cynosurus cristatus*; 3, *Arrhenatherum avenaceum*; 4, *Bromus giganteus*; 5, *Juncus bufonius*; 6, *Reeds lutea*.—*Alpha.* *Cichorium intybus*.—*J. R.* All wretched scraps, shrivelled to tinder. We guess them to be:—1, *Cornus mas*; 2, *Ribes alpinum*; 3, *Viburnum Lantana*; 4, looks like the Snowberry—*Symphoricarpos racemosus*; but the specimen is insufficient; 5, *Spiraea Douglasii*; 6, *Kolreuteria paniculata*, probably.—*F. Lomas.* *Cannabis sativa*, common Hemp.—*C. H.* 1, *Hæmanthus natalensis*; 2, *Crinum Mooreanum*; 3, *Pachyphytum species*.—*M. C.* 1, *Maedevallia Reichenbachiana*; 2, *Odontoglossum Lindleyanum*; 3, *Oncidium prætextum*; 4, *Cypripedium Parishii*; 5, *Dendrobium infundibulum*.—*J. F.* 1, Yellow Hollyhock; 2, *Delphinium cardinale*; 3, *Erigeron philadelphicus*; 4, *Arnebia echioides*; 5, *Gaura Lindheimeri*; 6, *Stachys palustris*.—*W. T.* *Saponaria officinalis*, double flower.—*H. T. W.* *Betonica carnea*.—*J. C.* 1, *Calystegia pubescens*; 2, *Ecballium Elaterium*, the squirting Cucumber.—*Beaumont.* *Rhus Cotinus*.

ROSE: *S.* Badly affected with Rose mildew; cut off and burn the affected shoots.—*B. R. & Co.* Robin's Pincushion; the work of a gall-fly—*Cynips* sp. Very common on Briers though professional Rose-growers are generally not familiar with it.

SHRUB GROWING IN THE EMBANKMENT GARDENS: *S. Ray.* A variety of *Hibiscus syriacus*, commonly known as *Althæa frutex*.

TOMATOS DISEASED: *F. and S.* The fruits sent are not sufficient to allow a correct identification of the cause of trouble. The discolouration may arise from the fungus you mention, on leaves. Spraying with potassium sulphide, and sprinkling the soil below the plants with quicklime, will probably help, at least will do no harm. If you sent specimens of diseased plants with fruit, another examination could be made.

WIREWORMS: *F. W. C.* Gas lime is injurious to these hardy pests, but air-slacked lime—no. In your case, the gas lime would probably injure the plants also, unless you could delay planting for a time. Many cultivators have lately used the ordinary commercial flour of mustard against wireworm, and as this substance will not injure plants, it would be well to dig in a good dressing of this. The worms would be very likely to destroy your bulbous Irises if you take no means to get rid of them.

COMMUNICATIONS RECEIVED:—*L. L.*—*F. L. Contich.*—*W. T. T. D. T. F.*—*L. R. R.*—*F. M.*—*J. F. McL.*—*J. F. H.*—*A. G. T.*—*E. O'B.*—*A. C.*—*E. C.*—*E. H.*—*B. W. J.*—*Godfrey.*—*James Good.*—*Cretica.*—*Matfen.*—*S. S.*—*J. Sainsbury.*—*G. L. T.*—*Rosefield.*—*W. K. & Co.*—*L. B.*—*H. H. R.*—*H. Deveril.*

SPECIMENS, PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—*B. S. W.*—*H. L. & Co.*—*A. C. B.*—*T. H. S.*

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardener's Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle

No. 663.—SATURDAY, SEPT. 9, 1899.

THE PRINCIPLES AND PRACTICE OF FERN-CULTURE.

IN the order of Ferns we see one of the largest, and yet one of the most primitive groups of plants on the globe. In the earlier period of the earth's history, this group held a much more important position in the vegetable kingdom than it does to-day. In the late Palæozoic and earlier Mesozoic epochs Ferns must have constituted a very prominent and distinctive feature of the vegetation. This is highly probable, not only from the records handed down to us by the rocks, in which we find their remains abundantly preserved, but also from what we know of the habits and exigencies of living Ferns, and of the climatic conditions prevailing on our earth during those far-back ages. Anyone who knows anything at all about these plants is well enough aware that the prime requisites for their successful healthy life are a moist atmosphere and, as regards the majority, at least, shade; they are generally found growing in the midst of thick woods and forests, or in the weakly-illuminated crevices and cavities of damp rocks. Astronomers and geologists tell us that in the earlier epochs of the earth's history above-mentioned, these two conditions of moisture and shade were very much more prevalent than to-day. In the first place, the disc of the sun was probably immensely larger than it is now, and thus afforded a very great amount of heat to the earth's surface; this heat and the density of the atmosphere, caused by the preponderance of carbonic acid gas in its constitution, were the chief agents in retaining a very large quantity of moisture in the air at all times. This condition of the atmosphere would necessarily moderate to a considerable extent the strength of the light coming from the sun, which would be much more diffuse than in an atmosphere like that of the present day; the greater size of the sun's disc would also render the light less concentrated and calmer. All these conditions, as it seems, would be much more favourable than those prevailing at the present day for the development and extension of Fern-life. And in Carboniferous, Permian, and Triassic times this order of plants probably attained a luxuriance of which we know nothing in our own days. In those epochs, doubtless, the individual plants reached a great development. Tree-Ferns were everywhere, or almost everywhere, the typical representatives of the order, most of these being far larger in size than any we know of to-day.

FAVORABLE CONDITIONS.

In later ages, as the climate in the different latitudes of the globe became less equalised, and the heat became confined within the tropics; as the density and moisture of the atmosphere diminished, and the sun's light increased in intensity, the cycle of Fern life also proceeded *pari passu* along its downward arc. The comparatively few Tree-Ferns that remain at the present day are almost entirely

confined to the tropics; the forms which had made their home in what are now temperate regions diminished greatly in size as the ages rolled by, until to-day the severe change in conditions has caused the dwarfed descendants to seek the cover of woods and the shelter of rock-crannies to shield them from the bright sun, and to find the moisture which they love.

Ferns must be treated under cultivation as they are treated by Nature in their native habitats. They do not all demand one uniform mode of culture, but even in this apparently monotonous type of plants considerable variation of habit and habitat obtains.

TEMPERATURE.

Take the Ferns of the tropics. These will all require to be grown in conservatories, where a temperature suited to their natural needs must be constantly maintained, a temperature varying with the seasons somewhat—i.e., lower in winter than in summer, just as it would vary in the native home of these plants. Other tropical Ferns which grow at some considerable elevation on mountains, and those which inhabit regions lying midway between the torrid and the temperate zones, will be satisfied without artificial heat, or only a few degrees thereof, and will require only a cool greenhouse and sufficient shelter to protect them from cold winds and frosts.

The hardy Ferns, such as those which grow wild in this country, except such forms as the Bracken and *Blechnum*, need only to be protected from the direct rays of the sun, an illumination such as is afforded by planting them with a northern aspect, suiting them best. This protection from the sun's rays will apply to Ferns of all climates; at the same time, they must not be placed in too deep shade, for they require light as much as any other plant; although that they are partial to a certain amount of shade is shown by the fact, which distinguishes them from most other plants, that chlorophyll is present in the epidermal cells of the leaf, as also, probably, by the thin texture of the latter. The only Ferns which are fond of a tolerably thick shade are the Hymenophyllaceæ, or Filmy-Ferns, which grow in dense woods, creeping under the foliage of other plants, or by water-courses, hidden under rocks and stones; the texture of their leaves is of the thinnest in the vegetable kingdom, being, with the exception of the genus *Loxosoma*, but a single layer of cells thick. The shade such as tropical Ferns enjoy in their native glens and forests is perhaps best copied through the means of the green shading material which is painted on the roofs of stoves, whereby a diffused greenish light prevails in the house, such as would be shed through the green umbrage of a forest upon the Ferns and other plants growing in its depths.

MOISTURE.

Ferns all love a moist atmosphere, more especially those hailing from tropical forests, where a damp atmosphere always prevails, owing to the constant slow evaporation of water from the luxuriant vegetation which is protected from the direct influence of the sun's rays. Amongst the precautions to be taken, therefore, in a conservatory for the proper maintenance of healthy, vigorous Fern-life, beside a suitable temperature and adequate shading, is the maintenance and regulation of constant moisture in the air by watering the floors and stages; the foliage of the Ferns must not be wetted more than can be helped, but the water must be supplied to the roots from below. The foliage of these plants is constructed

to luxuriate in a moist medium, and if this latter lose its moisture disaster will ensue to the plants, for the epidermis of their leaves is furnished with no cuticle, as is the case with most plants, adequate to withstand desiccation, and the few cell-layers which constitute the thickness of the leaf would yield up their sap at a more rapid rate than it is supplied by the roots. And the reason why the foliage should not be watered from above is because such delicate tissues are easily soaked through—a state of things which would naturally soon cause them to decay, and induce fungus-growths.

SOIL.

Another very important factor in Fern culture is the choice of the compost in which to grow the plants. This should always be chosen with an eye to that in which the individual genera and species flourish in Nature. The natural conditions of soil found in most of the habitats of Ferns is probably best imitated by making a mixture of the various soils used in the garden, with a preponderating proportion of that substance which best suits the individual plant or plants concerned. But the majority of Ferns will thrive well in an ordinary compost of loam (especially fibrous loam), leaf-mould, peat, and sand in equal quantities. While the three former supply the requisite food-substance, the sand serves to preserve the porosity of the soil, both for the passage of air and the surplus water. For those Ferns growing in woodland habitats, where leaves would accumulate round their roots in considerable quantity, and thus constitute a very special kind of soil, an extra quantity of leaf-mould must be added to the compost above given; such Ferns are *Polypodium* and *Platycerium*. Others, such as *Osmunda*, *Marattia*, exotic *Aspleniums*, &c., which love boggy places, must be supplied with an overplus of peat. *Botrychium* and *Ophioglossum*, which grow in meadows where there is nothing but pure loam, must be treated accordingly in the garden. The *Adiantums* exhibit, apparently, a dislike to peat, so that this substance must be omitted from the compost given to them. For those which, like our British species of *Ceterach*, *Asplenium*, *Cystopteris*, and *Scolopendrium*, grow in the crevices of limestone walls and rocks, broken bits of lime in the form of old mortar, oyster shells, or gravel, should be added to the soil. The Parsley Fern, Holly Fern, and *Woodia*, which frequent the shady crevices of slaty rocks, must be supplied with chopped bits of slate in their soil. The Filmy Ferns require a rough compost, afforded by the addition of bits of charcoal and sandstone; this is to allow the surplus moisture to readily pass through, for though these plants like a moist medium, an over-saturated soil and atmosphere such as would result from a substratum which did not allow of the very rapid passage of water, especially in the close and confined habitats of these plants, would probably induce early decay of their delicate tissues.

As regards the positions in which to cultivate Ferns, Nature must here, of course, be judiciously copied. Some hang from rocks or tree-trunks; and these may best be placed in baskets, on cork blocks, or planted on rocks in the rock-garden or fernery. The majority grow on the ground in deep, rich soil, and chiefly in glens or woods. Many prefer the dark crevices of rocks. Others, such as the *Ophioglossæ*, are actually found flourishing in the open, as in meadows, and more or less fully exposed to the sun. Each must be treated, in the garden or the greenhouse, according to its native needs.

W. C. Worsdell, F.L.S.

(To be continued.)

ORCHID NOTES AND GLEANINGS.

SCHOMBURGKIA LYONSII.

Originally described by Dr. Lindley in the *Gardeners' Chronicle*, 1853, p. 615, from material sent by Mr. J. C. Lyon, of Ladiston, near Mullingar, who could give no further information about it than that he believed he got it from the Rev. John Clowes, the habitat of this handsome species was for some time unrecorded. Subsequently Dr. Lindley met with it in Dr. Alexander Prior's herbarium, the specimen having been collected by that gentleman in the hills of St. Anne, Jamaica. That, doubtless, is the correct record for the plant, of which we give an illustration of a flower (see fig. 71), shown by the Rt. Hon. Eord Rothschild, Tring Park, Tring (gr. Mr. E. Hill), also received from that locality. The plant has fusiform pseudo-bulbs, thin at the base, and much resembling *Lælia superbiens*. The scapes are about 3 feet in height, and bear at the top about twelve to twenty flowers, each flower furnished with a long bract. The flowers are white, marked with purple. It is the showiest of its own section of the genus, and well worthy the attention of all who can obtain it. Mr. Hill finds it thrives best when grown in a similar manner to *Lælia anceps*. An Award of Merit was given for it when shown before the Orchid Committee of the Royal Horticultural Society on August 15.

ODONTOGLOSSUM CRISPUM.

The excellent remarks by Mr. W. H. Young on p. 188 of last week's issue of the *Gardeners' Chronicle* induce me to describe my own method of treatment, and the course of reasoning which led to its adoption: in the first place, as this plant grows at an altitude of 8000 feet it must always be in a free air, and as the vapour-laden clouds rise to that height they become condensed and descend in copious showers upon the plants frequently, but not constantly; and not at any time can the showers be warm. One could not imagine such a thing as a spike of bloom becoming spotted and disfigured, as one has often seen them in cool Orchid-houses.

As I grew my own plants, and had not to please another's fancy, a bold method was adopted with marked success.

The essential points are: air is always admitted (except in a wind-frost), and especially by low ventilators opposite the hot-water pipes, with sufficient top-ventilation to keep the air of the house in movement. Under such conditions damping-off is unknown. What I am now about to mention will no doubt raise a chorus of surprise and dissent. All the watering the plants get is from the cold hose-pipe once or twice a day, to imitate the cold showers they get in their native habitat. This is given overhead, as if they were so many Cabbages. If the sheaths at the base of the pseudo-bulbs are full of water, they are left so, the free ventilation puts that matter right, and the material in the pots is never soaking wet, as though we were attempting to grow bog-plants. It is remembered that *Odontoglossums* naturally grow on trees, and can only get such water as falls from above. Keep the ventilation free—not so free as in an orchard-house of course; but be bold, and all will be well. Do not coddle your plants as regards temperature, but keep it down to 60° in the summer if you can; and should it fall to 35° on a winter morning, do not faint with fright—your plants will not die, if all other conditions have proper attention. T. L. C.

REVISION OF THE CYPRIPIEDIEÆ.

One of the most interesting features in our contemporary botany, is certainly the revision of the Cypripediæ group, which was, and still is, the subject of many scientific discussions. Several great authorities undertook and discussed the matter, and I am pleased to bring forward in recognition of their valuable classification the names of Prof. Pfitzer, of Heidelberg, the well known German Botanographer, and our good friend, Mr. R. A. Rolfe, F.L.S., of the Kew Herbarium, to whom the Orchid world is so much indebted for his

special studies and monographs, amongst which "The Morphological and Systematic Review of the Apostasiæ,"* forms one of the most interesting records in connection with these notes.

This well known group of Linnaeus was in recent years divided into distinct sections or sub-groups. One of the first attempts was made in 1886 by Prof. Pfitzer, and established in 1888.† This new method of classification was not immediately adopted. However, it must be stated that its bases were to divide the Cypripedium group into distinct genera from a scientific, geographical and horticultural point of view.

This idea was not practically new, for Lindley in 1842; anticipated the necessity of separating the Indian species from their Western allies, although botany and horticulture have for another half a century kept under the same determination plants greatly different in habits, structure, and origin. In 1894 the discussion was revived, and has since reached a definite result. When Comte Oswald de Kerchove de Denterghem, President of the Royal Agricultural and Botanical Society of Ghent, published his valuable book on Orchids, *Le Livre des Orchidées*, he adopted Prof. Pfitzer's classification, which gave rise to interesting criticisms in all the leading European papers.

Time has given proof of the above necessity, and Mr. R. A. Rolfe undertook the subject and brought it to its present standard.

Linnaeus established in 1787 a special genus on a well-known European species (*Cypripedium calceolus*), and called it *Cypripedium*, a determination composed of *Kupris*, one of the synonyms of *Venus*, and *podion*, small foot(?). Later on, this name became the subject of a slight alteration by the substitution of a single letter, which produced *Cypripedium*. Here we have the exact origin of that familiar name. But this did not describe Linnaeus' idea, which was, according to the traditions of botany, the translation of "Venus' Slipper." *Podion*, as selected by the author, was perfectly right[?]; but *podion* means plain, or level (or a small chain). This shows the defective alteration which has become so widely used in the practice which it would be extremely difficult to correct now.

Up to 1846 all species were classified amongst the Cypripediæ, but Lindley described the curious *Uropedium Lindeni* as a distinct genus of the tribe, on account of its elongated tailed lip. Eight years later, or in 1854, Reichenbach showed its affinities regarding the three-celled ovary characteristics of the Cypripediæ, as the other species belonging to the new world. He suggested with authority that the new plant was only an abnormal form of *Selenipedium caudatum* [as was afterwards proved by a monstrous specimen illustrated in these columns].

In 1892 Prof. Pfitzer, in his classification of Orchids, separated the tribe into three sections. The first included our old species, remarkable for their one-celled ovary. He called these Cypripediæ, with thin teguments to the seed. Secondly, the *Selenipedium* group was distinguishable by its three-celled ovary, deeply marked with the crustaceous teguments of the seed. The third group was composed of species having the three-celled ovary, with thin teguments, and was called *Paphiopedilum*, another derivation of "Venus' Slipper." This last generic name has been modified in the latest classification, and remains now *Paphiopedilum*. Mr. R. A. Rolfe, with his authority on the matter, pointed out several overlooked mistakes, and undertook the complete revision of the Cypripediæ tribe, basing his classification on the nature of the ovary, and on the disposition of the seeds therein, which obliged the author to divide the tribe into four distinct genera, which are all characteristic of their own peculiarities. In the following classification, *Selenipedium* are reduced to only three species. *Phragmopedium* of Rolfe unites Reichenbach's *Selenipedium* with coriaceous leaves, with the *Phragmopedium* of Pfitzer.

The genus *Cypripedium* is represented by about thirty species, widely spread over Europe, temperate Asia, and the northern part of America. All the others, which are species found in Asia, Malay Archipelago, New Guinea, belong to *Paphiopedilum* group. The genus is represented by about forty species, all in cultivation. These four distinct divisions or genera are grouped into two distinct groups.‡ The first one is characterised by its three-celled ovary with axile placentas, and its valvate sepals, as it is found in Rolfe's *Selenipedium* and *Phragmopedium*. The second class comprises the one-celled ovary species, with parietal placentas and fusiform seeds, as found in *Cypripedium* and *Paphiopedilum*.

SELENIPEDIUM, Rehb., f., is a genus characterised by its plicate leaves, persistent perianth, and its sub-globose seeds, and is only represented by three typical species found in Guiana, Brazil, and Central America. Their flowers are rather small, and borne on a terminal raceme. The two first described species are remarkable by the Vanilla-like odour of their flowers.

PHRAGMOPEDIUM, Rolfe, is a genus distinguishable by its conduplicate leaves, deciduous perianth, and its fusiform seeds. It is represented in cultivation by about ten species, natives of the tropics of the new world, where they are found all along the Andes, from Guatemala to Peru.

CYPRIPIEDIUM, L.—The chief distinctions of the genus are its plicate leaves, persistent perianth, and its valvate sepals.

It differs from the old group by its one-celled ovary with parietal placentas, as previously mentioned. This genus is represented by about thirty species, but not very often met with in cultivation.

PAPHIOPEDIUM, Pfitzer.—This genus is easily recognisable by its conduplicate leaves, deciduous perianth, and imbricated sepals. It comprises all the tropical species of the Old World, and its peculiar distinction lies in having the dorsal sepal folded within the lateral ones in the bud. This genus is very well represented in cultivation, and is undoubtedly composed of the most beautiful species of the whole tribe, that is to say, that we shall soon be familiarised with this new determination.

In conclusion I might add that, omitting the *Selenipedium* group, which is scarcely found in cultivation, Cypripediæ are, from a horticultural point of view, only represented by the three latter genera. But what will happen in the case of the bigeneric hybrids, which we already have? Between the old *Selenipedium* and *Cypripedium* many crosses are recorded, but very few have flowered so far. It will be a case of "Paphiophragmipedium;" and add to this the usual determination of variety, which may be splendissima or longifolia, &c., from a botanist, or *Mdlle. Germaine Scellier de X.*, from a French raiser, which will make a pretty name of some forty to fifty letters. The nomenclature of bigeneric Orchids will then undoubtedly become the subject of special study. Condensed from a communication of A. E. P. Greigson, in "Indian Gardening."

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES.

The March and April number of this unpretending but most useful publication, contains coloured illustrations and figures of the subjoined species and varieties:—

Cattleya Mendeli, Backh.; *Cypripedium insigne* v. *Sylhetense*, C. villosum, Ldl.; *C. callosum* var. *Sandere*, C. chloroneurum, Rehb., f.; *Dia Veitchii*, Hort.; *Lycaste gigantea*, Ldl.; *Odontoglossum luteo-purpureum* var. *sceptrum*, O. maculatum, Llav. et Lex, O. parlium, Ldl.; *Oncidium excavatum*, Ldl.; *O. falcipetalum*, Ldl.; *Stauropeis gigantea*, Benth.; *Cymbidium pendulum*, Swartz; *Cypripedium concolor*, Pariah, C. *Belus* Reg. Young; *Masdevallia elephanticeps*, Rehb. f. et Warsc.; *Odontoglossum Edwardi*, Rehb. f.; *O. excellens* var. *Hycanum*, Hort.; *Oncidium ornithorhynchum*, Kunth.; *Pescatorea Lehmanni*, Rehb. f.; *Sobralia virginalis*, F. Peeters et Cogn.; *Stanhopea Madouxiensis*, Cogn.; *Vanda cœrulea* var. *concolor*, Cogn.; *Warszewiczella discolor*, Rehb. f.; *Zygopetalum Mackayi*, Hook.

BEDDING BEGONIAS.

NEXT to Pelargoniums, perhaps no class of plants is so generally useful for bedding-out purposes as the Begonias. A short review of some of the best older varieties used on the continent, and which have stood the test of a great many seasons, may be of interest. Before, however, naming and describing individual varieties, I may mention that thousands of Begonias are raised from seed annually, both of varieties which come fairly true from seed, and of strains generally, not only of the semperflorens class, but also of the tuberous-rooted section. They are then sorted up into their respective colours, and in the case of the semperflorens, planted out into their definite quarters for the season, whilst the tuberous-rooted varieties are generally grown on to make good bulbs for the next season.

For bedding out, the single-flowered tuberous are preferable to the double-flowered; the latter, although very fine at first, are disappointing afterwards when only producing single flowers, apart from the fact that on account of their weight they are more liable to suffer from wind and rain than the others.

There are, of course, some exceptions, and of these the varieties Lafayette and Graf Leppelin are among the best and most effective.

Lafayette (Lemoine) is a very fine variety, with medium-sized flowers of an intense crimson colour, and with a somewhat dark bronzy-green foliage. It is a little tedious to propagate, unless one possesses a few strong stock plants; but owing to its intense colour it is indispensable. It grows about 1 foot high, and bears its flowers well on stiff stems.

Graf Leppelin (Neubronner) is, perhaps, best described as a double Davisii, being very similar to it in every respect. It grows about 6 to 8 inches high, and has pretty cushion-shaped, scarlet-coloured flowers of about 1 inch in diameter, and is very floriferous. It will stand a sunny position well, and can easily be propagated by cuttings.

* *Journal of the Linnean Society*, vol. xxv., pp. 221, 243, t. 41.

† *Die Natürlichen Pflanzen Familien*, von A. Engler und K. Prantl, Leipzig, Engelmann.

‡ *Botanical Register*, xxviii. sub. t. 17.

§ *Orchid Review*, vol. ii., p. 268.

|| *Orchid Review*, vol. iv., p. 330.

Of course, as I mentioned before, all double tuberous-rooted Begonias are more or less disappointing on losing their double flowers; but in the case of the above two varieties this is amply compensated for as bedding Begonias, owing to their very effective colours, and their almost total indifference to strong sunshine, especially in the case of *B. Graf Leppelin*.

We have now three other tuberous-rooted Begonias which, although not used to the extent of the *Semperflorens* and other classes, are so distinct and beautiful that they well deserve mentioning, and are found in many private gardens of note.

Bavaria, already described in these columns, a pretty little dwarf variety, with delicate pink single flowers tinted with violet, and with almost heart-shaped dark green leaves, and exceptionally free in flowering.

Bertini, almost identical with the old *B. boliviensis*, having bell-shaped flowers of a cinnabar-scarlet colour. Foliage of a rich green, and the plant grows about 1 foot high. It is most useful in very sunny positions, and is easily propagated from cuttings.

and beautiful variety, best raised from seed, as plants from cuttings do not branch and form such fine plants as seedling plants. It is a cross between *B. Schmitti* and *B. semperflorens* Vernon, and has delicate rose-coloured flowers, which it produces very freely. The foliage is bright green, slightly bronzed. Altogether, for groups it is one of the best varieties cultivated. I believe it is synonymous with *B. Schmittii* hybr. *rosea* (*Versaillensis*) of French catalogues.

B. s. elegans.—This variety gives no seed, and generally also does not produce sufficient shoots for cuttings, but being so free in blooming, and having flowers of such a beautiful tint of deep carmine-rose, it is generally met with in public gardens, or private ones which make any attempt at a display. Foliage is of a bright metallic-tinted green, and the habit of same is dwarf.

Perle von Stuttgart and *Teppichkönigin* are dwarf varieties of *B. Vernon*, growing about 6 to 8 inches high, but in every other particulars resembling *B. Vernon*. They are very useful for groups, or as borders to other groups.

Bertha Bofinger, carmine-rose, tinted lilac;

class that I know, is about 1 foot in height, and has flowers of a delicate coral, red or rose. These Begonias are considered the most reliable and useful from the point of view of a nurseryman who requires many thousand plants for bedding out at certain times, as they are so easily propagated from a few strong stock plants.

The first-named variety, *Berthe de Châteaurocher*, although often met with, has rather smaller flowers than either *Abondance* or *Corbeille de feu*, and they are of a dark red colour. It is certain to be superseded altogether by these two and other newer varieties of this class. One of their greatest advantages is that they will stand almost any amount of full sunshine. They are exceedingly effective when planted with specimen plants of *Chamærops excelsa*, *Dracæna indivisa*, *Phoenix*, &c., as centres to the groups, and bordered with *Coleus Verschaffelti* and *Alternantheras*. They are also very durable, and cause little trouble by way of cleaning, &c., during the whole season.

I do not presume to have given a complete list of the best Begonias grown for bedding-out on the Continent. This would be obviously impossible, as

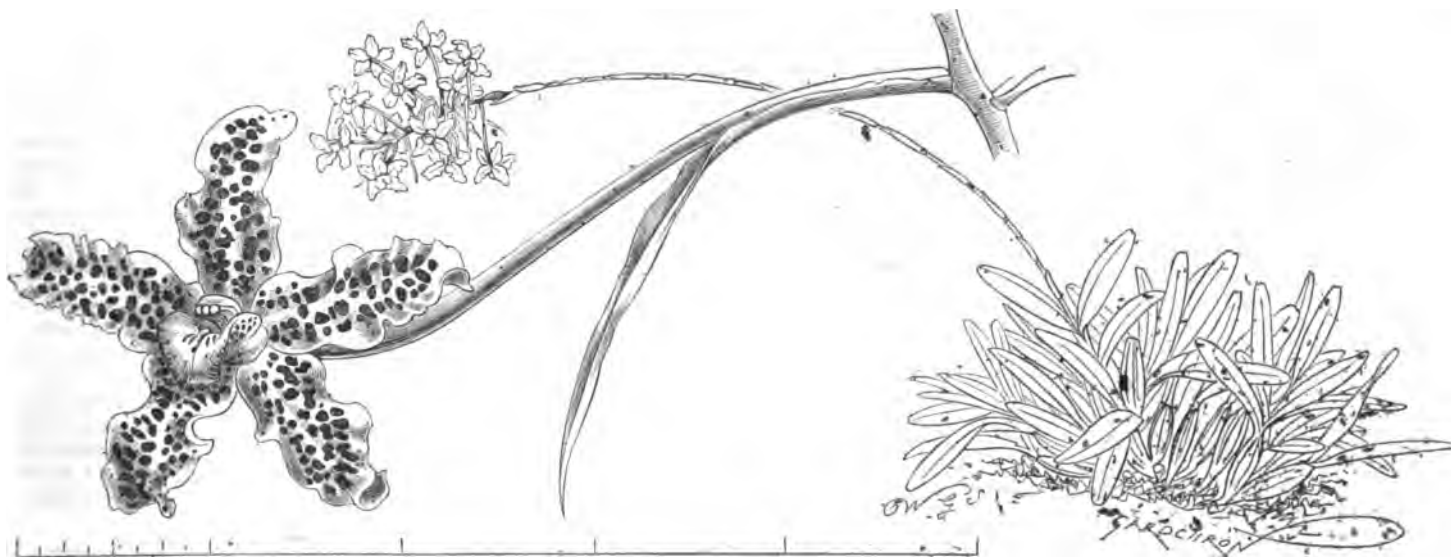


FIG. 71.—SCHOMBURGKIA LYONSII. (SEE P. 202.)

Martiana grandiflora, a most beautiful Mexican species, grows 16 to 20 inches high in fine erect bushes. It produces its flowers all the way up the stems, and these are of a fine carmine-rose, being somewhat lighter than those of *B. Bavaria*. It will grow in almost any position, standing full sunshine well if hardened off when still small. It is most useful for cutting and for tall groups, and flowers late into the autumn.

Propagation is effected by means of small bulbs, which form in the axils of the leaves. These are treated the same as if they were seeds, and are sown in the spring in a warm temperature. I have seen groups of this variety edged with *Pennisetum* or *Coleus Verschaffelti* and *Alternantheras*, which were most striking.

BEGONIA SEMPERFLORENS.

Thousands of *Begonia semperflorens* are raised from seed, but of named varieties the following are most generally met with, and most useful for bedding-out purposes:—

B. s. atropurpurea Vernon, which comes very true from seed, grows about 1 foot high, and has dark red flowers, whilst the foliage is of a glossy green colour, which assumes a dark chocolate tint when planted in full sunshine. It is very free, and makes nice bushy plants.

B. s. Erfordia (*Erfurter Kind*), a most useful

Helene Bofinger, white, are very dwarf in habit, growing only about 5 inches high, and having very pure-coloured flowers. As pot-plants under glass they are also very useful, the flowers being naturally still purer in colour than those grown in the open. Both are very free.

Bruanti is also a variety rather widely distributed. It is dwarf and compact in habit, and best used as a border to groups of other varieties. Foliage is small, and flowers are rosy-white.

SHRUBBY VARIETIES.

Taking the shrubby varieties of Begonias, the sous-frutescents varieties of the French, the most useful and most widely distributed varieties are, *Ascotensis*, *Berthe de Châteaurocher*, *Abondance* and *Corbeille de feu*, mostly raisings of Mr. Lemoine, of Nancy.

Abondance and *Corbeille de feu* are really perfect as bedding Begonias. They are very free in flowering, both of very fine colour, and will stand any amount of sunshine well. In fact, I have seen them do best in the hottest positions, and on not too light soils.

Abondance grows about 1 ft. to 1½ ft. high in fine bushy plants, and has beautiful rose-coloured flowers, produced in little clusters at the top of the branches. It is very free, and best for tall groups. *Corbeille de feu*, the most floriferous variety of this

climatic and other conditions tend, in some places, to bring out points in some varieties, making them very effective and useful, while in another locality they will not succeed at all. The above list will be found to include many of the best and fairly representative varieties.

Improvements are being carried on both in France and Germany in Begonias as well as in all other classes of plants. Especially from Nancy may we expect good things; Mr. Lemoine's double *semperflorens* being the forerunners of a new class, which may in time also become very useful for bedding-out purposes.

It is a pity that this side of horticulture was not a little better represented at the Conference at Chiswick a month or two ago; it would have shown how great the improvement has generally been in summer-flowering plants. *H. R. W., Clapton, August, 1899.*

THE ZOOLOGICAL GARDENS, REGENT'S PARK.

THESE gardens, situate in the north-west district of the metropolis, are associated in the minds of many with animal life only, but those of us who are within easy visiting distance, know the many floral attractions there; and in a season like the present one, when flower gardening with many of

us in the south has been a series of comparative failures, it is refreshing to see how well the many beds, borders, and squares, with their thousands of plants appear at the Zoo. Mr. Young, the head gardener, has had an excellent training in this particular department of horticulture, having served under the late Mr. McIntosh at Drumlanrig, and later with Mr. David Thomson in the same place, Mr. Thomson being an ardent lover of flowering effect, which he carried out in first-class style in the princely domain over which he ruled for so many years. Moreover, Mr. Young has had the long experience of nineteen years in the "Zoo," having been sufficiently long there to know, unfortunately, the ravaging effects of the London fogs upon Pelargoniums, and that Lobelia and Alternanthera and other such tender plants are liable to be killed off by thousands at a time when propagation should be in full swing. But as one admires the pleasant situation of these gardens, the stately trees, vigorous shrubberies, smooth lawns, conveniently intersected with paths, one is loth to remember that a thick metropolitan fog in winter often envelopes this charming picture.

On the occasion of my visit, which was made on a hot day in August, numbers of visitors were carefully inspecting the flower-beds, doubtless making mental notes for future use; but a few, note-book in hand, were conveying some of the floral combinations to paper, and I shall be surprised if some of these designs are not repeated in many gardens next season.

The effects of the long-continued drought were not very evident, except in the case of the tuberous-rooted Begonias, which were not equal to those usually seen here, nor were the lawns so verdant and soft as usual.

The following beds were extremely good:—The oval bed in front of the saloon, with Pelargonium Henry Jacoby groundwork, and Golden Privet and Acacia lophantha, had a bold and distinct appearance. Salpiglossis, so disappointing in some situations, were here the chief occupants of a large bed, having a groundwork of Harrison's Musk, and a relief of Anthericum freely dotted round the edges. The effect was at once simple and pleasing.

Mr. Young's name has been associated with the Celosia for some years, he having devoted much attention to this plant, with the result that his strain by careful selection has become perfect, and the cultivation from long experience being the best possible, the display from these showy plumes was a picture in themselves. Celosia aurea, with gigantic plumes of a lovely golden hue, formed the dot plants of a large bed having as a groundwork Anthericum variegatum, and a broad band of Alternanthera versicolor, relieved by a few bold specimens of Echeveria secunda glauca. C. rosea, having a light orange tint, was, in pleasant association with subjects such as Fuchsias, Asparagus plumosus nanus, Violas, &c., and was equally charming.

Seed of these Celosias is sown late in March or early in April, and the seedlings, as soon as they are fit to handle, are put singly into thumb-pots. From then until the middle of June the plants are encouraged to grow quickly, the aim being to produce the finest plumes possible before the planting out takes place. Liberal feeding, after they have rooted into the compost, is essential, as they are gross feeders, provided the diet is not too heavy.

It would be difficult to mention a style of bedding (excepting the carpet system, which finds no place at the Zoo) but is represented here. A charming margin to a large shrubbery was furnished with various tall-growing Hollyhocks, Larkspurs, Phloxes, &c., these being used to form an irregular outline; while the front portion was tastefully filled with Stocks, Fuchsias, Celosias, Veronicas, Calceolarias, &c.; the whole so arranged, that, while many kinds were represented, no one sort predominated.

Another shrubbery was edged with a broad band of Nicotiana affinis, and the dark-leaved Ricinus, two well-known subjects, but rarely seen to better advantage than in this particular position.

As suggestive of the bold nature of the lion, a large oblong bed, that runs at right angles with the structure devoted to the king of the forest, was planted with fine plants of the Flax-plant, Phormium tenax, Nicotiana affinis, and Standard Fuchsias, while a broad band of Veronica Andersoniana variegata separated the main portion of the bed from the edging of Thrift.

Cannas are largely used, and plantations of the choicest bedding varieties, in association with well-coloured Golden Privet and suitable ground-work, gave variety, and are certainly to be recommended where large masses are necessary, for few plants have the same noble leafage and a corresponding amount of flower.

As illustrative of the tropical heat of this season, an interesting border near the main entrance, planted with Acalypha musaica, Strobilanthes Dyerianus, Asparagus plumosus nanus, Pandanus Veitchii, all pleasantly interspersed with little Palms, from 2 to 3 feet high, looked capital.

Facing the main entrance, and lining the main path, are two borders—one contained East Lothian Stocks, 1500 of them, arranged in blocks; and that on the other side is planted with various types of Pelargoniums, with a background of Cannas, Paris Daisies, &c.

The older styles of bedding are to be seen in suitable places. There are masses of Pelargoniums, Calceolarias, Verbena venosa, Fuchsias, and Canterbury Bells.

In whichever style the plants are used, they bear unmistakable signs of great care in their production, and forethought in their distribution, such as only can be obtained after years of experience in conducting and superintending such a place. J. F. McLeod.

FLORISTS' FLOWERS.

"TREE" OR "PERPETUAL" CARNATIONS?

MANY object to the term "perpetual" in reference to this section of Carnations, on the ground that the plants are not perpetual blooming; but I consider the term to be much preferable to "tree," for the plants are not trees, and it is not possible to make them become such. "Bush" is more in keeping with the habit of growth. We use the term perpetual when referring to a certain section of Roses, and certainly Carnations are equally free or "perpetual" blooming.

Mr. A. Hemaley, on p. 163, is apparently one who favours the term "tree," and objects to "perpetual," pleading that although some flower for a long period, a succession of bloom from the same plants cannot be expected. Certainly a continual succession may not be had, and with such varieties as Uriah Pike, Duke of York, Primrose-Day, and Pride of Penshurst, one crop per annum is all that is to be looked for; but there are many really good varieties which will give a crop of fine flowers in October and November or later, and if the same plants be shortened back and repotted, they will again give a fine crop of blooms in April and May, and later from September to November, in addition to occasional blooms throughout the year.

Mr. Hemaley is undoubtedly correct in suggesting that many varieties degenerate because the stock plants are not treated with sufficient care. Only the most vigorous plants should be used as stock plants. The Americans, who are certainly the finest growers of Carnations of this section, urge that no stock plants should be allowed to flower.

VARIETIES.

Of scarlets in general cultivation nothing can compare with William Robinson, but it is a variety that pays well for thoughtful and proper treatment.

Respecting white varieties, I do not admire either of those mentioned on p. 163. They are tall growers, and the flowers are small. Pearl Beauty is immensely superior to either in size and substance of flower, in perfume, and habit of growth. Flora Hill, of American origin, is a large, handsome bloom when well grown, and is very free flowering.

The plant is of good constitution, but it will not succeed under indifferent treatment.

Of crimsons Countess of Warwick is the best, the habit of the plant being truly perpetual.

Of pink, rose, flesh, salmon, and carmine varieties, there are many that are superior to Miss Jolliffe and Midlle. Thérèse Franco. As the fortunate raiser of several varieties of these colours, and of whites, it would perhaps be out of place for me to do more than mention them, but I consider the following are not anything like so well known as they deserve to be. They are all Americans, and after several years' trial have proved first-class. Triumph is a deep, rich rose-pink, quite distinct from any English variety, of large size and good substance. Victor is a lively pink, many shades lighter than the preceding. It is really a sport from the popular American variety Daybreak, and like its parent is a good grower. This variety should be much more popular than it is. Bridesmaid is also well worth growing. In the yellow varieties progress is slow, but improvements are being made. America has sent us over many, but none seem to be good. They either produce poor blooms or are shy bloomers and indifferent growers. Still, I think that before long really good yellow Carnations will be obtainable throughout the winter. W. J. Godfrey.

TREES AND SHRUBS.

PITTOSPORUM CRASSIFOLIUM.

WE are indebted to Messrs. James Veitch & Sons for sending us specimens of this handsome evergreen shrub (fig. 72, p. 205) under the name of P. Ralphi.* In the *Kew Hand List* this is given as synonymous with P. crassifolium, Solander, *Bot. Mag.*, t. 5978, and judging from the descriptions of the two plants, it seems most likely that we have to do with one species only. It is an evergreen shrub with oblong obovate leaves, tapering to a short stalk, dark green above, covered with creamy felt beneath. The flowers are chocolate-coloured, the sepals covered with white downy hairs. It will probably be hardy in the southern counties, or near the sea. It was included in the remarkable group of New Zealand shrubs exhibited by the firm at the last meeting of the Royal Horticultural Society.

CULTURAL MEMORANDA.

CODIÆUMS.

CODIÆUMS or Crotons may be propagated by cuttings or by "mossing." If cuttings are used, select nice tops, and place them singly in thumb-pots with a small stick to each, so that the leaves may be tied together. They should then be put in a propagating-case that has a bottom-heat of about 70°, and if treated with care they will soon form roots. Then a little air will be necessary, and after another week the plants may be removed to the stage until they need to be re-potted.

The second method, "mossing," is a very good plan, and especially for those who have not the convenience a propagating-frame affords. Remove three or four leaves from a point a few inches from the end of the shoot, and cut the stem in a way similar to that practised when layering Carnations. Obtain some sphagnum-moss, and mix a little sand with it, and bind it round the stem where incision has been made. Syringe this moss two or three times a day.

As soon as roots are observed to be growing freely in the moss, take off the shoots and pot them up into 2½-in. pots, keeping them in a close atmosphere, and shade from sunshine until they are established. When nicely rooted, shift them into 5-in. pots, using a compost of good fibrous loam 3 parts, and leaf-mould 1 part, with the addition of some sand, and a little charcoal broken roughly. If the loam be very heavy, a little peat may be added. Use the compost in a fairly rough state. The plants

* Pittosporum Ralphi, *Trans. N. Zeal. Inst.*, iii. (1871), p. 161.

should then be placed on the stages as near to the glass as possible. A very good practice is to cover the stage with shingle or breeze, and to stand the plants on inverted pots, which will enable you to syringe the underside of the leaves, and thus keep the plants clean. Or they may be suspended from the roof by wires. Look over the plants occasionally for insects, as thrips, red spider, and scale soon disfigure them if not quickly destroyed.

The following is a list of some of the best varieties. One of the best broad-leaved varieties

SCOTLAND.

GOOD BORDER-PLANTS.

Gladiolus.—In Scotland, the various sections of autumn-blooming *Gladiolus* mostly require special treatment in spring, by starting the corms into growth under glass, in order not only to secure the development of the flowers, but also to complete growth in the young corms. Seasons have, of course, determining effects in these matters, late ones see-

others. The plants at the same time are robust and healthy.

There are, however, some sorts of *Gandavensis* which, as decorative plants, cannot well be dispensed with. These are more particularly late-flowering forms in shades of red, such for instance as *Le Vesuve*, and the very old *Meyerbeer*. Then for yellow varieties, which are effective for the purpose under discussion, nothing is finer than those of the *Lemoinei* section, the oldest of all, *Lemoinei*, being still indispensable.



FIG. 72.—PITOSPORUM CRASSIFOLIUM. (SEE P. 204.)

is *C. Reidii*; this variety, grown with single stem, makes an extremely handsome plant, as its colours well. *Gordonii*, *Mortefontaineensis*, *Mortii*, *Thomsoni* (a fine yellow-coloured variety), *Evaniansus* (an old variety, but one of the best for colour), *Baron F. Selleieres*, *Alexander III.* (another good broad-leaved variety), *Queen Victoria*, *Flamingo*, *Warrenii*, *Ruberrimus*, *Sunshine*, *Bergmani*, and *Nestor*.

The following is a list of some of the best varieties for table decoration and for exhibition:—*Aigburth Gem* (a grand variety), *Johannis elegantissimus*, *Countess*, *Flambeau*, *Superbus*, *Mrs. Dorman*, *Chelsonii*, *Laingii*, *Mrs. McLeod* (a recent addition), and *Golden Ring*, a splendid variety, as it colours well, and should be in every collection of table plants for exhibition, or for the dwelling. X. Y. Z.

ing many varieties that had been artificially started into growth failing to produce spikes in time, and early seasons sometimes forwarding the plants too rapidly; but the rule is a good one, to lengthen the season of growth at its beginning. *Lemoinei's* *Nanceianus* varieties are rather earlier to bloom than the *Gandavensis* section, and the *Childsii* forms are equally precocious, on which account they are decided gains. The last-named is, moreover, intrinsically superior as a decorative subject to any of its congeners, and if one were confined to the cultivation of only a limited quantity of *Gladiolus*, I think the one to choose should be the above. In rich crimsons, true scarlets, and various winey shades of colouring, these are undoubtedly ahead of the

HOLLYHOCKS.

These have been producing a wonderful effect in broad borders filled mostly with herbaceous plants, the Hollyhocks being dotted and grouped in irregular masses instead of in lines. Ten or a dozen plants grouped together produce a feature at once bold, handsome, and attractive, while they lend a character to the whole arrangement, surpassing that afforded by any other autumn-flowering plant. In Scotland, we possess a decided advantage over southern growers, inasmuch as the plants hold on flowering till late in the season, though this year, owing to the excessive heat they do not appear capable of producing blooms so late as usual.

Twelve months ago I mentioned having sown seeds in autumn for flowering this year. I am

glad to say the time chosen—the beginning of September—was just right. I am sowing at the same time this year also, and the young plants will, as last year, be kept in a cold, dry pit until the planting season comes round. The benefits resulting from this practice is, that one secures strong flowering plants, which sowing in early spring does not always produce; and we have absolute freedom from disease among the young stock which one is never sure of when the seeds are sown in summer.

TRITONIAS.

I have several irregular masses of these, and by far the prettiest is one of Pottii grandiflora, among which a few of the soft yellow Royon d'Or is intermixed. It is a curious fact that all the clumps which contain two or more varieties mixed together are much more effective than when the sorts are grouped separately. Another point worth mentioning is, that the more extensive the mass the better the effect, and yellow varieties surpass those that are more or less red in colouring. One of the most charming, and certainly the most distinct of Montbretias is the lilacy rose-coloured form called rosea, and this when better known must take its place as a decorative plant equally indispensable with the other sorts. It is noticeable that the admission of other plants, such, for example, as Liliun tigrinum, Coreopsis tinctoria, Gladiolus, and Cape Marigolds, is effective in breaking up the larger groups; and in the case of sorts the stock of which is limited, they may be spread over a larger area by including other plants.

Montbretias are generally considered to be hardy, but serious losses in two hard winters show that they are only conditionally so in Scotland. For that reason our stock is lifted annually and wintered in cold frames, whence the corms are transplanted in April into well-manured soil. They are planted 4 inches deep and 4 inches apart, at which distance the plants fill up nicely.

GALTONIA (HYACINTHUS) CANDICANS

is singularly effective in any way one chooses to employ it; either dotted singly among suitable low-growing plants, or grouped in large masses, or in broad lines in borders. If it were generally known that this plant may be increased with the greatest facility by means of seeds, it might be utilised more freely than it has been, as a first-rate decorative plant. My own stock, consisting of several thousands, is wholly derived from home-saved seeds, which every plant produces in great abundance. The seed is sown in April, just like Onions, in drills, and the resulting plants remain in the same place until the bulbs have attained a size sufficiently strong to bloom, which is in three to four years. The bulbs are not entirely hardy, and I lift each year in October and replant in the following April. The greater number of bulbs each produces two spikes, the one succeeding and taking the place of the other.

PHLOXES.

These are so well known and cultivated so universally that it seems almost superfluous to write of them. The full effect of the late flowering Phloxes is secured, however, not by means of a single specimen dotted here and there about borders, but when they are massed together twelve to twenty plants of one variety. Employed thus, I do not know any more desirable plant. There has been somewhat of a hankering after the dwarf varieties that have been so plentifully produced of late years, but for bold effect, these are altogether inferior to the tall sorts. Continental raisers have effected great improvements in the Phlox, both as to size of the spike, and of the individual bloom. But these are slight in comparison with the colours which have been produced. Some people would, no doubt, at once declare the various shades of scarlet, and especially those of which Flambeau is a type, as being the greatest gain; but the violet and plum-coloured varieties are scarcely less effective,

whilst nothing can surely be more pretty than the pinks.

They are difficult to arrange from catalogue descriptions, but it is a difficulty easily overcome if the plants are arranged when in flower—a method which not a few may hesitate to adopt. The Phlox is, however, one of the most accommodating of plants, and, with due care and plenty of water, they may be transplanted at any stage of growth without receiving injury. They are largely surface rooters, and in preparing ground for their reception it is well to add a thick dressing of short manure, to be thoroughly incorporated in the top spit of soil. In addition, I place annually a thick surface-dressing of manure above the stools during winter, and this affords a material aid in cases in which the ground can be enriched in no other way. R. P. Brotherston.

NEW RUBBER PLANTS.—We learn that the collectors for l'Horticulture Coloniale have sent home some new and interesting "Rubbers" from hot regions, and also some seeds, which have already germinated, of a valuable species coming from cold districts where JEAN LINDEN discovered it sixty years ago, growing at an altitude of from 6,000 to 8,000 feet. This species yields caoutchouc the fifth year after planting, and it can readily be acclimatised in the South of Europe and North Africa. Hitherto efforts to obtain living specimens have been futile, but now a large stock has been raised which will prove a valuable acquisition, notably in the Congo plantations. We do not know whether this Rubber is the species of Castilloa mentioned in the *Kew Bulletin*, 1899, p. 70, or a Hevea. A detailed account of these Peruvian Rubbers is given in the *Bulletin l.c.*, which came to hand after the receipt of the *Semaine Horticole*. This publication for August 5, which mentions the above fact, speaks also of a tree to be shortly imported which is as powerful as Eucalyptus in rendering tropical swamps less noxious, and the seeds of which constitute a new febrifuge as efficacious as quinine, and infallible for snake-bites. [It may be so, but we suggest experimental proof. ED.]

THE WEEK'S WORK.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Hollyhocks.—The old systems of propagating Hollyhocks by cuttings, grafting on stocks, and division, are now regarded as more or less failures, as the plants raised by these means are rarely robust enough to resist the fungus (*Puccinia Malvacearum*). If plants be raised from seeds however, they have a better constitution, and the strains of seeds now obtainable are quite equal in size and colour of flowers to the selected and named varieties of past years. The singles are preferable to the double varieties, as they throw up stronger spikes, the leaves keep healthy, and they are in every way as greatly attractive.

The seeds may be sown in January, but stronger plants will be obtained if they be sown now in pans which have been filled with a well mixed compost of fine loam, leafmould, and sand. Sow regularly and thinly, and place the pans in a warm and moist position. When the plants are strong enough, pot them off singly in thumbs using a similar compost, and when these pots have become well-filled with roots, transfer the plants to pots two sizes larger. Afterwards remove them to a pit or frame where they can be gradually hardened off and remain till spring, when they will be planted out. The smaller plants in the seed-pan should always be kept, because these, as a rule, have the best-coloured flowers.

Chrysanthemums.—Plants of the early Japanese, recurved, and Pompon varieties grown in borders and beds will now require liberal feeding with manure-water, and some neat stakes put to them to support the flowers. Where buds are forming freely, disbudding should be commenced as soon as possible, removing in the larger-flowering kinds all

growths pushing from the axils of the leaves, and the smaller buds from beneath the terminal bud. These are best removed by the aid of a pen-knife early in the morning when they are damp. The recurved and Pompon varieties will require less thinning, but should be looked over daily to destroy any earwigs or thrips.

Bulbs.—An order-list for bulbs should now be made out and sent to the tradesman, that the number necessary for the garden may be procured without delay. Thus no time need be lost in planting them as soon as the summer plants have been removed from the beds. Of the bedding Hyacinths the single varieties are much the best to plant. A selection of the boldest single Tulips would contain Artus, Bacchus, Brutus, Dussart (very fine), scarlet and crimson in colour; Chrysolora, Ophir d'Or, Potterbakker, good yellows; Keizer Kroon, Duchess de Parma, scarlet, edged gold; Rose Grisdeline and Cottage Maid, rose and white; Proserpine (very fine) and Rosa Mundi, rose; Wouvermann and Molière, rich purple; Thos. Moore and Prince of Orange are good shades of apricot. The double varieties are quite a fortnight later in flowering than the single ones, and are best adapted for planting in beds in low-lying ground. Among the best doubles are Rex rubrorum, Purple Crown, crimson; La Candeur, white; La Matador, orange-scarlet; Duc van Thol, scarlet and yellow; and Murillo, rose. The Parrot Tulips are excellent for borders, and may be permitted to remain in the same spot for several years together. Likewise the May-flowering varieties, such as Bouton d'Or, Picotee, exquisite for cutting; and the still later-flowering species, Gesneriana and Fulgens. Scillas sibirica, bifolia, campanulata, blue, and alba, succeed well under trees and in turf; and Chionodoxa Lucilia and sardensis show up superbly when mixed with the giant-flowered Snowdrop, Galanthus Elwesii.

FRUITS UNDER GLASS.

By W. STRUGNELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

Melon-house.—Melon plants for furnishing fruits during the next few weeks must be given very careful ventilation, watering, and bottom-heat. Their roots are very tender, and a check from any cause, particularly from cold, will be serious. Only a moderate heat, however, is needed, and this should be as uniform as possible. A strong heat one day, and none, or but little, the next, is worse than no fire-heat at all. Watering is of equal importance; an excess having fatal consequences, where there is not a well-regulated bottom-heat provided. The roots now are better kept slightly on the dry side, and chilled water should be used. It is a very good practice to keep a mound of dry lime around the base of the stems, as a precaution against canker, but unless this be kept dry its presence will do more harm than good. Should canker set in, rub the affected parts with either dry quick-lime or Portland cement, continuing this daily, or more often if necessary. Close the house early in which late Melons are grown, and shade but slightly. Do not syringe late in the day, but merely damp the floors. Plants now in flower will not set unless much care is brought to bear on the pollination of the expanding blooms, and until they are swelling satisfactorily it is better not to rigidly pinch the shoots. A light sprinkling of lime over the border frequently and watered in will greatly assist the fruit to swell.

Fig Trees in pots should now be out-of-doors, where they will become fully ripened. Any that are in small pots, and need further root-room, may be given a shift at once; they will soon make new roots if the work be done while the trees have still leaves upon them. With frequent applications of stimulating manures, however, it is surprising how well and how long Fig trees continue to be fruitful, though confined in small pots. In potting or top-dressing Fig trees, lime-rubble and bone-meal should always be included in the compost.

The Orchard-house.—Where such fruits as Apricots, Plums, Apples, Pears, and Cherries in pots occupy a portion of this structure, they should be removed outdoors as soon as they have ripened all their fruits. The latest-fruited varieties of Apples and Pears colour better in the open than under glass, but they will need to be protected from birds. The pots also should be protected against sun and drying winds by means of litter or a bed of plunging material; but do not put the

trees in a shaded position. If scale, red-spider, or thrips have given trouble, trees that have fruited may be conveniently syringed with an insecticide or hot water at the time of their removal. Peaches, Nectarines, and Plums required as late in the Autumn as possible, should for the present be given air constantly. Wasps, flies, and earwigs, are becoming very numerous. Earwigs may be trapped with short lengths of Beanstalks, which must be examined each morning, and the insects therein destroyed. Bottles partly filled with sweetened beer attract a good many flies and wasps, and Davis's or Scott's destroyers are both useful in keeping them from ripening fruits. Shorten all unnecessary lateral growth upon fruit-trees, so as to expose the swelling fruit to the sun, and also to assist the ripening of that portion which will bear the next season's crops. Make sure that the roots do not suffer for want of water, and give stimulants to those that are pot-bound.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Cattleya Boweringiana.—This free-flowering and easily-grown species, may shortly be expected to emit roots from the cushion-like base of the pseudo-bulbs just completing growth. If any of the plants need to be repotted or resurfaced, the work may now be given attention. Ordinary pots suit small plants very well, but for larger specimens pots or pans with perforated sides should be used, so that the drainage of water from the rooting material may be more rapid and free. A stagnant atmosphere or a constantly wet compost are very detrimental to the young pseudo-bulbs. Their peculiar convolute sheathing bracts are adapted for the retention of water, and if evaporation be arrested this will cause decay, and ultimate loss of the pseudo-bulbs. The tenacity and brittle character of the roots render great care necessary when breaking the pots and handling the ball when repotting. When the plant has been arranged in the new receptacle, place sufficient crocks round the ball to fill the pot to within an inch or so of the top, and on this pack some good fibrous peat, inserting a few heads of sphagnum-moss over the surface. Following root-disturbance, water will only be needed in just sufficient quantities to keep the material moist. As the winter approaches, and for a long time afterwards, a very restricted supply will suffice. Place the plants in a light and airy position in the *Cattleya* house. Evaporation should there be quick, but if at any time water remains in the bracts a longer time than is desirable, blow it out or remove it with the aid of a soft-haired brush. *C. x Mantinii*, the beautiful hybrid between the above and *C. aurea*, will thrive under similar conditions.

The Autumn Treatment of Orchids is, in most respects, directly opposite to that suitable in spring, for then it is wise to follow the old Latin proverb, and "hasten slowly," but now, it is necessary in many cases to hasten "quickly," so that plants which in their natural habitat complete their growth during the warmest parts of the year, may do so here under artificial conditions, and so fit themselves for the changeability of the British climate during winter. Backward plants should therefore be removed to the most favoured positions as regards light and heat; and being thus encouraged, they may develop their unfinished growths. All general overhead syringings should now cease so far as the afternoon is concerned, for owing to the cool and dewy nights, evaporation does not remove the deposited moisture quickly enough. On bright mornings, when there is prospect of a fine day, dewing the plants overhead should not result in harm during this month. Shadings now only need be employed to counteract the direct rays of the sun, removing it whenever there is not bright sunshine. Greater attention must be given to temperatures, as they will, no doubt, be considerably lower, and if not watched, may drop below the desired point. By no means employ more fire-heat than is absolutely necessary, but use enough to keep the air moving and to sustain the temperatures in early morning to the requisite degree.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Lettuces and Endive.—Plant out as soon as possible large quantities of Lettuces and Endive, choosing for them a border in a sunny position.

The *Cos* varieties may be planted 10 inches apart from each other, and the broad-leaved Endive at distances of a foot. Notwithstanding the showery weather, the plants will need to be heavily watered previously to lifting them; and when planted in the border, give another watering, which will settle the soil around the stems. Seeds that were sown three weeks ago have made but little progress owing to the drought, and part only have yet come up. These small plants may be lifted and put out on a warm border in rows 12 inches apart, and the plants 6 inches apart in the rows. Every alternate plant will need to be removed later. More seed may now be sown of the hardy winter kinds, but do not disturb the beds that were sown some time since; because the soil, now being damp and cooler, more of the seeds will germinate. In dry weather, when the inner leaves of those Lettuces ready for tying are perfectly dry, tie them carefully to bleach them. It is only on heavily-manured north borders that good, crisp Lettuce can be grown in hot, dry seasons.

Cauliflowers.—Attend to the young plants that will be wintered under handlights or frames. There are many who have ceased this practice, and now depend entirely on spring-sown plants raised in heat, but a few hundred plants take up but little room and attention during winter, and moreover, they can always be depended on for turning in about the middle of May. A few degrees of frost will do the Walcheren variety no harm in winter. The great evil that must be avoided is that of getting the plants too forward in autumn. From the first there should be no coddling; the plants must grow slowly, and be as sturdy and hardy as possible. In southern districts a second sowing is made, and sometimes proves the more useful.

Parsley.—Go over the beds raised from seeds sown last April and remove a good portion of the lower leaves, so that an abundance of young Parsley may be had throughout the winter. A few of the best plants may be taken up and planted at the foot of a south wall or fence. Plants raised from seeds sown in July will require to be thinned out; the young plants removed may be planted in cold frames. Parsley which has been properly prepared for winter and spring use should be kept free from weeds, and encouraged to grow freely for some time yet, and as soon as frost appears, put on the covers of the frames; but if the plants have been prepared and put out in brick pits near the glass, the lights should only be used in severe weather.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Raspberries.—Cut away all old bearing wood as soon as convenient. The principal advantage to be derived from doing this work now is that more light and air will be admitted to the young canes that are to produce next year's crop. If a greater number of these have been allowed to grow up than is required, they should now be thinned out, three or four strong ones to each stool being sufficient. Loosely fasten these to the trellis, or stakes, as the case may be, to prevent them from being broken down by wind. If the growth made has not been satisfactory, a soaking of weak liquid-manure may be helpful should September remain warm.

Pears.—Look over early varieties weekly, and gather the largest and more forward fruits a few at a time, that the season may be prolonged. Besides Williams' Bon Chrétien, which will now be nearly finished, small gatherings of such varieties as Souvenir du Congrès, a grand variety to follow the preceding; Clapp's Favourite, Doyenné Boussoch, Fondante d'Automne, Beurré d'Amanlis, and others, ripening at the same season, may be made, selecting those fruits that, from their appearance and size, should be the forwardest. If these be gathered now, those remaining will increase in size before the next gathering is made.

Out-door Vines.—Closely pinch out all surplus growths, that increased sun and air may benefit fruit and stem. The hot weather has been favourable for out-door varieties, and the Sweet-water varieties having already commenced to ripen, and should now finish well if protection is given them from wasps and flies. For this purpose thin muslin bags are best, although as a cheap makeshift I have known paper ones answer fairly well when the Grapes are as forward as they are this year. Flies seem so far to be more trouble-

some than wasps, although these are increasing in numbers. Damaged fruits, especially Plums, make good bait to trap these enemies. Place a handlight (having a square of glass taken out at the top), on four bricks, and upon this place a second handlight, making it to fit closely round the sides. The fruits being placed under the lower one attract the flies, they naturally ascend, find their way into the top light, and seldom return.

Mildew has recently become troublesome on Black Hambro, and Black Cluster Grapes growing outside, and syringing with Gishurst Compound or the Sulphur Mixture, or hot-water, is necessary. The varieties last mentioned rarely ripen perfectly outside, but the fruits may be utilised for making wine, for which purpose they answer very well.

PLANTS UNDER GLASS.

By C. R. FIELDER, Gardener, St. James's House, Malvern.

Mignonette.—A good sowing may now be made to obtain plants that will flower in late winter and early spring months. Use clean well-drained 5-inch pots, and fill these to within an inch of the brim with a compost consisting of three parts loam, one part rotten manure from a spent hot-bed, and a little silver-sand. Make the surface of the soil even, sow the seed thinly and cover it slightly with finely sifted soil. A watering should be afforded through a fine rose, and the pots placed near the glass in a cold frame. Water must be applied carefully while the seedlings are small. If the soil be kept too wet the seedlings will turn yellow and damp off. Thinning should be done directly it can be seen that the seedlings are growing freely, leaving three or four plants that are about equal in point of strength in each pot. Later it will be necessary to remove the plants to a shelf in the greenhouse or any similarly cool and light position.

Zonal and Ivy-leaved Pelargoniums should now be placed in cold frames, keeping the lights off for the present however, save in the event of a cold night being anticipated, and during heavy rains. With a view to assisting the flowering of these and other winter blooming plants such as Bouvardias, Salvias, Libonias, Manettias, Tecoma Smithii, &c., weak liquid manure may be given to such as have well filled their pots with roots.

Bouvardias that have been planted out should be lifted and potted up, taking care to secure as good a ball of roots as possible, in order to prevent the plants suffering any serious check. The potting soil may consist of three parts loam, one part leaf-soil, and one part rotten manure, together with sufficient silver-sand to keep the soil porous. When potted, the plants may be stood in a cold frame or pit, and kept somewhat close and shaded until they become established, when the shading may be discontinued, and ventilation afforded, in accordance with the state of the weather. As the autumn advances, it will be necessary to place the plants in a structure where fire-heat can be obtained when necessary. Plants which are in pots, and at present out-of-doors, may be placed in cold frames. Remove the lights each morning during fine weather.

Bulbs for Pot Culture.—Continue to pot up successive batches of bulbs. For flowering before Christmas, "retarded" Lily of the Valley crowns are very satisfactory. Batches may be potted up at intervals of about three weeks, and it is best to purchase only a sufficient number of crowns for one batch at a time. About a dozen crowns may be placed in a 5-inch pot, and if the pots be watered and placed in a cold frame for a few days, and then introduced into gentle heat and watered freely with luke-warm water, they will produce flowers in from three to four weeks. Polyanthus Narcissus "Early Snowflake" is a very valuable bulb for very early forcing. If bulbs were purchased, as advised in a previous calendar, and potted at once, they have probably commenced to show leaves; and when this is the case they should at once be taken from the ashes and placed in a cold frame for a week or ten days, and then transferred to an intermediate-house for about the same length of time. After being prepared in this way they may be placed in a house where a night temperature of about 60° is maintained, when they will come into flower about the middle of October. Batches of Lilium Harrisii, L. candidum, Roman and show Hyacinths, Freesias, and the Van Thol varieties of Tulips should also be potted. The forcing of the above bulbs should be gradual, after the manner recommended above for Narcissus, and forcing should not be begun before the pots are well filled with roots.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, SEPT. 12 { Royal Horticultural Society's Committee.
Royal Horticultural Society of Ireland.

SHOW.

WEDNESDAY, SEPT. 13 { Royal Caledonian Horticultural Society's Show in the Waverley Market, Edinburgh (3 days).

SALES.

MONDAY, SEPT. 11 { Dutch Bulbs, at Protheroe & Morris' Rooms.
Fourteenth Great Annual Unreserved Trade Sale of Plants, at Dyson's Lane Nurseries, Upper Edmonton, by order of Mr. H. B. May, by Protheroe & Morris.

TUESDAY, SEPT. 12 { Dutch Bulbs, at Protheroe & Morris' Rooms.
Great Annual Sale of Winter-blooming Heaths, and other Stove and Greenhouse Plants, at The Burnt Ash Road Nurseries, Lee, by order of Messrs. B. Maller & Sons, by Protheroe & Morris.

WEDNESDAY, SEPT. 13 { Dutch Bulbs, at Protheroe & Morris' Rooms.
Unreserved Annual Sale of Winter-flowering and other Plants, at The Nurseries, South Woodford, by order of Mr. John Fraser, by Protheroe & Morris.
Special Sale of Lillium Harrisii and Palm Seeds, at Protheroe & Morris' Rooms.

THURSDAY, SEPT. 14 { Dutch Bulbs, at Protheroe & Morris' Rooms.
Thirty-first Annual Trade Sale of Stove and Greenhouse Plants, at the Brimsdown Nurseries, Enfield Highway, by order of Mrs. F. E. Thompson, by Protheroe & Morris.

FRIDAY, SEPT. 15 { Dutch Bulbs, at Protheroe & Morris' Rooms.
Eighteenth Great Annual Trade Sale of Winter Blooming Heaths, at the Longlands Nursery, Sidcup, by order of Messrs. Gregory & Evans, by Protheroe & Morris.
Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period August 27 to September 2, 1899. Height above sea-level 24 feet.

1899.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.	NIGHT.	RAINFALL.			
		Dry Bulb.	Wet Bulb.				At 1-foot deep.	At 2-foot deep.	At 4-foot deep.
AUGUST 27 TO SEPTEMBER 2.									LOWEST TEMPERATURE ON GRASS.
SUN. 27	S.E.E.	60.6	65.4	80.6	56.7	...	68.3	65.4	62.1
MON. 28	W.S.W.	68.9	64.6	71.8	58.7	0.04	68.6	65.7	62.1
TUES. 29	W.S.W.	64.6	60.9	66.8	47.8	0.19	65.1	65.3	62.3
WED. 30	W.	64.7	59.2	72.9	58.9	...	64.7	64.5	62.3
THU. 31	S.W.	68.9	58.8	68.8	50.8	0.20	64.1	64.3	62.2
FRI. 1	S.W.	62.7	56.6	71.9	54.6	0.06	62.5	63.8	62.1
SAT. 2	W.	63.7	57.9	69.0	75.0	0.06	63.5	63.5	61.9
MEANS...	...	65.3	60.3	71.8	54.6	0.64	65.3	64.6	62.1

REMARKS.—The weather has been much cooler. Small quantities of rain fell on five days. The wind has been cool, and mostly from the west.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—80°4'.

ACTUAL TEMPERATURES:—

LONDON.—September 6 (6 P.M.): Max. 79°; Min. 66°.

PROVINCES.—September 6 (6 P.M.): Max. 69°, Home Counties; Min. 60°, N. E. Scotland.

September 7, London, noon: Rainy; Violent Storm on 6th.

The National Dahlia Society's Show.

THE Dahlia Exhibition, held at the Crystal Palace last week, was surprisingly good. That the display of all sections combined was as large or larger than at the show last year, is a very satisfactory circumstance, for the drought and heat of 1899 have been even more exhausting than the weather last season. The Show Dahlias were those that were in worst form at the Palace. They were not only less numerous than is usual at the National

poraries. The time-worn reasons of soil and district, have no doubt in some measure been responsible. Mr. C. TURNER, of Slough, the hero of so many Dahlia struggles, was unable to show a collection at all, on this occasion.

But the Cactus varieties are the better adapted for fighting such a season as the present. They were shown in the usual numbers. They lacked neither quality nor quantity, and, generally speaking, are deservedly the most popular Dahlias.



FIG. 73.—A VIEW IN DR. WINTER'S UNDERGROUND FERNERY.

(SEE P. 211.)

Society's exhibitions, but they were lacking in the symmetry and quality that the florist admires, and which, apart from the exquisite colour tints, is the only characteristic possessed by the show Dahlia that could possibly commend it to cultivators. The best blooms in this section were shown by Mr. JAS. WALKER, of Thame, who secured the leading prizes with collections that included individual blooms of a high order of merit. This exhibitor has been equally fortunate at other exhibitions held recently, and it must be capable of explanation, why in the present season, he has succeeded in combating the influences of the weather, to a degree beyond most of his contem-

Mr. J. STREDWICK's 1st-prize collection was magnificent, and there were others of almost equal excellence. Nor were the prim little Pompons less good. Bright, neat, and very free in flowering, they are splendid "garden" Dahlias, and everyone should cultivate them.

We cannot refer to the single-flowered varieties without remembering the much-lamented President of the National Dahlia Society, Mr. T. W. GIRDLESTONE, whose decease it was our painful duty to announce a short time ago. His exertions on behalf of the Dahlia, and of the single varieties in particular, are known to most of our readers. He has raised many delightful varieties of the most perfect

form, having beautiful colouring, and an improved habit of growth. But even he proved unable to obtain for the single varieties a tithe of the popularity that was accorded them some years ago. His superb exhibits in the large classes for single flowers were greatly missed last week, but it was noticed that a few of the newer seedlings raised under his care were exhibited.

Some of the best single blooms exhibited were from Messrs. J. CHEAL & SONS, who took 1st prize

show under notice. One of these is a Welsh seedling, having been raised in Cardiff by Mr. W. TRESEDER, who won 1st prize in the class for show varieties. It is to be called William Treseder, and is the first seedling for which this exhibitor has been awarded a certificate. It is a nearly white flower, the old petals becoming pale lilac, and the centre is pale yellow. Three new ones from Messrs. KEYNES, WILLIAMS & CO. were all good. These were Mrs. J. J. Crowe, a pure yellow flower;

Chrysanthemums. It is well that the Society has no desire to encourage size—or monstrosity. Mr. Stredwick had some good Cactus varieties also; including Major Tuppeney, a large orange coloured flower, with pure yellow centre; Augustus Hare, a distinct bright looking flower of orange tint edged with crimson; Uncle Tom, deep maroon, one of the best; Major Weston and Mrs. Sanders. The last mentioned is a pure and soft shade of yellow. In colour this is a lovely variety, but the lower part of the petals being flat, and only the uppers rolled, it is not so distinctly Cactus-like as some others. Elsie is the name of a seedling shown by Messrs. J. Burrell & Co. It has a yellow ground, and is marked with lilac.

We think the Society has done well to introduce a few classes for the purpose of demonstrating the use that can be made of Dahlias in various forms of decoration. In this year of grace it is very necessary to show that a flower it is wished to popularise is one that has value when cut. Here, it goes without saying, the show varieties fail entirely. But the Cactus, the Pompon, and single flowers, can be arranged to produce a charming effect in vases, or in show bouquets. The single vase from Mr. ED. MAWLEY, one of the Society's good friends, was a picture of harmony; nor was the bouquet from Mr. TRESEDER, or the epergne from Mr. HUDSON, less attractive. The Society will hold another Show this season, and we hope with Mr. J. F. HUDSON, the Hon. Secretary, that it will be equally, or more, successful than that at the Palace.



FIG. 74.—HYMENOPHYLLUM DEMISSUM, AS GROWING IN DR. WINTER'S UNDERGROUND FERNERY. (SEE P. 211.)

in the class for twenty-four varieties. Mr. STREDWICK exhibited a seedling variety of the single-flowered section, that gained a Certificate; and Girlie, as the variety is called, will be valued for the extra good form of its flowers, which are white, each petal edged with deep red. The only other single variety to which a certificate was awarded had the appellation Flame, and was from Messrs. J. CHEAL & SONS. This also has a good circular outline, the ground colour is orange-yellow and flaked or splashed with crimson.

But it is the Cactus varieties that increase out of proportion to those of all other sections, and a dozen certificates were distributed amongst these at the

Emperor, red, tipped with purple; and Innovation, the last-named being an improvement upon the rather unsatisfactory but pretty Arachne. It has a deeper-coloured base, and stouter stems. Mr. J. GREEN, of Dereham, showed a variety named Green's White, a very deep flower, of good form, with rolled, claw-like petals. This is probably the best of the seedlings exhibited; also Zephyr, a rosy-lilac variety. His Red Rover was thought to be too large to be encouraged by the Society's stamp of merit; it is the largest and most showy scarlet Dahlia, and in comparison with others is in something like the same position Madame Carnot occupied three years ago amongst

A CORRESPONDENT writes us a complaint on this matter. He is always on the look-out for something pretty or valuable for his garden, and visiting the Embankment Gardens recently he found a flowering shrub which to him was new and attractive, and at once desired a specimen like to the one that pleased him. But diligent search around the shrub for some indication of its species proved ineffectual. Not the slightest information as to the name, affinity, or native home of the plant had been provided. It had been planted therefore, apparently, to beautify that particular garden, and not for educational purposes. In his disappointment, our correspondent must needs write to the horticultural press, ask the editor to walk down to the above-mentioned gardens and send him the name of the plant. But that was not all; he asks that we should censure the responsible authorities, and, like a man with a grievance, he declares that such an experience is quite common in London. Now, latterly, we have frequently found occasion to express our appreciation of the work done in relation to the parks and open spaces in London by the London County Council and other sympathetic bodies. They have not only provided, by all sorts of measures, an immensely greater area of park and garden land in our midst, but they have introduced into these a number of the best flowering trees and shrubs, some of which are fortunately proof against London's wretched fogs. We think, therefore, that where there has been an omission to attach names to the principal species of plants it is more probably due to want of thought than lack of sympathy with such flower-lovers as our correspondent. It would be undoubtedly best to make the public gardens in London as educational as possible in the manner suggested, and if a system of labelling were carried out such as is practised in botanical gardens, this might be done so unobtrusively that none of the natural effect of the grounds would thereby be destroyed.

"LESSONS FROM THE GREAT DROUGHT OF 1898" will form the subject of a lecture by Mr. E. MAWLEY, at the forthcoming meeting of the committees of the Royal Horticultural Society, on Tuesday next, September 12, in the Drill Hall, James Street, Westminster. The lecture will commence at 3 P.M.

THE WEATHER IN LONDON has been exceedingly hot upon several days during the past week. The highest temperature was on Tuesday, when it reached 89° in the shade, a remarkable temperature for the month of September. On Wednesday morning the air was most sultry and the sky dull, and about twenty minutes after noon we were visited by an unusually severe thunder-storm, which lasted rather less than half an hour. For a time, however, the rain was a deluge, flooding the streets, and, in low situations, the houses. This cloud-burst of rain was accompanied by heavy thunder and vivid lightning. In less than half an hour an inch of rain had fallen. London has received a thorough cleansing. At the time of going to press, the weather remains showery.

"STEVENS' ROOMS."—A phrase well known to sellers and buyers of plants, and objects of natural history generally, and, as seems likely, destined to be yet better known. Mr. STEVENS informs us that he has taken Mr. D. PELL SMITH into partnership. Mr. SMITH occupied for some years a very responsible position with Messrs. J. VEITCH & SONS, and it is now intended that the horticultural branch of the business shall receive special attention in the future. The business will be carried on as heretofore at 38, King Street, Covent Garden. The telegraphic address, "Auka," if not elegant, is delightfully simple, and appropriately recalls the sales by the firm of the very rare eggs of a bird not only very rare, but extinct. Indeed, for many years the greater part of the natural curiosities and collections have ultimately gravitated to these famous rooms, where their fate has been for the time at least decided by a blow of Mr. STEVENS' hammer.

TIMBER FOR CAPE TO CAIRO RAILWAY.—A Kaccas City journal states that an order has been given and accepted for 500,000,000 feet of Southern yellow Pine, for use in the construction of this great line of African railway. One requirement of the agreement is that the timber must be placed on the ground within two years; and it is stated that the above is the largest single order known in the history of the American timber trade. Possibly, by the time all the timber has been worked up on the great through line, means will have been found for tapping and utilising the virgin forests of the "dark continent."

THE ROYAL GARDENS, KEW.—Below are a few condensed notes upon some of the interesting plants in these gardens at the present time.

Canada Rice.—There are now flowering in various parts of the garden plants of the stately Canada Rice, *Zizania aquatica*. It is a most elegant plant for the edges of ponds and similar localities, growing to a height of 6 to 8 feet, with narrow recurved foliage and light terminal panicles of flowers, the males above, the females beneath. The plant is an annual, and great difficulties have been experienced in former times in getting the seed to grow; so that, although originally introduced by Sir JOSEPH BANKS to this country, it has never become well established among us. The seeds are used as cereal grains by the North American Indians. *Z. latifolia*, a perennial species from Japan, has fleshy root-stocks, which are eaten by the Japanese.

Calystegia macrostegia is a woody Californian species, producing its white bell-shaped flowers in tufts. It might be tried in the southern counties.

Kiringeshoma palmata.—An extraordinary plant with an extraordinary name is now in bloom on the rockery. It is a member of the Saxifrage family, though it would puzzle a London University examinee to detect it; and we are not sure the examiner would be any better informed unless previously coached. It is about 3 feet high with long-stalked, opposite, cordate, palmately-lobed, glabrous leaves, about the size of the palm of the hand, and loose terminal clusters of yellow flowers, each rather more than an inch long, with a shallow

cup-shaped, five-lobed calyx, and a corolla of five oblong, blunt, yellow petals, about 1 inch long. There are numerous stamens with thickened filaments, which ought to be perigynous, but have no such appearance in the specimen before us, as the stamens have all become detached from the sepals and petals. It is a native of Japan.

Coriaria terminalis.—This is a handsome trailing shrub, with terminal-stalked racemes of flowers, succeeded by yellow berries. Most of the *Coriarias* are shrubs, as this is in appearance, but we are informed it is truly herbaceous. It is a native of China, and of the Himalayas. A full account, by Mr. HEMSLEY, will be found in our pages, Feb. 19, 1898.

Argemone grandiflora is now finely in flower; it differs mainly from the ordinary *mexicana* in its taller habit and the larger size of its flowers.

Didierea mirabilis.—This extraordinary cardiceous plant, figured in the *Gard. Chron.*, Feb. 19, 1898, p. 110, is doing well at Kew in the pits. It is not exactly the plant for the flower garden, but for the botanist it is a great curiosity.

Helenium tenuifolium (Nuttall), is a plant that when once it becomes known, will be eagerly sought for by decorating gardeners. For the front of herbaceous borders, or for separate beds, it will be very effective. It is like a *Tagetes* in habit, with slender, linear leaves, and a profusion of yellow flower-heads. It is figured in *MEERMAN'S Native Flowers of the United States*, vol. ii., p. 37, t. 10.

The Mango.—In the temperate-house is a fine bush bearing numerous fruits well on towards ripening.

Thalia dealbata.—An elegant and striking water plant, usually grown in heated aquaria, but at Kew it may be seen at the edge of a pond forming a most beautiful foreground plant with its bold glaucous foliage and tall panicles of bluish flowers.

Silene Fortunei.—We have spoken of this pretty Chinese *Lychnis* before, but revert to it to say that at Kew there are now two varieties of it, one tall (2 to 3 feet) and early, the other dwarf and late. It is one of the plants of the future in decorative gardening.

Hippophae rhamnoides as a Standard.—Near the north end of the Palm-house is a fine bush laden with orange berries, but with a clear stem like that of a standard Holly. This has been produced by removing suckers and laterals. As there is no male plant in the vicinity the abundant crop of berries must be due to the proximity of some other *Elæagnoid* plant, of which there are several close at hand. Perhaps some interesting hybrids may result.

HYBRID CARNATION.—A correspondent from Wimborne sends us flowers of a hybrid between the Clove Carnation and a Malmaison variety. The flower sent is from a plant in bloom since Easter; it has nine growths in flower at the present time. It was layered July, 1898, at Easter; the crown blooms were 4 inches wide, with over 100 petals. The flower sent is 3 inches across, very full, rich crimson. The calyx does not split, and its lobes are broad and rounded, not pointed as in the Clove. We look on it as a remarkable cross; but as our correspondent is more especially concerned with its commercial value, we may add that it is a very fine variety, and if sufficiently hardy would make a fine border Carnation. We advise him to send flowering specimens to the Floral Committee at its next meeting on the 12th inst.

BOTANIC GARDEN, CONGO.—This is the new address of one of our young friends, the son of our much-respected colleague, EDWARD PYNAERT. It appears that the Belgian Government has decided on the establishment of a botanic garden, and of sundry experimental gardens near Stanley Pool and elsewhere. The establishment and direction of these "botanic stations" has been entrusted to M. LÉON PYNAERT, a distinguished pupil of the School of Horticulture at Ghent, and one who,

though still young, has gained experience at Kew, in Paris, and Potsdam. M. LÉON PYNAERT will visit Java and Ceylon, and study the methods of administration of the gardens at Peradeniya and Buitenzorg before proceeding to the Congo. We heartily wish him all success in his beneficent occupation.

TRANSVAAL HORTICULTURE.—Our correspondent at Johannesburg, writing in August, thus speaks of the commencement of the growing season:—"Spring weather is fast overtaking us. The night frosts have nearly ceased, and by mid-day the shade temperature rises to 70° As yet, very little rain has fallen. In May we had '65 inch, in June '12 inch, in July '34 inch, and cannot expect heavy showers until September or October. The high winds are fast stripping *Acacia dealbata* of its flowers—the ground beneath the trees is yellow with golden heads of blooms. *A. cultriformis*, large bushes 10 feet high, are just beginning to flower; later on we shall see the large trees of *A. mollissima* masses of creamy-yellow inflorescence. The very beautiful, but sub-tropical *A. pubescens*, finds our winter too cold to succeed in the open. *Ulex europæa* and Spanish Broom are beginning to flower, and Almonds and *Prunus Pissardi* are masses of snowy white. Early Peaches, too, show their pink flowers. *Cydonia japonica* and *Daphne indica* give materials for bouquets if grown in damp places. Our native *Buddlea salviifolia* is in bud; the flowers are not showy, but very sweet scented. *Sutherlandia frutescens* is in bloom—a long way inferior to *Clanthus puniceus* in beauty. In damp, boggy places, *Narcissus* and *Daffodils* promise well for flower, but in ordinary dry borders these, and all other spring-flowering bulbs, are utter failures. Under glass we have *Cinerarias*, *Pelargoniums*, *Freecias*, *Lachenalias*, *Poinsettias*, and a few *Cyrtipediums* in bloom, with *Calceolarias*, *Cyclamens*, and *Triteleias* coming on. Under trellis sheds we grow *Camellias*, *Rhododendrons*, and Indian *Azaleas* in tubs. Thus treated they flower fairly well. Work out-of-doors just now consists in lifting, dividing, and re-planting *Cannas*, *Tuberoses*, *Dahlias*, *Pancratiums* and *Hippeastrums*, and in pruning *Roses* and all flowering shrubs. *Pinus insignis* is making rapid spring growths in advance of all other *Coniferae*, as it is ever its nature to do, and so gives us a hint (in spite of the present political situation) never to relax our efforts, but to be always preparing for next year."

"THE CENTURY BOOK OF GARDENING."—The first number of this publication is before us, and, with one exception, we have nothing but praise to bestow upon it. The cover is so dazzlingly red that in some lights it is positively painful. The present number is mainly introductory. Mrs. EARLE contributes a paper on Shrub Borders and Hardy Flowers. Then follows the commencement of an article on Annuals, concerning which, the information is too meagre. But it is the superb illustrations that are most attractive. We can hardly say too much in praise of such an illustration as that of the terrace garden at Heckfield. If all process-blocks were as good as those here given the objections which many of us have felt to them would be speedily removed.

RAGLEY GARDENS, ALCESTER.—Through the kindness of R. OLIVERSON, Esq., these gardens were again open to the public recently, and a collection made on behalf of the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund, when a sum of about £5 was obtained. The drought has been felt most severely in South Warwick, and the lawns were not looking their best; but sixty odd beds and borders of flowering plants were beautiful. The largest share of admiration was bestowed on the pyramid beds of zonal and Ivy *Pelargoniums* and *Plumbago capensis*, which were 8 feet through at base, and 6 feet high, and a mass of bloom. The gardener, Mr. CHRISTIE, had done his best to obtain a striking show.

FILMY FERNS AT DR. WINTER'S, BRIGHTON.

(See Illustrations on pp. 208, 209.)

Few things give more trouble to the cultivator of Ferns in the ordinary way, than the species known as Filmies, and yet, as with many other difficult subjects, when taken in hand by one making a special study of them and their requirements, few sections of Ferns are easier to cultivate. At least, that is the experience of Dr. Winter, who, at his residence in Montpelier Road, Brighton, and hence in town surroundings, has succeeded in arranging an excavated Fernery extending the whole length of the garden, and in which the Filmies luxuriate, and give but little trouble. Their accommodation in this subterranean fernery, which has the additional advantage of thick glass fixed in iron frames, affords the necessary subdued light, and still leaves the garden space above available, the glass bearing any reasonable weight which can be put on it.

The tortuosities of the rockery afford charming views of the different groups of species forming its salient features; whilst throughout there runs a connecting-link of *Trichomanes venosum*, a pretty New Zealand plant; of *Hymenophyllum Tunbridgensis*, *H. Wilsoni*, and others, of low stature, which have quite taken possession of such positions as are best suited to their needs; plants of *Trichomanes venosum*, more especially coming up spontaneously everywhere about the place, even in the small set of houses above the fernery in which the rarer tropical species are cultivated. The rockery throughout is formed of sandstone, the floor consisting of blocks of the same, through the chinks of which a narrow stream of water trickles, the water being supplied by means of pipes, which run the whole length of the rock at the highest point on either side, which have small openings at intervals, through which the passage of the water is regulated by means of valves. In earlier times, most cultivators of filmy Ferns thought that rain-water alone was a necessity, but this is not everywhere available, and Dr. Winter would find great difficulty in obtaining it. Experience has taught him that the somewhat hard water of the district, flowing from the chalk, has no detrimental effect on Filmies. The Killarney Fern (*Trichomanes radicans*), in its various forms afford beautiful and diverse effects. One pretty group of it rambles naturally around the opening of a grotto, above it on the left being a mat of *Hymenophyllum Tunbridgensis*, on the right an equally beautiful one of *Trichomanes venosum*, and overheard and around a number of pretty species growing one into the other. But the title Killarney Fern is no longer tenable, for representatives from Madeira, Teneriffe, and other parts of the world are here, one fine plant having been collected at Trefriw, Carnarvonshire. Here also is its Jamaican representative, known as *T. speciosum*.

A simple and convenient method of propagating *Trichomanes radicans* is pursued by Dr. Winter by pressing spare lengths of the rhizomes with fronds attached into quarters of Cocoa-nut husks, the rhizomes being filled in with fine shingle, no soil being used; soon they root firmly, and become good plants.

Hymenophyllum cruentum surrounded by *H. Wilsoni* and other pretty species, form another effective natural arrangement. Among the most remarkable specimens noted were the New Zealand *H. pulcherrimum*, which has fronds of 2 feet in length, their growth being extended year after year on the same fronds, a peculiarity noted in other species. A pretty mass of it has *Trichomanes reniforme* in front, and about a dozen other species immediately around it.

Hymenophyllum demissum (see fig. 74) is equally handsome; and in the maze of diverse frondage were *H. pectinatum*, *H. parvulum*, *H. flexuosum*, *H. chilense*, *H. caudiculatum*, *H. crispatum*, *H. dilatatum*, *H. polyanthos*, *H. sericeum*, *H. lineare*, *H. cuspidatum*, *H. capillaceum*, and most of the

other species in cultivation, all arranging in the most novel and delightful manner with the many rare species of *Trichomanes*, *Todeas*, and other Filmies, the whole being a striking example of the feebleness of the single word "green," to express the colour of the many shades in the foliage, which varies from the pellucid pale tint to the dark blue seen on some sea-weeds, the same frond often giving a dozen different tints. Some of the fine specimens of *Todea pellucida* and *T. superba* are grand, being 4 feet and 5 feet across. A charming specimen of *T. pellucida plumosa* looks beautiful, with its surrounding of smaller "Filmies;" and the *T. grandipinnula*, *T. Moorei*, and *T. Fraseri*, all afford their share of variety. It was interesting to note the *T. grandipinnula* raised as a hybrid by Messrs. Veitch, which approaches closely the *T. Moorei* imported from Lord Howe's Island.

It should be stated that no artificial heat is used; and as bearing on the statement that the common water supply from the waterworks does not injure the plants, it should be observed that the plants are neither watered nor syringed, but that the general moisture of everything is secured by evaporation from the accumulated water which has trickled from the perforated pipes overhead, rising and condensing. This course practically reduces the moisture to the quality of rain-water; although it was observed that where the water from the pipes continually dripped on some of the specimens, their fronds showed no injury or in any way differed from the others not so watered.

At one end of the Filmy Rockeries is an ornamental fernery containing ordinary Ferns, and above-ground are some small neat houses, cased-in internally, and used for cultivating some of the tropical species which cannot be easily grown in the caves. Of these the downy-fronded West Indian and South American species are found to be rather difficult. Some also are here which are thriving below in the caves, among them being a great mass of *Trichomanes trichodeum*, with all the parts of its countless fronds as slender as hairs; *T. Luschianthium*, a fine South American species; *T. Lyalli*, from New Zealand; *T. maximum*, from Java; and *T. pyxidiferum*, from the West Indies. Another small house is used to acclimatise newly-imported specimens, a number of which are under treatment.

In perfecting this interesting cultivation of Filmies, &c., under conditions approaching those obtained in Nature, Dr. Winter has been greatly assisted by his sons; Dr. J. B. Winter, who has collected some of the specimens in Teneriffe and other places, taking an active interest in the matter. J. O'B.

HOME CORRESPONDENCE.

SCOTS GRAPES.—In your last issue, it is asked why the best Grapes come from Scotland, and if the air is clearer, or the soil more suitable there? The air is certainly purer. There is not the quantity of coal-getting and manufacturing going on in Scotland, in proportion to the acreage. I have served in six counties, namely, Hertfordshire, Middlesex, Staffordshire, Westmoreland, Dorsetshire, and the South-west Riding of Yorkshire, which has the worst climate of them all. The soil or loam in most of the counties mentioned required more or less lime adding when making Vine-borders. But this place is 5 miles west of Doncaster, and we are upon a very strong magnesian lime-stone formation, so strong that Vines, Melons, and Cucumbers exude it in a clear substance upon the lobes of their leaves, and unless a very great portion of porous material is used in making Vine-borders, the soil becomes like lumps of lead, and sour. In regard to air, we fare worse, as we lay due east from Barnsley, and get a large deposit of soot and sulphuric acid from there, especially in foggy weather—so much so, that there is always deposited an oily scum upon tanks and other still water's. We are very much pestered with red-spider, especially in dry seasons, which not only attacks Vines, but nearly all outdoor fruit-trees, especially Peaches and Nectarines; colonies of them can be found upon Peach-leaves when they are about the

size of a mouse's ear. Some few years ago our box edging, of which we have about 1½ miles, was nearly killed by it. My gardening friends smile when I tell them that I believe this to be its original home, and that it circulated from here over the United Kingdom. This, I may add, is a very old garden, and I have a copper coin a little larger than a halfpenny, which was found twenty-four years ago about 3 feet from the surface in trenching to clear out horse-radish roots; it is dated 1099. Wm. Chuck, Brousworth Hall Gardens, Doncaster.

EMBOTHRIUM AND PAULOWINA IN FRUIT.—We have at present two trees bearing seed here for the first time. One of these is *Embothrium coccineum*, planted on the lawn about ten years ago; the tree is about 10 or 12 feet high, and has this year developed several good seed-pods. The other is *Paulownia imperialis*; the tree has attained a height of about 30 feet, and was planted in front of the rockery seventeen years ago. It is this year bearing seed pods very profusely. Is it not a rare occurrence for these trees to ripen seeds in the open air in this country? [Yes; we have never seen the *Embothrium* seed-pod. Ed.] Alfred King, Trevanno Gardens, Helston, Cornwall.

ARNEBIA ECHIOIDES is a plant we very seldom see, for what reason I do not know, but a finer plant for the hardy flower garden need not be wished, especially if grown so successfully as is done by Mr. Lunt, the genial gardener at Bowhill. In the cold damp climate of Selkirk it grows well and flowers continuously during the summer, and a bed of it at Bowhill is a sight. The individual flowers do not last long, but a rapid succession of blooms is kept up by the lengthening spike, which grows about a foot high. The small dark spots on each flower are pretty, and it is interesting to watch them becoming paler as the bloom ages. The propagation of this *Arnebia* is not attended with much difficulty. Old plants can be split up and replanted, or offsets can be taken off with a heel in the autumn, and planted in sand under a bell-glass. It can also be increased by root-cuttings in saucers of sand in a warm pit. R. T. S.

CAMPANULA ISOPHYLLA MAYI.—When illustrating a spray of this plant in a recent issue of the *Gardeners' Chronicle*, you remark it to be the result of a cross between *C. isophylla* variety and an unknown species. I have been trying for some years to cross-fertilise *C. isophylla alba* (which, by the way, is one of the reputed parents of Mr. May's plant), in the hope of getting a distinct form, but so far with no success. It should be remembered, too, in trying to fix the parentage of one of these Campanulas, that they are greatly varied of themselves when raised from seeds. Indeed, it is significant now to recall the fact that *C. isophylla alba* was itself a chance seedling raised from the typical *C. isophylla*, the plant originating at Kew when Mr. Lynch had charge of the hardy-plant department there. The typical *C. isophylla* is somewhat hirsute in the radical leaves; the white form is not so in the least, while Mr. May's plant goes quite beyond this, as it is both downy and soft to the touch, even to the tips of the flowering-sprays. So far as the flowers of Mr. May's plant are concerned, there is not the smallest evidence of any cross; they are those of *C. isophylla* pure and simple, when this latter is given good treatment under glass. The leafage of Mr. May's plant is quite distinct, altogether more woolly [and fleshy. Ed.] than anything I have ever seen. Seeing that *C. isophylla alba* is the admitted seed-parent of the present plant; there may have been foreign influence, and if this is the case I would suggest C. Barrellieri, or C. B. hirsuta as being that plant. Were it not for the woolly foliage in Mr. May's plant, I should unhesitatingly say no cross had been effected. Of the manner such plants revert to the normal type, even when a cross has been attempted, and all care taken to ensure its efficacy, I have ample proof in some seedlings now flowering; all these seedlings are blue-flowered forms, and yet are the results of an attempt to cross two white-flowered kinds, of which *C. isophylla alba* was the seed-bearing plant. Indeed, I have never yet been able to raise a white-flowered form, even when crossing with white-flowered forms on both sides. Blue seems more than ordinarily the dominating colour of Campanulas, and its influence is not easily neutralised. E. H. Jenkins, Hampton Hill. [From enquiries made, it would seem that if the new variety

is a hybrid, the second parent was *C. Barrellieri*, this being apparently the only other species of *Campanula* in cultivation where the new one originated. Ed.]

SUBSTITUTE FOR GRAFTING WAX.—Noticing that two recipes for this are given in the last issue of the *Gardeners' Chronicle*, I am reminded that my experience in the matter of not using a wax, either hard or fluid, may be useful to others. During the last two years I have grafted a variety of plants, and it struck me that tissue gutta-percha might answer perfectly without the inconveniences of wax. I find that such is the case, and so thin an air-tight material can be applied closely to all inequalities of the stem, and be made to prevent drying quite as perfectly as wax itself. I tie in the usual way, then wrap round a strip of tissue, and afterwards secure it with a tie of raffia. There is no question of its efficiency, nor perhaps of the nastiness of grafting wax. It may be as well to mention that I have used it only for indoor work. Would some professional grafters try it and report? *R. Irwin Lynch, Botanic Gardens, Cambridge.*

ARAUCARIA IMBRICATA.—The letter pertaining to this tree, published on p. 195, interested me greatly. There is a specimen here, 40 feet high, carrying eighteen cones larger than ordinary Pine-apples. Fifteen years ago the tree bore four cones. There are several specimens here about the same size, but they have never produced any cones. *F. Fitzwater, Bushey Lodge Gardens, Teddington.*

FLAVOUR IN POTATOS.—If Mr. Engleheart is so anxious to secure high flavour in Potatoes, irrespective of produce, why does he not, besides securing both the old Ashleaf and Walnut-leaf Kidneys, obtain the old Fortyfold, one of the best-flavoured Potatoes ever grown, though a poor cropper, and terribly susceptible to disease; and Paterson's Victoria. But if these varieties were obtained, and grown with Ringleader, Conference, The Dean, Reading Russet, Windsor Castle, Snowdrop, and a good many others, I think any person would be satisfied that the superiority of quality or flavour found in the old varieties was, after all, imaginary, and that later-introduced varieties were as good. [Oh! dear no. Ed.] But it is useless to urge that the mere production of what is called flavour is all that is essential in modern Potatoes. How was it that when we had varieties that were regarded so much for their flavour—and be it understood that flavour, as we understand that element, is a very infinitesimal quality in both Potatoes and Tomatoes—that these were nearly extirpated by the *Peronospora*, whilst others less assumedly high flavoured proved to be comparatively disease resisting? Whenever we get a bad disease—season now, the same thing is still seen, therefore we have had to breed first for disease-resisting qualities, and second for food, for the Potato is a great food product, even though it may not possess much, if any, flavour. Happily because of this breeding we have always now great crops of Potatoes, and poor as well as rich can have them cheap, and in abundance. That is great gain. But that fact need not deprive those who may so desire of the privilege of growing varieties that if they have good flavour, at least have little power to resist disease, and at the best are but indifferent croppers. If we can yet add flavour to Potatoes without detracting from robustness and cropping, so much the better. *A. D.*

WANTED, A GARDENERS' SOCIETY FOR NORWOOD.—Having lived for some time within a mile or two of the Crystal Palace, it is a matter of surprise to me, that in a district where there are so many gardeners there is no Society through which we can meet together for mutual improvement. The dark evenings when outdoor recreations have to be laid aside, and when books should take the place of bats and balls, and lecture-rooms that of hose and watering-cans, will soon be with us again. There is no doubt but a Mutual Improvement Association in Norwood would be a source of both pleasure and profit to gardeners and others interested in horticulture. Will not some of the more influential among us bestir themselves in this matter? If so, we shall soon have a flourishing Norwood Gardeners' Mutual Improvement Association. *King Coyle.*

KOELREUTERIA PANICULATA.—There is a splendid specimen of this tree in the gardens

of Windsor Castle, about 40 feet high; its age is considered to be between sixty-five and seventy years. The large panicles of beautiful yellow flowers are produced in great abundance every year, and remind one very much of the fine sight presented by the *Acacias* in flower in the south of France. Except that on the west, it is sheltered by the castle, its position is not otherwise a particularly well protected one. The tree is now covered with, and rendered conspicuous by, the numerous, large whitish three-lobed and inflated capsules. Within the last ten years, a much larger specimen of *Koelreuteria* than the one described, has died. This, certainly had a warm, sheltered corner, which no doubt accounted for its wonderful luxuriance. At the present time, there is one more tree of unusual size living, within the royal grounds, though not quite so fine as the specimen represented by the photograph. [The photograph does not show the flowers clearly enough for reproduction.] *H. H. T.*

A GROWL ABOUT THE SHREWSBURY SHOW.—On August 22 I journeyed from the extreme west of Surrey to a town in the Midlands, having at that time for my principal object a visit to the show at Shrewsbury. On the 24th inst., I took train to Shrewsbury and made my way to the exhibition. The exhibits were most interesting, but the dust was suffocating. Everywhere in the tents the air was charged with dust, and the dryness of the air was unpleasant. Thousands of people were forced into this dust-laden atmosphere in their endeavour to see the finest products of horticultural skill; charging their lungs with the filthy air. The most lovely and superb exhibits—grand specimens of fruit—were thick with the dust. Surely such a state of things might have been prevented. The expense of two or three men with water-cans or hose would have prevented the evil and made the atmosphere less unpleasant to visitors, and less injurious to the exhibits themselves. *H. O. Etherington.* [Our correspondent's complaint we feel sure will be given the consideration of the committee before another exhibition takes place. The crowds at Shrewsbury are enormous, but the above suggestion, if practicable, will not be ignored from financial considerations. There was no such experience on the first day. Ed.]

TRADE NOTE.

BANKRUPTCY CASE.

Re William Albert Holmes, florist, nursery gardener, and horticulturist, trading under the style of "S. Mahood & Son," residing at Eares Villa, Dryburgh Road, Putney, and now carrying on business at Dryburgh Road and 1, Railway Terrace, Upper Richmond Road, Putney, lately carrying on business at 121, Upper Richmond Road, Putney.

The debtor has filed a statement of affairs showing gross liabilities amounting to £2,934 1s. 4d., of which £1,857 7s. is due to unsecured creditors. The assets are returned at £1,617 12s. 5d., from which £118 19s. 4d. has to be deducted for the claims of preferential creditors payable in full, leaving net assets at £1,498 13s. 1d., and showing a deficiency of £1,199 7s. 11d.

Obituary.

ALFRED JOHNSON.—This gentleman, well known in the county of Lincolnshire, the head and managing-director of the firm of W. W. Johnson & Son, Ltd., seed growers and merchants, of Boston, passed away on the morning of the 2nd inst., at the age of 59 years.

The business with which Mr. Johnson was so long connected was commenced by Mr. William Wade Johnson, his father, in 1820; in the first instance as a market gardener. Gradually and surely the business grew; and in the year 1854 his son, the deceased, joined the firm, and was shortly after taken into partnership.

Early in life Mr. Alfred Johnson took a keen interest in the culture of fruit and forest-trees; but some twelve years ago, through his physical

inability to take an active personal insight of the business, he sold the entire nursery-stock, and henceforth devoted his whole energies to the selection and improvement of garden and agricultural seeds. Johnson's Wonder Longpod Bean originated years ago with the firm; and later novelties introduced by the firm are Boston Q2 Potato, Boston Unrivalled Pea, &c., and more recently, the Green Mammoth Longpod Bean, a variety of great value.

A few years ago, for family reasons, the business was converted into a limited liability company, and Mr. Johnson held the position of managing director up to the last. In July last, feeling himself unable to attend fully to business details, Mr. Johnson invited Mr. E. J. Deal, late with Messrs. Sutton & Sons, to fill the post of general manager.

Deceased was laid to rest, on the 5th inst., in the churchyard of St. Nicholas, Boston, and there were present on the occasion such old friends and business associates as Messrs. N. Sherwood (Hurst & Son), David Syme (Lawsons), A. Watkins (Watkins & Simpson), F. Calder Turner, E. J. Deal, G. Wood Ingram, &c. Mr. Johnson's last appearance in London was on the occasion of the Temple Show, in May last.

SOCIETIES.

ROYAL HORTICULTURAL. POTATOS AT CHISWICK.

AUGUST 31.—A meeting of the Fruit and Vegetable Committee was held at Chiswick on the above date, to examine late Potatoes. Many varieties, old and new, were tried. Some had grown out or "spear'd" very much, especially those robust late ones having luxuriant tops. But the majority gave fine clean crops of good tubers. In one case only was there material disease, and that was, in spite of the drought, a very bad instance.

Of new varieties, seven were selected to be cooked; and certainly as sent to the table in their jackets, no tubers could be better cooked than they are for the Fruit Committee's purposes at Chiswick. Let a variety at Chiswick be ever so handsome and so fine a cropper, none after being cooked pass the Fruit Committee unless they show good flavour and general table excellence. Two only thus passed the ordeal; these were The Sirdar (Hurst), a fine white round, and Ellington's Seedling, white round, with pink eyes, something like the old Cheshire Pink-eye, but finer. But Potatoes vary so much according to soil, that some of the other varieties tried may prove to be excellent elsewhere. A fairly firm soil, containing a sufficiency of lime, usually gives the best flavour; but there, again, much depends on the seasons. Some of the nomenclature of new varieties at Chiswick showed that naming is of a plagiarised order, as not a few show the same appellations; whilst some older varieties—Chancellor and International, for instance—have been sent in under other appellations.

DUMFRIESSHIRE AND GALLOWAY HORTICULTURAL.

AUGUST 30.—The first show under the auspices of the Dumfriesshire and Galloway Horticultural Society (founded in 1813), since its resuscitation, was held on the above date in the Drill Hall, Dumfries. Some unfortunate confusion about the date told somewhat against the attendance of visitors.

Mr. C. E. GALBRAITH, of Terregles, sent for exhibition only, a number of fine foliage plants, which were arranged to form a bank in front of the platform. Stands of plants and flowers were exhibited from the nurseries of Messrs. KENNEDY & Co., Dumfries; Messrs. KERR BROS., Dumfries; Messrs. PALMER & Son, Annan; and Mr. W. BYERS, Dumfries.

The competition in the open class was somewhat limited; but Messrs. KERR BROS. were the largest prize-takers. They carried off the 1st and 2nd awards for Cactus Dahlias, which made a particularly fine class. Dahlias generally were largely shown, and for the show varieties, Messrs. T. KENNEDY & Co. were 1st, and Messrs. KERR BROS. 2nd. The latter were the only exhibitors of Ferns and Sweet Peas, and were also without opposition for the dinner-table decoration of cut flowers and foliage.

Mr. W. Caldwell, gr. to Jas. DAVIDSON, Esq., of Summer-ville, obtained the Burgh of Dumfries Silver Cup for the best exhibit of horticultural produce, and also prizes for plants for Table Decoration, Bouquets, &c.

The heavy rains in the beginning of the week did considerable injury, but notwithstanding this there was an exceedingly creditable display of cut flowers. For Rose blooms Messrs. D. & W. CROLL, Dundee, were the only competitors. The Gladioli in the open class were of a high standard; and both prizes were carried off by Prestwick exhibitors, Mr. GEORGE MUIR being 1st, and Mr. JAMES CARNEGIE 2nd.

Mr. W. Allan, gr. to JOHN PRIMROSE, Esq., Arundel House; and Mr. J. DAVY, Galloway House, were the principal prize-winners in the gardeners' classes, they being the chief competitors for fruit, which made a very good show, particularly Grapes. Perhaps the most successful competitor in the amateurs' section was Mr. J. THOMSON, Sanquhar, who showed largely in the cut-flower classes. Mr. G. W. KERR made an energetic secretary.

ISLE OF WIGHT.

AUGUST 30, 31.—The Cowes Horticultural Improvement Society held their first exhibition on the above dates in the Foresters' Hall. The exhibits numbered over 200, and were of a high standard of excellence, and the show augurs well for the future.

The show upon the second day was opened by Mr. Godfrey Baring, Chairman of the Isle of Wight County Council, who spoke of the pleasures and benefits to be derived by cultivating garden products. To encourage this work on the island, he had great pleasure in offering for competition at next year's show three silver cups, one for cottagers, one for amateurs, and one for gardeners. A word of praise is due to the Hon. Secretary, Mr. C. E. Creighton, for the able manner in which he carried out the arrangements for this the first show.

The ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION made their last excursion of the season on the 31st ult.; Cadland Park, Southampton, was the place visited, by permission of A. Drummond, Esq. Considering the season, the gardens were in splendid condition, and a credit to Mr. Garner, the well known gardener at this establishment.

The monthly meeting of the same Association was held at Newport on the 2nd inst., Dr. J. Groves in the chair. Mr. Fred Pearson prepared a capital paper on "Butterflies and Moths, Injurious and Useful," which was read by the Chairman. The paper was illustrated by a large collection of preserved specimens which proved of great interest.

The exhibits included a large dish of Victoria Plums from Mr. J. NEWNHAM, of Wroxall, and a dish of Veitch's Golden Jubilee Tomato, and a dish of Duchess of Oldenburg Apples from Mr. A. J. Cole, gr. to G. W. RENDAL, Esq., Broadlands, Sandown. The forthcoming fruit exhibition will be held at Ryde in the first week in October.

MAIDENHEAD HORTICULTURAL.

AUGUST 31.—The twenty second annual exhibition of this Society, was held in Kidwells Park, on the above date. Although in some instances exhibits compared favourably with those of previous exhibitions, in others there was a considerable falling off; and this was especially noticeable in the fruit classes.

Groups of plants for effective arrangement were good, but there were fewer competitors than usual. The Committee would do well to make some change in the general arrangements, the exhibition being carried on from year to year with such sameness that it is becoming monotonous to visitors. For instance, groups of plants of the same shape and size, and from the same exhibitors, occupy the same positions year after year; and other plants, fruits, &c., are set up with equal methodical precision.

PLANTS.

Class 1, for twelve handsome foliaged plants in 8-inch pots, brought some nice exhibits; that from Mr. Fulford, gr. to J. D. LAMBERT, Esq., Cookham, took 1st prize.

Mr. Aitken, gr. to Colonel MEEKING, Richings Park, Slough, was the only exhibitor of six stove and greenhouse plants, and was awarded the 1st prize. This exhibitor was also 1st for six stove and greenhouse Ferns, with large specimens of Davallia Mooreana, Microlepia hirta cristata and others.

Mr. Goodman, gr. to Miss HAMMERSLEY, Abney House, Bourne End, was 1st with a flowering stove plant, having a fine specimen of Eucharis grandiflora. Table plants were numerous, the best six coming from Mr. Wood, closely followed by Mr. Fulford. Fuchsias were poorly represented by two collections, the best were set up by Mr. D. Paxton, gr. to the Hon. C. S. IRBY, Hitcham Grange, Taplow.

GROUPS OF PLANTS.

The groups of plants arranged for effect constitute the chief feature of the show, especially those that occupied a space 12 feet by 10 feet. Here the two leading exhibitors, Mr. D. Phillips, gr. to A. N. GILBEY, Esq., and Mr. AITKEN, have fought for the 1st position for several years past, the former being the victor both this and last year. Their plants and arrangement were somewhat similar, but while Mr. Phillips' four corners were considerably elevated, his opponent preserved a more even surface, which failed to secure the light and graceful appearance seen in the 1st prize group. Both exhibitors used a Cocos Weddelliana for a centre, with a groundwork of Adiantum, other plants consisting of highly-colored Codium, Pancratium, Gloxinia, Odontoglossum in variety, Eulalia, and others. For a smaller group, Mr. Richardson, gr. to G. HERRING, Esq., was 1st; Mr. Fulford 2nd.

CUT FLOWERS.

Cut flowers, considering the very trying season, were good. Mr. Johnson, gr. to A. GILLIAT, Esq., Stoke, Slough, was 1st for twelve H. P. and the same number of Tea Roses.

In a keenly-contested class for Sweet Peas in distinct colours, Mr. Wood was a good 1st. Dahlias, Asters, and

Zinnias were also numerous and good. Mr. TRANTER, Henley-on-Thames, was the principal exhibitor in the nurserymen's classes.

FRUIT.

Mr. AITKEN was 1st for a collection of six dishes with good Sea Eagle Peaches, Kirk's Plum, Brown Turkey Figs, Muscat Grapes, Elrige Nectarines, and a Melon; 2nd, Mr. GOODMAN. For four dishes, Mr. Wood was 1st; and for the same number grown in the open air, Mr. JOHNSON was 1st with excellent fruits of Lord Napier Nectarines, Stirling Castle Peaches, Kirk's Plum, and a fine dish of Lady Sudeley Apples.

Mr. LANE, gr. to Miss RIDGE, Englefield Green, was 1st in the two Black Grape classes, with medium-sized bunches. Mr. FULFORD had the best bunches of Muscats, and Mr. LANE the best other white Grape, showing Buckland Sweet Water.

Mr. JOHNSON was awarded the 1st prize for a dish of Lady Palmerston Peaches of handsome appearance, but questionable quality; 2nd, Mr. GOODMAN.

Mr. Hutt, gr. to Captain FARWELL, The Priory, Burnham, had the best dish of Nectarines, large and fine Pitmaston Orange. Mr. Hutt was also 1st with a handsome dish of dessert Apples, said to be a local seedling of merit.



FIG. 75.—A "SHOWER" BOUQUET OF LA FRANCE ROSEN. From a photograph sent us by Messrs. R. S. Williams & Son, 160, Piccadilly, W.

VEGETABLES.

The finest produce was found in the special classes provided by the large seed firms. For Messrs. Sutton & Son's prizes Mr. J. Gibson, gr. to R. W. HUDSON, Esq., Danesfield, Marlow, obtained the 1st award with a perfect collection.

For Messrs. Webb & Son's prizes Mr. GOODMAN was awarded 1st prize; Mr. GIBSON 2nd.

MISCELLANEOUS.

Mr. E. F. SUCH contributed a collection of Cactus Dahlias, floral decorations, and forty dishes of fruits. Messrs. OWEN, Castle Hill Nurseries, had a collection of Cannas and floral decorations. Mr. BROUGHTON, Norfolk Park Nurseries, a group of miscellaneous plants.

BATH FLORAL FÊTE.

AUGUST 30, 31.—Bath, like Trowbridge, puts the Fuchsia in the forefront of its schedule of prizes, and a considerable number of splendid plants were staged. Mr. GEO. TUCKER, Hilpertown Marsh, Trowbridge, brought some of his fine examples, which must be sent by road, as only an open railway van could take them, in consequence of their height

and dimensions. He was 1st with nine; his darks were Doel's Favourite, Charming, Bountiful, and Final; and his lights, Mrs. H. Rabbitt, Mrs. Bright, Western Beauty, Arabella and Tucker's Favourite. If anyone requires a selection of fine and distinct varieties for house decoration or bedding, there it is. Mr. G. H. WILLCOX, Bath, was 2nd with some very good specimens indeed.

With six specimen ens, Mr. W. A. BURFORD, Upper Weston, came in 1st, having finely grown and flowered examples. The best light Fuchsia was Duchess of Albany from Mr. GEO. TUCKER, a charming free-blooming variety. The best dark was a very fine plant of Charming, from Mr. G. TUCKER.

There was a big plant class for twelve ornamental foliage plants, and six stove and greenhouse plants in flower; and Mr. JAMES CYPHER was 1st with six noble Palms, Crotons, a fine example of Ixora Duffii, Allamanda nobilis, a fine Phoradendron, &c.—a really grand lot. Messrs. J. B. WOOD & SON, Chipping Sodbury, were a good 2nd.

Groups of plants were highly effective. Mr. J. CYPHER was again 1st; and Mr. W. SANSEY, gr. to R. B. CAPER, Esq., Bath, 2nd.

The best six stove and greenhouse flowering plants were from Mr. CYPHER. He had a superb example of Ixora Duffii, with fifteen expanded and unexpanded trusses; Mr. G. TUCKER was a close 2nd.

Messrs. W. J. STOKES & SON had the best three specimens including a fine piece of Bougainvillea glabra; Mr. H. POCOCK, Hilpertown, was 2nd.

In the class for a specimen stove plant there was another striking Ixora Duffii from Mr. J. CYPHER, while Mr. G. TUCKER had Dipladenia Brearleyana, the judges placing them equal 1st.

Mr. E. T. D. FOXCROFT, Hinton Charterhouse, took the 1st prize with some good double tuberous Begonias; and Mr. G. TUCKER came 1st with the same number of single-flowered plants.

With six fine-folliaged plants Messrs. E. S. COLE & SON were 1st. The best specimen was a fine Croton Cheloni from Mr. J. CYPHER. Mr. G. TUCKER was 1st with excellent specimens of Exotic Ferns; and Mr. A. P. STANCOMB, Trowbridge, was 2nd. With six specimens, the Rev. Y. FAWCETT was 1st. In all cases good examples were shown. The best specimen Fern was a fine Gymnogramma sulphurea from Mr. G. TUCKER.

CUT FLOWERS.

In the cut flower division a fine lot of eighteen spikes of Gladioli was staged by F. H. FOX, Esq., Wellington (Mr. S. Bird, gr.); Mr. J. MATTOCK, nurseryman, Oxford, was a good 2nd. With twelve spikes, Mr. G. HUMPHRIES, nurseryman Chippenham, was 1st.

The best twenty-four show Dahlias were from Mr. JOHN WALKER, nurseryman, Thame; Mr. GEORGE HUMPHRIES was a good 2nd.

Cactus varieties in twelve bunches of six blooms were finely shown by Messrs. KEYNES, WILLIAMS, & Co.; Messrs. CRAV & SON were 2nd. The latter were 1st with twelve charming bunches of Pompons; and Mr. G. HUMPHRIES a close 2nd.

Roses.—Some very good cut Roses were shown by Messrs. D. & W. CROLL, nurserymen, Dundee; Mr. J. MATTOCK was 2nd.

Mr. GEO. PRINCE, Oxford, was 1st with twelve Tea-scented varieties.

The best twenty-four bunches of stove and greenhouse cut flowers came from Mr. G. TUCKER.

Hardy annuals in twenty-four bunches made a very interesting feature. The 1st prize went to Mr. A. H. NEWMAN, Bath, who had excellent material well set up.

Tables of Sweet Peas, arranged with foliage, were somewhat flat, though they were a pretty feature. Mr. BLACKBURN was 1st; and hardy herbaceous and perennial flowers were finely shown by Mr. A. A. WALTERS.

FRUITS AND VEGETABLES.

Fruit made a good display; the best eight dishes came from Mr. STRONELL, The Gardens, Rood Ashton, Trowbridge, who had Alicante and Muscat of Alexandria Grapes, Dagmar Peach, Pine-Apple, Nectarine, Brunswick Fig, Plums, Cherries, and Melon. 2nd, Mr. T. WILKINS, the Gardens, Hemstridge, Blandford.

With eight bunches of Grapes, Mr. ALDERMAN CHAFFIN was 1st with very fine examples of Black Hamburgh, Gros Maroc, Muscat of Alexandria, Madresfield Court, two bunches of each. Mr. W. Marsh, gr. to W. ALLEN, Esq., came 2nd. Mr. GEORGE SUTTON, gr. to W. A. TODD, Esq., was 1st with three good bunches of Black Hamburgh. Mr. T. WILKINSON, gr. to Mrs. TALBOT GREAVES, was 1st with three bunches of Muscat of Alexandria.

Any other white was Buckland Sweetwater, and any other black, Madresfield Court, from Mr. ALDERMAN CHAFFIN.

The best dish of Peaches was Royal George, from Mr. Tate, gr. to Mrs. STROTHER, Bath. Pitmaston Orange was the best Nectarine, the 1st prize going to Mr. J. CLARKE, gr. to J. C. AITKINS, Esq.

Vegetables were very good on the whole, and especially those shown by Mr. T. WILKINS, of Hemstridge.

NON-COMPETITIVE EXHIBITS.

Messrs. W. & J. BIRKENHEAD, Sale, had an extensive collection of Ferns; Mr. A. A. WALTERS, Kensington Nurseries, Begonias, &c.; THE DEVON CHRYSANTHEMUM AND NURSERY COMPANY, Teignmouth, Dahlias, in great variety; and Messrs. G. COOLING & SONS, Bath, Roses, Sweet Peas, hardy flowers, &c., in considerable variety, also trees in fruit and a collection of Apples, &c.; and Mr. G. GARRAWAY, Bath, a collection of Apples.

SANDY AND DISTRICT HORTICULTURAL.

AUGUST 31.—Where do the thousands come from to see the Sandy Show? Sandy is a village in the centre of the market gardening industry of Bedford; there is no large town except Bedford near it, but the people flock there in large numbers. It is a unique exhibition in its way, as it comprises something of many things which interest country people; there are plants, flowers, fruits, and vegetables; domestic animals and birds, needlework, wood carving, &c.—something to interest everyone; and prizes are offered to the amount of £450.

For thirty-one years past Sandy has held a show of this character; and if only the weather be fine, a great success is assured. The park of Sandy Place is in the village, within a short distance of the railway-station, and it is here the show is held. Should the park be closed to it, it is probable no show could take place.

Certain classes, about thirteen in number, are open to all comers. There is one for twelve stove and greenhouse plants in flower, and there were four collections staged. Mr. J. CYPHER was the 1st prize winner; Mr. W. VAUSE, Leamington, was 2nd.

The best group of plants arranged for effect was set up by Mr. VAUSE, and consisted of good plants artistically put together; Mr. W. FINCH took the 2nd prize.

CUT FLOWERS.

One large tent was devoted to cut flowers. Usually crowded to excess, it was not filled on this occasion, so many who had entered for competition failing to appear. Roses made a good feature, though they were rather small, but they were fresh and bright. Messrs. PERKINS & SON, nurserymen, Coventry, had the best forty-eight blooms; Messrs. HARKNESS & SON, Hitchin, were 2nd.

Messrs. HARKNESS & SON were 1st with eighteen Tea-scented varieties; Messrs. PERKINS & SON were 2nd.

GLADIOLI, in twenty-four spikes, were very finely shown by Messrs. HARKNESS & SON, who had massive spikes of excellent varieties.

The class for twenty-four show Dahlias, usually so well filled at Sandy, brought but one stand, to which a 2nd prize was awarded.

Fancy Dahlias in twelves were also somewhat poor. Mr. BRIGHT was 1st with twelve bunches of Pompon Dahlias, staging admirable blooms; Messrs. HARKNESS & SONS were 2nd. Cactus varieties, in twelve bunches, were also good, Mr. BRIGHT again taking the 1st prize.

The class for twenty-four bunches of hardy herbaceous and bulbous plants brought a very fine collection from Messrs. HARKNESS & SON.

AMATEURS.

In the division closed to the trade, some good fine-foliage plants were staged; also stove and greenhouse plants in sixes, and also stove and greenhouse Ferns. Mr. W. J. EMPSON, gr. to Mrs. WINGFIELD, Ampthill, was 1st, having a fine specimen of Adiantum Farleyense.

Fuchsias were fairly good, Begonias past their best; some Cockscombs shown by Mr. T. LOCKIE, gr. to A. J. THORNHILL, Esq., Diddington Hall, were really superb, of great size, and high quality.

The best twenty-four cut Roses were shown by Mr. W. KINGSTON, Bedford. Mr. R. BURGIN, St. Neots, had the best twelve show and the best six fancy Dahlias.

FRUIT.

Mr. W. J. EMPSON had the best collection of eight kinds of fruit, having good Madresfield Court and Muscat of Alexandria Grapes, Peaches, Nectarines, &c.; Mr. R. CARTER, gr. to Captain DUNCOMBE, was 2nd.

Mr. T. STONE, gr. to R. A. COCHRANE, Esq., had the best six dishes.

Mr. C. J. GRIBBLE was 1st with three dishes of dessert Apples, having in good form Lady Sudeley, Quarrenden, and Irish Peach.

The best culinary Apples were Emperor Alexander, Warner's King, and Lord Suffield.

Grapes.—Two bunches of each were shown in several classes. Mr. GRIBBLE had the best two of Black Hamburg; any other black was Madresfield Court, from Mr. STONE.

Mr. EMPSON was 1st with two excellent bunches of Muscat of Alexandria, and also with any other white, having Foster's Seedling.

Vegetables were good on the whole. Mr. T. LOCKIE won the 1st of Messrs. BURTON & SON's and Messrs. WEBB & SON's special prizes, showing remarkably well.

ELLESMERE HORTICULTURAL.

AUGUST 31.—The thirty-sixth annual show of this society was held on the above date in the Cremorne Gardens, kindly lent for the occasion by Earl BROWLOW. These grounds adjoin a beautiful lake of over 150 acres in extent, and are very suitable indeed for holding such shows. Unfortunately, early in the afternoon a thunder-storm came on, and the rain for a long time descended in torrents.

In the class for groups of plants arranged for effect the competition was very keen. Mr. WEST, gr. to E. BEHRENS, Esq., Bettlesfield Park, was 1st with a choice and tastefully-arranged collection of plants.

Two very good collections of FRUIT were staged, Mr. WEST 1st, and Mr. PEARSE a very close 2nd. Black Grapes were

very good. The Rev. BULKELEY OWEN, Tedsmore, 1st; Mr. PEARSE 2nd. White Grapes, Mr. WEST 1st; Mr. PEARSE 2nd.

There was a very nice show of plants, such as Cannas, Begonias, Fuchsias, Ferns, Pelargoniums, and stove plants.

CUT FLOWERS, such as Sweet Peas, Cactus Dahlias, and Asters, were well shown.

Some very fine VEGETABLES were shown in the gentleman's garden's classes. Carrots, Onions, Peas, and Tomatos, being especially fine.

Messrs. DICKSON, Chester, and Messrs. JONES, Shrewsbury, put up good collections of flowers, not for competition.

There were some interesting exhibits in the cottager's classes; for instance, prizes were given for the best home-made bread, butter, and jam; prizes were also given for children's work such as knitting, sewing, and darning, and making all kinds of garments, in which there was close competition.

BRISTOL AND DISTRICT GARDENERS'.

AUGUST 31.—The monthly meeting of members was held at St. John's Parish Room, Redland, on the above date.

A very interesting and instructive lecture on "Viola and Pansy Culture" was given by Mr. J. C. HOUSE, of Coombe Nurseries, Westbury-on-Trym. He gave the history of the plants, and explained the differences between them. He strongly urged their cultivation for bedding purposes, claiming for them the quality of blooming freely and during a long season. All the necessary cultural details were fully explained.

NATIONAL DAHLIA.

SEPTEMBER 1, 2.—The display of Dahlias at the Crystal Palace on the above date was much better than might have been expected. Growers of the show and fancy varieties had given an enormous amount of attention to their plants, watering and assisting them in every way, but the extreme dryness and heat of the atmosphere largely neutralised their efforts. The show and fancy varieties were certainly below mark, in that they lacked the fine substance and symmetry of former years, and they were fewer in number than usual, so prominent a grower as Mr. C. TURNER being unable to exhibit in a single class. But the very conditions which told against the show Dahlias had assisted the early development of the Cactus and Pompon varieties, imparting earliness to the one and refinement to the other, and they were both represented in fine character, and as numerous as usual. There was a decided increase in the number of entries, but some of those who entered failed to appear through the rapid deterioration of their blooms. As is usual, the show was held in the eastern nave of the building, where there was ample space. A mournful interest attached to this exhibition through the death of the President of the Society, the late Mr. T. W. GIRDLESTONE, whose presence was greatly missed during the day.

SHOW DAHLIAS.

There were four entries of sixty show and fancy Dahlias. Mr. J. WALKER, Nurseryman, Thame, Oxon, who has been successfully exhibiting during the past month, taking the 1st prize with highly creditable flowers, chief among them Harrison Weir, Vice-President, Diadem, Frank Pearce, T. S. Ware, David Johnson, W. Powell, Maud Fellowes, Shirley Hibberd, Goldsmith, J. Hickling, Rosamond Virginala, Mrs. Saunders, Colonelist, Rev. J. Godday, John Bennett, John Walker, Duke of Fife, Mrs. Gladstone, James Vick, Victor J. C. Vaughan, &c.; Mr. M. V. SEALE, Nurseryman, Sevenoaks, was 2nd; and Messrs. M. CAMPBELL & SON, Nurserymen, Blantyre, N.B., 3rd.

With forty-eight varieties, Mr. WALKER was again to the fore, having as his best blooms Rev. J. Godday, R. T. Rawlings, Shirley Hibberd, Maud Fellowes, Prince of Denmark, J. Wyatt, Dr. Keynes, Diadem, Colonelist, John Walker, W. Rawlings, Victor, Mrs. Gladstone, James Vick, &c.; Mr. SEALE was again 2nd, and Mr. S. MORTIMER, Swiss Nursery, Farnham, 3rd.

With thirty-six blooms, Mr. W. TRESEDER, Nurseryman Cardiff, was 1st, having, differing from those already named, good blooms of Arthur Ocock, Pleasance, Willie Garratt, Eclipse, Duchess of Albany, J. T. West, and Duchess of York; Mr. GEO. HUMPHRIES, Nurseryman, Chippenham, was 2nd; and Messrs. KEYNES, WILLIAMS, & CO., Salisbury, 3rd. Mr. GEO. HUMPHRIES was 1st with twenty-four blooms.

FANCY DAHLIAS.

A class is still kept for the striped and tipped fancy Dahlias, though they are admissible in the preceding four classes. It may be said of the fancy Dahlias that they show a marked tendency to run to the self form, thereby losing their distinctness of character, and that the present season has been particularly trying to growers in this respect, and they have experienced considerable difficulty in getting a dozen well marked blooms for exhibition. Mr. J. WALKER, exhibited in much better character than might have been expected, and his 1st prize exhibit of twelve blooms, included the Rev. J. B. M. CAMM, S. Mortimer, Mrs. J. Downie, Matthew Campbell, Duchess of Albany, Plutarch, Frank Pearce, Emin Pacha, &c.

CACTUS DAHLIAS.

Very imposing stands of Cactus Dahlias were shown in the class for eighteen bunches, six blooms of each. The 1st prize was taken by Mr. J. STREEDWICK, Silver Hill, St. Leonards, a builder, cultivating his own flowers, and taking great pride in them; he had in very fine character: Countess of Lonsdale, Viscountess Sherbrooke, Stella, Britannia, Mary Service, Emperor (new); Magnificent, a new and foremost variety of excellent habit, and very free; Eclipse, soft sulphur yellow, a charming new variety; Keynes' White Harmony, W. T. Balding (new), and Charles Woodbridge, the last in perfect form; Messrs. J. BURRELL & Co., Home End Nurseries, Cambridge, was a remarkably good 2nd. This collection contained several new varieties, such as Auburn, a lovely tint of colour; Olive, Elise, orange-salmon and mauve, extra fine; Ibis, Whirlwind, Britannia, Keynes' White, Emperor, &c.

With twelve bunches, Mr. S. MORTIMER was 1st, having in fine character, Magnificent, Mrs. J. Goddard, Starfish, Ebony, Keynes' White, Mary Service, Britannia, Lucius, &c.; Mr. SEALE was 2nd.

One class was for twenty four blooms of Cactus Dahlias, shown on boards in the usual way with Dahlia foliage, Messrs. M. CAMPBELL & SON were 1st with an excellent stand, and in appearance not a bit more formal than the rigid-looking bunches on the wire-frames; Mr. SEALE was 2nd.

POMPON VARIETIES.

The pretty Pompon varieties, so free and so admirably adapted for garden decoration, were seen to great advantage, because so uniformly small, clean, and neat. Mr. SEALE had the best twenty-four bunches, ten blooms of each—240 blooms in all, a very perfect collection indeed. The leading varieties were Donovan, Ernest Harper, Red Indian, Capt. Boyton, Nerissa, Ganymede, Crimson Gem, Lillian, Cherub, Douglas, Snowflake, Demon, Tommy Keith, Distinction, Emily Hopper, Phoebe, &c. 2nd, Messrs. CHEAL & SON, Nurserymen, Crawley, with an admirable collection; Messrs. KEYNES & Co. were 3rd.

With twelve bunches, Messrs. J. BURRELL & Co. were 1st, with varieties of high quality; Mr. J. WALKER was 2nd.

SINGLE-FLOWERED VARIETIES.

The single Dahlias also were very fine, fresh, and of the best quality; two excellent collections of twenty-four varieties, ten blooms of each being staged, were set up by Messrs. CHEAL & SON and Mr. SEALE, the prizes being awarded in the order of the names; Columbus, Demon, Violet Forbes, Miss Roberts, Puck, Louisa, Polly Eccles, and Leslie Seale were among the prettiest, but all were very good.

Mr. JOHN WALKER was the only exhibitor of twelve bunches.

AMATEURS.

Then followed a number of classes for amateurs, taking the term in its widest sense.

The best twenty-four Dahlias came from Mr. F. W. FELLOWS, Putteridgebury, Luton, a nephew of the late Rev. Charles Fellowes, who thus maintains the floral traditions of the family. This stand contained several promising seedlings, which may probably be seen more fully developed later on. Mr. T. ANSTISS, Brill, Bucks, was 2nd.

The best eighteen blooms were shown by Mr. THOMAS JONES Ruabon; Mr. R. C. WEST, gr. to H. J. WIGRAM, Esq., Salis, bury, was 2nd. Mr. S. COOPER, Chippenham, was 1st with twelve blooms; and Mr. A. STARLING, Romford, with six.

A very good stand of twelve fancy Dahlias was shown by Mr. R. C. WEST, who had Peacock, Dazzler, Goldsmith, Mrs. J. Downie, Duchess of Albany, Matthew Campbell, &c.; Mr. T. W. FELLOWS, was 2nd.

CACTUS varieties in bunches of six and three blooms were well shown by amateurs; the cultivation of the Cactus Dahlia for exhibition purposes appears to be much on the increase among amateurs.

The best twelve bunches, six blooms of each were staged by Mr. R. KEEBLE, gr. to F. W. SHARP, Esq., Twyford; 2nd, Mr. JAMES HUDSON, Gunnersbury House Gardens, Acton.

Mr. H. A. NEEDS, Horsell, Woking, had the best nine bunches; Mr. JAMES BRYANT, Salisbury, was 2nd.

Mr. E. MAWLEY, the Treasurer of the Society, had the best six bunches.

Messrs. CHEAL & SON provided special prizes for a class for six varieties, six blooms of each, for which Mr. R. KEEBLE was again 1st; and Mr. J. HUDSON, 2nd.

POMPON Dahlias were shown by amateurs in classes for twelve and for six bunches, and in two classes for singles also. Messrs. HUDSON, BURGIN, and MAWLEY were the principal prize winners.

SINGLE varieties were somewhat sparingly shown by amateurs. Messrs. HUDSON and MAWLEY were the leading prize winners.

In the classes, two in number, set apart for amateurs who had never previously won a prize at a society show, there was a brisk competition.

The pretty Fancy Single Dahlias raised mainly by the late Mr. T. W. GIRDLESTONE, were shown in a class for eighteen varieties. Special prizes were provided in this instance. Mr. M. V. SEALE was placed 1st with a charming collection, having Dorothy Seale, Jeannette, May Sharp, Phyllis, Miss Glasscock, Firefly, The Sirdar, Duchess of Marlborough, Gaiety Girl, Folly, &c. Messrs. CHEAL & SON were 2nd, having distinct from the foregoing Princess Petula, Muriel, Lord Rosebery, Shamrock, Flame, Daisy, &c.

HALF DOZENS OF ONE VARIETY.

Great interest always attaches to the nine classes in which are shown six blooms of one variety of some colour or type. The best dark was Prince of Denmark, from Mr. SEALE. The best light, not yellow, was Mrs. Gladstone, from Mr. J. WALKER; William Powell, was the best yellow, and won the 1st prize for Mr. WALKER. Duke of Fife, in fine colour, was the best red or crimson; it came from Mr. R. C. WEST. No white can beat John Walker when at its best, it was finely shown by its namesake; the best Dahlia of any colour; it is a fine, heavy-edged variety, and came from Mr. SEALE.

The best tipped Dahlia, necessarily a fancy, was Miss Browning, yellow, tipped with white, from Mr. J. WALKER. The best striped was the dark fancy Prince Henry. Miss Cannell was the best edged flower shown by Mr. SEALE.

FLORAL DECORATIONS.

composed of Dahlias always find a place in the schedule of prizes. The best epergne of Dahlia blooms and foliage, came from Mr. J. T. HUDSON. Cactus Pompon and singles were tastefully employed. Mr. R. EDWARDS was 2nd, with a pleasing and less formal stand.

The best vase of twelve blooms of Dahlias was set up by Mr. E. MAWLEY, who had a salmon Cactus variety; Mr. H. A. NEEDS was 2nd; Mr. R. EDWARDS, Sevenoaks, had the best three vases of Cactus Dahlias, using salmon and crimson varieties with excellent effect.

Mr. W. TRESEDER, Cardiff, was 1st with an attractively shown bouquet of Dahlias, amber tints of Cactus being employed; Mr. SEALE was 2nd, having a yellow Cactus.

The best floral design was a harp in crimson and white Cactus Dahlias, from Mr. W. TRESEDER; Mr. SEALE taking the 2nd prize, with a cross of white Pompon Dahlias rising out of a base of foliage.

NON-COMPETITIVE EXHIBITS.

At the sides of the naves were arranged miscellaneous collections. Mr. J. GREEN, Norfolk Nursery, Dereham, had panels of such new Cactus Dahlias as Red Rover, brilliant red, large, striking, and of true Cactus shape; Zephyr, soft pinkish rose; Clio, ruby with deep centre; and others.

Messrs. H. CANNELL & SON had a very large collection of Cactus and decorative Dahlias, some 200 bunches forming an imposing bank.

Messrs. T. B. WARE (LTD.), Tottenham, had a long table of Cactus and other Dahlias, with hardly flowers in considerable variety; and Messrs. J. LAING & SONS, Stanstead Nursery, Forest Hill, a table of ornamental foliaged plants; another table of cut flowers, Dahlias, Roses, hardy perennials, &c.; and on the floor, various hardy ornamental plants of an attractive character.

A number of seedlings were staged, and some notice of these will be found in an article on p. 209.

EAGLESFIELD HORTICULTURAL.

SEPTEMBER 2.—This show, which is essentially the most important of its kind in the South of Scotland, was held in a field adjacent to the village. The entries to the show totalled 2160, this being similar to last year's numbers.

The show of FLOWERS was highly creditable after the unfavourable season. Dahlias and Asters were particularly good, and the foliage plants attained a high standard of excellence. As at other shows in the neighbourhood, the exhibits of FRUIT were not numerous, but several capital collections were forwarded, Melons and Apples being particularly good. Vegetables were well represented.

Competition in the amateur section was the most limited, though keen in certain classes; but the display of CUT FLOWERS was the best seen for several years. Asters, Dahlias, and Marigolds were exceptionally fine. Messrs. J. & T. W. ELLIOT, Langholm, and Messrs. W. & R. HOBSON, Langholm, were the principal exhibitors.

The cottagers' section was, as usual, the heaviest one, all the classes being well filled.

The best CUT FLOWERS, which were numerous, were Dahlias, French Marigolds, and Asters. Mr. T. GRAHAM, Longtown, and Mr. JAMES JOHNSTONE, Ecclefechan, were among the principal prize-takers of pot plants; Messrs. T. & J. TWEDDIE and Messrs. W. & R. HOBSON being again to the front among the cut flowers.

In the open class, the four latter exhibitors and Mr. EWEN CAMERON, Eriestane, Moffat, occupied conspicuous positions. Stands of Roses were sent for exhibition by Messrs. PALMER & SON, Annan, and Messrs. SMITH & SON, Stranraer.

METROPOLITAN OPEN SPACES: One Tree Hill.—We have been informed that it has been decided—against the hopes of the dwellers around—that this favourite spot is private property, and that the golf club is entitled to possession. As streets of houses are being built in this locality, it behoves those desirous of keeping open a fine landscape and recreation ground to bestir themselves, so as to secure from the builder one more fine open space for South London.

Brockwell Park.—There are fine wooded grounds (about 40 acres) lying between the Park and Dulwich Road: all of this cannot now be acquired for the public. Twenty acres however are in the market, and if all could be purchased and added to the now charming park, it would become the finest open space in the

southern part of the metropolis. It should not be overlooked that very little interference would be necessary in fitting the grounds for immediate enjoyment. By the way there is a paucity of entrances to Brockwell Park, the number of which can only be increased, one believes, by the conversion of the woodland into pleasure ground.

MARKETS.

COVENT GARDEN, SEPTEMBER 7.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. ED.]

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Foliage plants, var.	
Arborvitae, var. doz.	6 0-8 0	each	1 0-5 0
Aspidistra, p. doz.	18 0-26 0	Fuchsias, per dozen	4 0-6 0
— specimen, each	5 0-10 6	Heliotropes, p. doz.	6 0-8 0
Crotons, per doz.	18 0-30 0	Heliconias, each	15 0-105 0
Dracenas, var. doz.	12 0-30 0	Hydrangea paniculata, each	2 6-3 6
— viridis, per doz.	9 0-18 0	Lilium-Harrisii, doz.	18 0-24 0
Erica, var., per doz.	18 0-36 0	Lycopodiums, doz.	8 0-4 0
Eucnomyia, various, per dozen	6 0-18 0	Marguerite Daisy, per dozen	6 0-9 0
Evergreens, var., per dozen	4 0-18 0	Myrtles, per dozen	6 0-9 0
Ferns, in variety, per dozen	4 0-18 0	Palms, various, ea.	1 0-15 0
— small, per 100	4 0-6 0	— specimens, each	21 0-63 0
Nicus elastica, each	1 6-7 6	Pelargoniums, scarlet, per dozen	4 0-6 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, all home-grown:		Melons, in cases 24 or 36	8 6-10 0
— Ingestres, bush.	6 0-8 0	— each, English...	0 9-1 6
— Julien, bushel	8 0-4 0	— F. Canteloupe, each	0 5-0 6
— Keswick, bush.	2 0-3 6	Nectarines, A. doz.	7 0-10 0
— Mans, bushel...	8 6	— B., per doz.	8 0-5 0
— Suffield, bushel	4 0	Oranges, Italian, case of 160 or 200	12 6-15 0
— Worcester Pearmain	8 0-9 0	Peaches, A. doz.	8 0-10 0
— Various Cookers, per bushel	2 6-3 6	— B., per dozen...	2 0-4 0
Bananas, per bunch	10 0-12 0	Pears, Californian, cases	6 6
Figs, per dozen	1 6	— Duchess, 48 cases	8 6
— Italian, in boxes	2 0-2 9	— Hazels, bushel	6 0-7 0
Grapes, English, Hamburg, lb.	1 0-1 6	— Williams, 36, 48, 56 case...	8 9-5 6
— Alicante, per lb.	1 0-1 3	Plums, English, Gisborne, sieve	2 6-3 0
— Gros Colmar, lb.	1 0-1 6	— P. Wales	3 6
— Muscates, A., per lb.	1 0-2 6	— Victoria	2 6-4 0
— — R. per lb.	1 0-1 6	— Violet	3 0
— Belgian, per lb.	0 6	— Blue, sieve	3 0-3 6
— Channel Islands	0 6-0 8	— Orleans (English), per sieve	8 0
— Muscates, lb.	1 0-2 6	— Black Diamond, per sieve	3 6
— Lisbon, Black or White, boxes	8 0	— Gages, sieve	10 0
Lemons, Naples, per case of 420	18 0-20 0	— pecks	4 0-5 0
— Messina, case of 150	—	Dansons, per sieve	5 6
Lychees, Chinese, packet, 1 lb.	1 3		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	1 6-2 0	Mint, per dozen bunches	8 0-4 0
Beans, English, Dwarf, per sieve	2 0-3 6	Mushrooms, house, per lb.	0 10-1 0
— Scarlet Runners, per bush.	4 0-5 0	— Outdoor, per peck	2 0
Beetroots, new, doz. bunches	8 0-4 0	Onions, Dutch, bags	8 6-4 0
— in bus.	8 0-8 6	— Onions, picklers, in bags...	3 0-4 0
Brussels Sprouts	3 0	— Oporto and Valencia, cases	5 0
Cabbage, tally	8 0-10 0	— new, bunches...	2 6-3 0
— dozen	1 0-2 0	Parsley, per dozen bunches	2 6-3 0
Carrots, new English, per dozen bunches	2 6-3 0	— per sieve	1 0-1 6
— good, cwt. bags	8 0-8 6	Peas, blue, p. bush. (very scarce)	10 0
Cauliflowers, dozen	2 6-3 0	Potatoes, Hebrons, Snowdrops, &c. per ton...	55 0-60 0-80 0
Celery, new, per bundle	1 6	— Radishes, round, breakfast, per dozen bunches	1 6
Cress, per dozen punnets	1 6	Salad, small, punnets, per dozen	1 3
Cucumbers, doz.	1 6-3 0	— Shallots, per sieve	1 6
— ridgein pots	2 0	Spinach, New Zealand, land, per peck	1 0
Endive, new French, per dozen	1 6-2 0	— sieves	2 0
Garlic, new, per lb.	0 2	Tomatoes, new English, per lb.	0 2½-3 3
Horseradish, English, bundle	2 6-3 0	— Channel Islands, p. lb.	0 2-0 2½
— foreign, per bundle...	2 0-2 6	— French, in sieve, boxes	1 6-2 0
Leeks, new, per doz. bunches	2 0	Turnips, dozen	5 0
Lettuce, French, Cabbage, dozen	1 9-2 0	— cwt. bags	3 6
Lettuce, Cos, doz.	8 6	Watercress, p. doz. bunches	0 4-0 6
Marrows, Veg., per dozen	2 0		
— tally	7 6		
— in pads or pots	1 6-8 6		

REMARKS.—Black land Potatoes from 50s. to 60s. All other varieties are not dearer, but trade a little better. Brussels Sprouts are just coming in.

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms	8 0-4 0	Odonoglossums, per dozen	8 6-5 6
Asparagus "Fern," bunch	2 0 2 6	Marguerites, p. doz. bunches	8 0-4 0
Carnations, per doz. blooms	1 6-3 0	Mignonette, dozen bunches	4 0-6 0
Cattleyas, per dozen	10 0-15 0	Palargoniums, doz. bunches	4 0-6 0
Chacharis, per dozen	4 0-6 0	Roses indoor, per dozen	2 0-6 0
Gardenias, per doz.	2 6-3 6	— Red, per doz.	8 0-5 0
Gladolius The Bride, dozen bunches	5 0-6 0	— Tea, white, per dozen	2 0-3 0
— Brenchleyensis, dozen spikes	1 6-2 6	— Yellow, Perles, per doz.	2 6-3 3
Lilium-Harrisii, per dozen blooms	4 0-5 0	— Safrano, per doz.	2 0-2 0
Lilium longiflorum, per dozen	4 0-6 0	Smilax, per bunch	5 0-4 6
Maidenhair Fern, per doz. bunches	4 0-6 0	Tuberosea, per doz. blooms	0 8-0 9

SEEDS.

LONDON: September 6.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report increasing activity in seeds generally. Trifolium especially moves off more freely. Winter Tares being scarce and much wanted are dearer. Rye unchanged. The Canary-seed market is strong, with stocks getting rapidly reduced. Lower rates are quoted for Hempseed. As regards Alsyke White, Red, and Trefoil, values all round are higher. Peas and Haricots steady.

FRUIT AND VEGETABLES.

GLASGOW: September 6.—The following are the averages of the prices recorded since our last report:—Foreign fruit, Dutch Plums, 14s. per cwt.; do. Pears, 2s. to 3s. per sieve; Dutch Apples, 2s. to 3s. per bushel, and 4s. per half small hamper, and 12s. per small cask; Lemons, Palermo, selected, sound, 14s. to 17s. per case; do. Messina, 15s. to 18s. do.; do. Naples, sound, 25s. to 32s. do.; Grapes, Almeida, 11s. to 18s. per barrel; do. Denia, white, 4s. to 5s. do.; do. black, 7s. do.; Bananas, extra, 12s. to 13s. per bunch; do. No. 1, 10s. to 11s. do.; No. 2, 9s. to 10s. do.; French Pears, Williams, 6s. to 7s. per case; Bonne Louise, 3s. to 4s. do.; Duchesse, 3s. to 4s. do.; English Grapes, 1s. 2d. per lb.; Melons, Valencia, yellow, 24s. 7s. to 7s. 6d. per case; 36s. 7s. to 8s. do.; 48s. 7s. to 7s. 6d. do.; bronze, 24s. 7s. 6d. to 8s. do.; do. 38s. 7s. to 7s. 6d. do.; Vegetables: Carrots, Dutch, 8s. to 3s. 6d. per bag; 2s. per small hamper; Onions, 3s. 6d. per bag; do. Valencia, 4s. 3s. 9d. to 4s. 3d. per case; do. 5s. 4s. 9d. to 5s. 6d. do.; Scotch Mushrooms, 10d. to 1s. 6d. per pound; Tomatoes, English, 3d. to 5d. per pound; do. Scotch, 4d. to 7d. do.; Turnips, 10d. to 1s. per cwt.; Swedes, 1s. 10d. per cwt.; Carrots, 9d. per dozen bunches; Parsley, 7d. to 9d. per dozen bunches; Cucumbers, 1s. 3d. to 2s. 6d. per dozen; Cauliflowers, 1s. 6d. to 2s. 6d. per bunch; Cabbages, 1s. to 2s. per dozen.

PLANT AND FLOWER MARKET: September 6.—Prices for Dutch bulbs ruled rather low, considering the advance in price of Hyacinths and Tulips in Holland. Some of the prices are as under:—Hyacinths, 9d. to 1s. per dozen; small beddings, 1s. 2d. to 1s. 6d. per bag, 50 60, 72, and 100 in each bag; Tulips, 1s. per 100; single Snowdrops, 1s. 6d.; Scilla sibirica, 8d.; Crocuses 5d. to 1s.; Narcissus and Daffodils, 4d. to 2s.; Iris, English, 1s. 2d.; do. Spanish, 4d. to 1s.; Colchicums, 2s., all per 100 bulbs. Scotch: Lilium Harrisii, 2s. to 3s. per dozen; L. lancifolium, 9d. to 1s. 6d. do.; Orchids, 1s. to 8s. per dozen blooms; Carnations, 2d. to 6d. per bunch; Roses, white, 6d. to 2s. per dozen; do. red, 1s. to 2s. do.; do. boxes, 2s. to 4s.; Asters, 1s. to 8s. per dozen bunches; Sweet Peas, 1s. to 4s. do.; Maidenhair Fern, 8s. to 6s. do.; Gardenias, 1s. per dozen; Marguerites, 1s. 6d. do.; boxes of mixed flowers, 6d. to 4s. per box; Asparagus Ferns, 6d. to 2s. per bunch.

LIVERPOOL: September 7.—Wholesale Vegetable Market.—Potatoes, per cwt.: Early Regents, 2s. to 2s. 6d.; Main Crop, 3s. to 3s. 6d.; Kidneys, 2s. 6d. to 3s. 6d.; Turnips, 8d. to 10d. per doz. bunches; do. Swedes, 1s. to 2s. per cwt.; Carrots, 6d. to 8d. per dozen bunches; Parsley, 6d. to 8d. do.; Onions, English, 6s. per cwt.; do. foreign, 4s. to 5s. do. Cucumbers, 1s. 3d. to 2s. 9d. per dozen; Cauliflowers, 1s. 6d. to 2s. 9d. do.; Cabbages, 1s. to 2s. do.; Celery, 1s. to 2s. do. Beans, Kidney, 9d. to 1s. per peck; Scarlet Runners, 9d. to 1s. do. St. John's.—Potatoes, 10d. to 1s. 2d. per peck; Grapes, Potatoes, 10d. to 1s. 2d. per peck; Grapes, English, 1s. 6d. to 3s. per lb.; do. foreign, 4d. to 8d. do.; Pines, English, 4s. to 6s. each; Damsons, 4d. per lb.; Cobnuts, 8d. do.; Cucumbers, 3d. to 4d. each; Mushrooms, 1s. per pound and basket. Birkenhead.—Potatoes, 8d. to 10d. per peck Cucumbers, 2d. to 6d. each; Filberts, 8d. per lb.; Grapes English, 1s. 6d. to 3s. per lb.; do. foreign, 4d. to 8d. do.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending September 2, and for the corresponding period of 1893, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	23 1	25 0	- 3 1
Barley	27 8	25 10	- 1 10
Oats	18 11	16 7	- 2 4

THE WEATHER.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (−) the Mean for the week ending September 2.	ACCUMULATED.				More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 42° for the Week.	Below 42° or the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.					
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Ins.					
0	4 +	108	0	+ 332	6	3	139	27.2	25	30
1	3 +	107	0	+ 207	+ 20	3	+ 129	20.8	26	33
2	3 +	123	0	+ 333	8	4	+ 118	15.3	33	33
3	4 +	147	0	+ 373	− 196	1	− 104	13.2	52	44
4	3 +	132	0	+ 394	− 141	1	+ 103	15.6	40	41
5	3 +	148	0	+ 499	− 183	4	+ 89	13.7	49	48
6	2 +	110	0	+ 258	− 49	0	over 138	30.2	36	34
7	2 +	126	0	+ 401	− 146	5	+ 125	21.7	49	39
8	3 +	132	0	+ 513	− 121	6	+ 113	24.3	47	47
9	3 +	118	0	+ 308	− 72	5	+ 145	23.3	37	34
10	2 +	127	0	+ 427	− 54	6	+ 123	27.6	43	39
*	4 +	126	0	+ 691	− 67	2	+ 106	16.8	52	55

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London.

Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending September 2, is furnished from the Meteorological Office:—

"The weather during this period was much less settled than that of late, rain falling rather frequently in all parts of the kingdom, and thunderstorms occurring from time to time.

"The temperature was again above the mean, the excess ranging from 2° in 'Scotland, W.,' 'England, N.W.,' and 'Ireland, S.' to 4° in 'Scotland, N.,' 'England, E.,' and the 'Channel Islands.' The highest of the maxima were registered on August 27, and ranged from 85° in 'England, E. and S.,' to 72° in 'Scotland, E.,' 'England, N.W.,' and the 'Channel Islands,' and to 71° in 'Scotland, W.' The lowest of the minima, which were mostly recorded on August 29, varied from 35° in 'Scotland, E.,' to 50° in 'England, S.,' and to 54° in the 'Channel Islands.'

"The rainfall was rather less than the mean in 'Scotland, N.,' and 'England, E.,' and just equal to it in 'Scotland, W.' In all other districts there was an excess, that in most cases being rather large.

"The bright sunshine was less than the mean in 'Scotland, E.,' and the 'Channel Islands,' but was again in excess in all other parts of the kingdom. The percentage of the possible duration ranged from 52 in 'England, E.' and the 'Channel Islands,' and 49 in 'England, S.,' to 26 in 'Scotland, E.,' to 25 in 'Scotland, N.'"

DALKEITH GARDENS.—According to the *Journal of Horticulture*, the charge of the Duke of Buccleugh's gardens at Dalkeith has been given to Mr. J. Whytock, gr. to Earl Fitzwilliam, Cool-latin Park, Shillelagh.

ANSWERS TO CORRESPONDENTS.

Books: A. G. *Chrysanthemums and their Culture*, by Edwin Malynoux, published at 12, Mitre Court Chambers, Fleet Street, E.C., price 1s. The particular cultivation required by newer varieties is given in a practical manner by Mr. W. Wells, Earlswood, Redhill, Surrey, in *The Culture of the Chrysanthemum*, price 1s. 6d.—G. L. T. *About Orchids*, by F. Boyle, published by Chapman & Hall, Ltd.

CACTUS PHOTOGRAPHS: F. L. If you will kindly send specimens of the photographs you mention, we will consider them.

CHRYSANTHEMUM STIMULANT: J. S. Urine from horses will certainly be useful as a stimulant for these plants; and if allowed to lie for a time in a tank, and thus develop ammonia, its value will be increased. But we cannot recommend it without a caution against using it insufficiently diluted.

CINERARIAS: F. M. We are unable to say with certainty what is the cause of the plants dying. The roots are numerous and healthy, and the plant sent was a most vigorous specimen. The mischief has been at the "collar." Has it arisen from too much moisture there, or from an over rich top-dressing having burned this part before getting down to the roots?

FERNS: J. C. The insects on your Ferns is a small scale, and they are so numerous, that it would be best to cut away all the fronds, and make a fresh start. If scales attack the young fronds, sponge them with a safe insecticide before the insects become numerous, and repeat the work as often as necessary.

INSECTS ON PEAR: C. J. and G. D. White. The Pear slug-worm (*Selandria atra*). You may syringe the trees by means of a powerful garden-engine with strong soap-suds and a little tobacco-water. Or they may be dusted with soot, lime, or other caustic powder. The operation will need to be repeated, as these insects when so dusted can exude a coating of slime and thus cleanse themselves. But if another dressing be quickly given, it will be fatal to them, as they are powerless to repeat the exudation immediately.

LAWN COVERED WITH MOSS: Cretica. Break the surface by raking, and thus remove much of the moss. Then give, as soon as possible, a half-inch dressing of three parts rich fine loam, and one part powdered lime. Afterwards sow a little fresh grass-seed. This will also greatly strengthen the existing grass. In the spring, if the grass be still weak, give weak solutions of a nitrogenous manure occasionally, or one of the advertised lawn "sands."

LANTERN SLIDES: A. R. J. We cannot tell you. Probably you would have to get them made specially for you.

NAMES OF FRUITS: T. W. S., Gloucestershire. Pine Golden Pippin.—*Rosefeld*. Court Pendu-Plat.—E. A. The Cherry apple, or Siberian Crab.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. Laurie. *Magnolia acuminata*.—J. W. 1, *Rhamnus* sp. [?]; 2, *Pyrus Aria*; 3, *Purple Beech*; 4, *Cryptomeria japonica*; 5, *Abies cephalonica*; 6, from the scrap sent, we cannot tell whether it is a *Deodar*, *Lebanon*, or *Atlas Cedar*—probably the second; 7, *Quercus cerris*.—W. T. *Muhlenbeckia complexa*, *Polygonaceae*.—W. C. & Co. *Funkia grandiflora* (see figure in *Gardeners' Chronicle*, November 16, 1878, p. 629).—*Jas. Wright*. 1, *Physianthus*, or *Araujia albens*; 2, *Carthamus tinctorius*.—T. W. 1, *Oenothera macrocarpa*; 2, *Dicentra formosa*; 3, *Trachelium coeruleum*; 4, *Escallonia rubra*; 5, *Spiranthes autumnalis*, a wild Orchid, of much interest: do not dig it up; 6, *Ceanothus azureus*.—J. S. 1, *Alnus cordata*; 2, *A. im-perialis*. We are sorry we cannot name these seedling varieties of Oaks; 3 and 4 we take to be *Q. Cerris*; 5, 6, and 7, we suppose are hybrids between that species and *Q. Suber*, of which the Lucombe and the Fulham Oaks are varieties.—B. K. All leaves with no flowers. 1, *Magnolia acuminata*; 2, apparently *Clerodendron trichotomum*; 3, *Gleditschia triacanthos*; 4, *Alnus*; 5, *Calycanthus occidentalis*; 6, *Ulmus montana*—*Ibez*. A very good variety of *Cattleya* *Lodigesi*.—*Robertus*. *Rodriguezia* (*Burlingtonia*) *pubescens*.—G. L. T. *Oncidium dasyle*. For other answer see under "Books."—S. J. *Organum Dictamnus*, superficially like the Hop, but extremely different in reality.

ORCHID FLOWERS WHEN CUT: *Grower*. The flowers of *Odontoglossums*, *Cattleyas*, and similar orchids will travel well the distance you name provided they have been properly matured on the plant and hardened off in a

tolerably cool place. Orchid blooms should not be cut too early. They travel better, and last longer, if cut a week before they would begin to fade if left on the plant, than when cut just as the flowers are fully formed. *Odontoglossums* should never be cut until all the flowers on the spike are expanded and matured. Soft tissue paper should be used for packing. Cotton wool where it touches the flowers is very injurious.

SHREWSBURY SHOW.—Messrs. Clibran & Son, Altrincham, were awarded two Silver Medals at this show, instead of one as reported.

SWEET PEAS, &c.: M. S. Your flowers arrived in such a condition, that we could not form a proper opinion about them. So far as we can see, none are at all remarkable.

VEGETABLES AT EXHIBITIONS: J. S. sends the following query—"Judging at a local show recently, in a class for collections of vegetables, one of the exhibits contained French Beans and Scarlet Runners; they were shown as two varieties. In another exhibit Broad Beans and Scarlet Runners were also shown as two varieties. By the Society's regulations, which I enclose, they say 'distinct species,' and my colleagues and myself disqualified the collections. A dispute arose in reference to them being disqualified. Will you kindly give the verdict?"

—In a note in the schedule explaining the requirements of this class, it is stated—"For varieties in any collection of vegetables... distinct 'species' must be shown, e.g., one 'variety' of Potatoes, one variety of Peas, &c." The Dwarf and the Runner Beans are separate and distinct species, and the Runner Bean and the Broad Bean are more than this, as they belong to separate genera. Therefore, the judges were unquestionably wrong in not allowing the exhibits. We may add that the wording of the schedule is confusing and most unsatisfactory.

VINE BORDER: J. S., "Sunflower." Two feet of soil is ample depth for the back of the Vine-border, with a fall of 6 inches if the position is an elevated one. Unless the maiden loam mentioned be of a rich fibrous nature, a less amount than that stated should be used, and more of the top spit. The proportion of mortar-rubble is in excess of the requirements of the varieties of Grapes it is intended to grow. Rather use half the amount, and an equal quantity of home-made charcoal. We presume the exact nature of Canon Hall Muscat Grape is known to "a regular subscriber." We should much prefer in such a limited area to plant Buckland Sweetwater, as this Grape, though by no means possessing the rich flavour of the former, is a sure cropper, and, when well finished, is a Grape of fair appearance and one possessed of average flavour.

WILD SPECIES OF FLOWERS AT EXHIBITIONS: E. Midgley. We have not the schedule before us; and as the wording of schedules should always be interpreted literally, we cannot give a definite opinion in your particular case. A wild flower is generally meant to imply a native British species—one that grows wild in this country. It is still a British flower even if taken from a cultivated garden; but it is certainly against the spirit of the schedule if exhibitors cultivate wild species in their gardens for purposes of exhibition; and as plants so grown are generally entirely out of character, and unrepresentative, besides being, as a rule, less beautiful, the judges would be wise to award the premier awards to more typical exhibits. The framers of the schedule could settle the matter, by stating in relation to such classes, "that flowers cultivated out of normal character may not be shown."

COMMUNICATIONS RECEIVED.—A. W. S.—M. S.—J. B.—T. L.—C. V., Ghent.—J. B.—W. P.—W. L. M., Texas.—M. H. S.—Laxton Bros.—C. V., Ghent.—J. C. S.—W. T.—F. L.—W. Q.—P. de V.—H. R. W.—H. K.—Experience.—J. Roycroft.—A. V.—Cymru.—D. T. F. (too late for this week).—J. G., Liverpool.—H. T. M.—W. C. W.—H. M.—H. H. R.—A. H.—J. Moir.—A. & Co.—A. G. T.—W. C. & Son.—J. Bathurst.—Alpha.—R. A.—M. S.—F. R.—A. K.—S. B.—T. R.—G. N.—W. C.—H. H., A. C.—J. F. McL.

SPECIMENS, PHOTOGRAPHS, &c., RECEIVED WITH THANKS.—G. K. G.



THE Gardeners' Chronicle

No. 664.—SATURDAY, SEPT. 16, 1899.

HARDY WATER LILIES.

(MY STORY.)

COMING to this place in November of last year, it was my intention, and is yet, to grow some of those beautiful Water-Lilies of M. Latour-Marliac. To this end, a few years ago I dammed up a small streamlet which passes through the lower part of my grounds; a few of the common white *Nymphæa* which I had placed therein did very well and flowered freely during the months of July and August; but the severe drought of the summer dried up the inflow of the stream, and that which had been dammed up evaporated so much that these Lilies were left in rather an unhappy position. Finding protection in my grounds, the streamlet now swarms with water-voles (*Arvicula amphibius*), and moor-hens (*Gallinula chloropus*)—and the kingfisher (*Alcedo ispida*), is not a stranger. We succeeded in killing a few of the voles, and by the same means we caught some of the moor-hens; their numbers, however, did not seem to decrease, as they came again by way of both the upper and lower lengths of the stream. Finding these local feathered and furry fauna so difficult to exterminate, I have resolved to leave the streamlet for their own undisturbed enjoyment. In time of heavy rain, this little stream transforms itself into a formidable rushing muddy river. During these freshets no *Nymphæa* could hold their own and look nice; the dirty state of the leaves of the white variety now there is hint sufficient to take note of, although the flowers which show for about three or four days only are clean enough whilst they last. For these reasons I have abandoned the idea at present of running the risk of placing my *Nymphæa* in these waters. I have, therefore, for the reception of these Lilies been preparing a pond in the higher portion of my grounds, to which, when ready, my collection of Lilies will be transferred. This pond will be partly fed by rain-water, and when that does not come in sufficient quantity, I can keep it filled by turning on water from a never-failing deep well, which is forced up to an elevated cistern by one of those "hot-air-pumps." With this simple but clever working little engine we could, if necessary, irrigate by gravitation the whole surface of my little place of 12 acres; by its use and frequent application, coupled with deeply-trenched ground, we have passed unscathed through the trying ordeal of the late hot summer; most of our things, too, were planted late in spring, as during winter we had the ground to dig and prepare for them.

The pond, now about ready to receive the water, is surrounded with sundry shrubs, which by their shelter, and without intercepting the sun's rays, will secure placidity and the necessary warmth; under such almost unique cir-

cumstances Lilies ought to do well. To begin with, my collection is as under, viz:—

<i>Marliacea ignea</i>	<i>Marliacea rosea</i>
" <i>Robinsoniana</i>	" <i>odorata sulphurea</i>
" <i>chromatella</i>	" <i>Gladstoniana</i>
" <i>albida</i>	" <i>exquisita</i>
" <i>flammea</i>	" <i>Dr. Faunce's Seedling</i>
	" <i>Laydekeri liliacea</i>

All these I had sent me by my esteemed friend, Mr. James Brydon of South Lancaster, Mass., U.S.A. His letter, which is so practical and full of Lily-love, I send for your perusal. On pp. 3 and 4 of his letter Mr. Brydon writes:—

"I have raised several new hardy ones from seed, which I think are fully the equals of M. Marliac's. Saturday, August 12, I was awarded a Silver Medal by the Massachusetts Horticultural Society for one of these seedlings, which I have named *Brydonacea elegans*. I claim the honour of being the first man in this country to raise hardy Lilies of the Marliac type, and shall continue to exhibit the same from time to time."

Before receiving the unexpected but handsome consignment of Lily-roots from Mr. Brydon, I had already written to Mr. Marliac for his priced catalogue. By a singular coincidence, this arrived by the same post which brought Mr. Brydon's letter, followed next morning by a parcel containing the much-prized roots in excellent condition. On arrival, I potted them, as advised by Mr. Brydon, in 6-inch pots, and plunged them in a tank of water which had at the bottom about 6 inches of nice slimy mud, this being the remainder of a mulch which we had been using in spring as a dip for the roots of our young trees before planting. In this situation, these precocious little plants in the course of the summer made abundance of leaves and threw up several blooms, which to us was not only pleasing but also encouraging; *Marliacea ignea* we admired much. *W. Miller, Berkswell, near Coventry.*

ORCHID NOTES AND GLEANINGS.

"DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES."

THE numbers 32 and 33 contain coloured illustrations and descriptions of the following species and varieties:—

<i>Aerides Houlettianum</i> , Rehb. f.	<i>C. Godseffianum</i> , Rehb. f.
<i>Angraecum Leonis</i> , Veitch.	<i>C. Calypso</i> var. <i>Flamingo</i> , Cogn., a cross raised by M. Jules Hye, from <i>Spicerianum</i> by Boxall atratum.
<i>Coeloglyne Massangeana</i> , Rehb. f.	<i>C. Clotho</i> , Reg. Young, a cross out of <i>x C. politum</i> by Boxall atratum.
<i>Cymbidium tigrinum splendens</i> , Cogn.	<i>C. Endymion</i> , Reg. Young, a cross from <i>C. barbatum</i> by C. Mastersianum.
<i>Dendrobium cymbidioides</i> , Ldl.	<i>C. Eyerimannianum</i> var. <i>Hermione</i> , Rolfe, a hybrid between <i>C. barbatum</i> fertilised by <i>C. Spicerianum</i> .
<i>D. c. thyrsiformum</i> , Rehb. f.	<i>C. Pollettianum</i> , Rolfe, a cross from <i>C. calophyllum</i> <i>x</i> and <i>C. cenanthum superbum</i> <i>x</i> , and thus the derivative from no fewer than four species— <i>C. barbatum</i> <i>f.</i> , <i>C. venustum</i> <i>f.</i> , <i>C. villosum</i> <i>f.</i> , and <i>C. insignis</i> var. <i>Maulei</i> <i>f.</i>
<i>Eulophiella Elisabethæ</i> , Lind. et Rolfe.	<i>C. Souvenir de Roch Jolibois</i> , Opolix, a cross from <i>C. Lowi</i> by C. Curtiss, raised by M. Opolix. Would it not be preferable to call it simply <i>C. Jolibois</i> <i>x</i> ?
<i>Masdevallia Peristeria</i> , Rehb. f.	
<i>Maxillaria nigrescens</i> , Ldl.	
<i>Mormodes Lawrenceanum</i> , Rolfe.	
<i>Oncidium cucullatum</i> , Ldl.	
<i>Phalenopsis Denislana</i> , Coig.	
<i>Cypripedium Boxall atratum</i> var. <i>superbum</i> .	
<i>C. Charlesworthii reticulatum</i> .	
<i>C. C. pallidum</i> .	
<i>C. Mastersianum</i> , Rehb. f.	
<i>C. Appletonianum</i> , Gower.	
<i>C. Zampa</i> var. <i>Steriope</i> , Cogn., a cross effected by M. Vuytsteke between <i>C. hirsutissimum</i> (female) and <i>C. Lee-anum</i> <i>x</i> .	

In the number for March 1899, *Cypripedium callosum* var. *Sanderæ* was erroneously designated as a hybrid.

LÆLIO-CATTLEYA *x* ANDREANA.

When this pretty hybrid, which was obtained by M. Chas. Maron, by crossing *Cattleya bicolor* with *Lælio-Cattleya x elegans*, first appeared, it was, like other of the medium-sized hybrids, not

generally admired. Later, it gained strength, and when shown by R. I. Measures, Esq. (gr., Mr. H. J. Chapman), it was granted an Award of Merit. Since then, with Mr. Measures and others, increased strength has intensified the beauties of its flowers.

A grand example of it with very strong pseudo-bulbs, and bearing as many as six flowers on a spike, has flowered with Henry Little, Esq., Baron's Halt, Twickenham (gr., Mr. Howard), where the *Lælias*, *Cattleyas*, and *Lælio-Cattleyas* are specially well grown. The plant in question had fine waxlike flowers; the sepals and petals cream-white, tinted with rose; and the showy lip bright claret-crimson, its form indicating *Cattleya bicolor*.

LÆLIO-CATTLEYA *x* BROOMEANA.

In the issue of the *Gardeners' Chronicle*, Nov. 11, 1897, p. 174, there appeared a description of this gorgeous natural hybrid, which was imported from Brazil by Joseph Broome, Esq., Sunny Hill, Llandudno (gr., Mr. A. C. Axtell), with whom it flowered. A splendid bloom now sent proves that all its fine characteristics are well maintained, the flower in size and in intensity of colour being even better than when it first appeared. Its general appearance is that of an abnormally fine *Lælio-Cattleya x elegans*, but the lip is larger and somewhat different in form, and all the other segments broader; the sepals and petals are of a clear rosy-mauve, with slight spotting and veining of purple. The base of the lip is white, with a crimson band running into the front lobe, the broad front lobe and about 1-inch of the front portion of the side lobes glowing crimson-purple. It was imported as a distinct hybrid, and so it has proved.

CATTLEYA OUTIATA VARIETY.

Cattleya guttata is one of the most variable of Brazilian species, and it has been still further complicated by the inclusion by some of the amply distinct *C. Leopoldi* and *C. amethystoglossa*. When the typical plant is considered, the variation in size and colour is very extraordinary; extremes of both classes often being taken for new species or hybrids when they appear among amateurs. A flower of a very remarkable example, which may be considered the starting point of the species, is sent me by Francis H. Moore, Esq., The Royal Infirmary, Liverpool. The flower is about half the size of the ordinary form, the sepals yellowish-green with a purplish tinge, and a few small purple spots; petals similar in colour to the sepals, but broader, and with a wavy margin. The lip has the side lobes white, the small, narrow, elongated front lobe which has a rugged surface, being purplish-crimson. The labellum when spread has much of the outline of *C. granulosa*, and the whole flower bears a striking resemblance to that somewhat mysterious plant shown by Messrs. F. Sander & Co., St. Albans, at the Royal Horticultural Society, September 8, 1891, as *Cattleya granulosa Dijaneana*, though in that case the sepals and petals bore scarcely any trace of spotting. *J. O'B.*

THE LAVENDER INDUSTRY.

LAVENDER comes of an odorous race; it is one of the Labiatae, or lip-flowers, which include Mint, Thyme, Rosemary, Balm, Sage, and Marjoram. But, though grown to such perfection in this country, it is not indigenous. Those excellent people, the Huguenots, when they settled in the valley of the Wandle, in 1568, are said to have brought it from its home on the hills of Naples. It is a native of Persia also, of the Canaries, the Barbary States, and of the greater part of the South of Europe; that of Mont Blanc is said to be the finest, for it affects altitudes, and has been found in North Africa growing in dry stony soil, 5000 ft. above sea-level. From the *Lavandula spica*, grown on the Continent, oil of spike is made, now chiefly used in the preparation of pigments in porce-

lain painting. Some of the rarer members of the tribe, with divided leaves, have a place in the greenhouses. But the English Lavender is a hardy plant, which would disdain so luxurious a setting. It delights in loamy land, with a chalky subsoil, well open to the sun and air. There is warrant for saying that it will grow on ground which would not support any other crop of value. Planting goes on in September or October. When in the spring the Lavender shows signs of flower, it is ruthlessly clipped; this is done sometimes twice or three times, for it is essential to strength that no flowers be formed the first season. When a year old, they are planted out in rows, with breathing-spaces of 3 feet between. If oil is scarce and dear, they are allowed to flower the second year, but it is better to clip them again, and wait until they have reached their prime in the third year. They are at their best till the fifth; in the seventh or eighth they have served their time, are rooted up, and become brands for the burning.

The harvest falls about the end of July or at the beginning of August. A dry, warm season, with gentle showers between, suits Lavender best. If garnered in showery weather, the yield of oil is greater, whilst continued drought taints it with a rank odour. The flowers must be fully expanded when gathered. They are cut from the plants with short reaping-hooks, tied in bundles, taken from the field, and then stripped from the stalks. As the pans fill with the odorous blossoms they are transferred to the still. From half a ton to a ton of them fills the still; from twenty to thirty women will be working hard for six hours to make up the quantity. The oil is contained in glands on the calyx, corolla, and leaves, and to a smaller extent in the branches of the flower-stalks. Women work in the fields too, following the men who reap, and tying up the harvest in mats. This protects it from the sun, which would otherwise "heat" the Lavender and injure the oil. In a good year a ton will give up as much as 21 lb. of oil, at other times not more than 15 lb. or 16 lb., and in bad seasons the yield may fall as low as 10 lb.

The distillation starts at 4 or 5 in the morning, and lasts till 10 at night, continuing from about the first week in August till the end of October. Each operation takes about two and a half hours, the largest quantity of oil coming over during the first hour and a half. A considerable part of the time is taken up in filling and emptying the still. This is of copper, with a fluid capacity of about 200 gallons. The flowers are packed in tightly by treading—work to get accustomed to, for the boys employed are often stung by the bees concealed within the bunches. After a few days, however, the stings cause little or no pain. Hundreds of these bees, drunken with sweets, refuse to be dislodged either by the reapers or the trimmers, and find their way into the still, there to realise too late that enough is better than a feast, for the still is filled with boiling water, and sudden death environs them round about. The head of the still is put on, and luted with clay. It resembles nothing so much as an enormous tobacco-pipe, bowl downwards. The furnace is lighted, and the oil passes off, carried on the wings of the steam, which condenses again in the cool of the receiver, the oil floating on the top. On the removal of the water with a syphon, the oil remains behind. The head of the still is taken off, and the sodden mass of flowers taken out with long forks. They go back to the land to fertilise the next crop. Bottling the oil for a twelvemonth mellows it, takes away the harshness, and turns it from a light brown to a pale gold. Up to three years it improves, but deteriorates if kept longer. The subtle individuality of the Lavender lies hidden in the oil. This must be diluted from twenty to forty times its bulk of spirit before it is revealed. The oil is a quite impossible perfume, though the generation which four or five decades ago reeked with bergamot and patchouli might have borne it. Sometimes Lavender-water is a bouquet of scents of which Lavender is the key-

note. Commonly it is mixed with rose-water as well as spirit. Piesse, in his *Art of Perfumery*, says:—"English oil of Lavender, 4 oz.; spirits of wine, 3 quarts; rose-water, 1 pint; the filter does the rest." X.

THE FERNERY.

TREATMENT OF SICKLY FERNS.

As it often happens, even with the most careful culture, and not infrequently owing to over-care or coddling, that valuable Ferns get gradually out of health, and eventually die outright, a few hints as to treatment may be of interest. Apart from the attacks of vermin, a lack of health induced by bad colour of the fronds, and constant failure of new ones to develop properly, is more frequently due to a water-logged condition of the soil, owing to bad drainage; and if a plant so affected be shaken out, it will be found that the great bulk of the roots are black and dead—and further investigation will show that, while there is perhaps a large caudex built up of the bases of several generations of old fronds, this too is rotten at the base, and for a considerable distance upwards. In such a case the whole of the soil should be first shaken out, and then washed out under a tap, until the mass is clean. Starting then on the base of the caudex, pull away all the rotten bases, with which will come the bulk of the dead roots; then with a sharp knife trim away all the dead parts remaining, and if there be any living roots left, repot in a small pot, and keep close, when in all probability a fresh start will result. The philosophy of this procedure is simple. The vitality of Ferns is very great, and hence the plant, when handicapped by some soil which kills its old roots, devotes all its energies to form new fronds and new roots from its centre. Each new frond, however, sends forth its now particular fascicle of rootlets, and no sooner do these start out, as it were, in search of provender, than they plunge into the general rottenness around them, and soon perish for lack of sustenance, or by contagion, until finally, batch after batch succumb, and the ever-spreading rottenness reaches the plant's very heart, and it is beyond resurrection. The process described gives the needful start, and very often not one plant, but a batch, is the result. Mr. G. B. Wollaston once told us that a very precious form of *Polystichum* went wrong, and when thus treated, yielded no less than eighty typical plants. A very curious fact in this connection is, that many Ferns have the power of forming a bud, or buds, at the point where each frond develops its particular bunch of rootlets; and so long as the core of that frond-base is green, this bud, or buds, is capable of being generated, provided—always provided—it finds itself in sweet and good soil when it is first formed. Even where the central crown has quite perished, if any greenness be visible during the aforesaid clearance process, plants may be obtained by cutting the caudex up so that each of the frond bases has a little bit of the central mass attached to it.

An old caudex may yield a score or more of good pieces if deftly-handled, and these should be inserted into small pots or pans of good sterilised soil, just deep enough for anchorage, a piece of glass placed over the pot or pan, and the whole put away in a damp corner with plenty of diffused light. Shield Fern, Lady Fern, and Lastreas are all amenable to this treatment; while as regards the Hartstongue, the frond bases do not demand the adherent piece of caudex, but every $\frac{1}{4}$ inch will yield plants, so that every base is good for at least half-a-dozen. We have, at the present moment, a pan full of young plants, some fifty or sixty, raised as follows. A finely tasselled Hartstongue went wrong, and was accidentally thrown away as dead; fortunately it fell into a box of prepared mould, hence, months afterwards, when the mould was used, the caudex was discovered still green. It

was pulled to pieces, and the pieces dropped into a tumbler containing an inch of wet sand, upon which the pieces lay loose as they fell; a glass was placed over this, and the arrangement being overlooked, was untouched for at least six months—the whole winter, in fact. The water, however, could not escape, and hence the sand constantly received again whatever was evaporated. In the spring, the little pieces were covered with whitish knobs, incipient buds, and in a few months, when put into soil, a perfect little forest of plants sprang up, rooted themselves, and the erewhile seeming corpse became a crowd of vigorous individuals. In these cases, it is clear that there is a store of nourishment laid up in the frond bases as a provision for accidents to the main axis of growth. In the Hartstongue, it has the faculty of generating bulbils at any surface point within an inch of the point of attachment to the central core; in other species, the area is limited to the immediate vicinity of the root fascicles, but in all cases the faculty of actual development seems to depend upon a considerable check to the growth of the main axis, or its entire destruction, and in the latter case frequently only those bulbils manage to develop as are freed from the dead mass, and able to reach fresh soil and the light by actual severance of its parts. In cutting up old caudices, we have sometimes remarked long thread-like attempts at frond formation, which were obviously doomed to fail by their very position, since the bulbils originate in a narrow crevice an inch or two deep. And more, the roots they form cannot consequently get into the soil, nor their fronds to the light; hence nothing results. Pull that caudex asunder, however, and they have their chance, and that is the simple philosophy of the procedure suggested.

These drastic remedies have so far as I know only been applied to our British species, but are presumably quite as applicable to many rare exotics. Each Fern frond practically is an individual plant, like the leaf of a tree, and it would appear that although the axial bud is not so patent as in the latter, a latent one exists, or is capable of being induced, through which the Fern can survive though the main axis of growth be destroyed or damaged. In culture, however, there is one essential point of difference: in raising flowering plants from leaf buds, a leaf is usually retained to help development; but with the Ferns, the frond base alone must be used, no basal bud development following if a frond be inserted complete, any remaining energy being then exhausted by the draw set up to maintain the frond's vitality. *Chas. T. Druery, F.L.S., V.M.H.*

THE VEGETATION OF NEW GUINEA.

I HAVE sketched out a few stray notes on the plant-life of British New Guinea, observed during a recent visit with his Excellency Lord Lamington's party to that place. First, it struck me that the plants of this large island resembled the natives in one thing, namely, as it would be hard to find one of the latter with a clean skin, all of them being more or less covered by skin disease, so the plants are nearly all infested with various kinds of insect and fungus blights. The vegetation, however, even under this great disadvantage, makes in all directions most vigorous growth, but, so far as I was able to judge, not a timber growth. I come to this conclusion from specimens which have been forwarded to me for determination during late years, from the various published accounts of other botanists, and from my own observations. Likewise, the grasses, as compared with Queensland, are few in variety, and are, for the most part, coarse kinds, the better ones only being seen here and there in small isolated plots. A large number of the trees and shrubs, as well as plants of smaller growth, are identical with those met with in tropical Queensland. These, as one might expect in such a moist climate, have in many instances

much larger foliage, and the variegated kinds are of a much brighter colouring than one meets with on the same species grown even in bush or hot-houses. My visits to the land were only close to the beach, excepting one trip for about 6 miles up the Mambare River, and here the scrub was so dense that it was quite impossible to penetrate more than a few yards from the river. The scenery was grand in the extreme, and for its striking beauty was, in a great measure, indebted to the great variety of Palms; but not being able to procure fruits, I could only guess at the genera to

growth of that historic Palm, *Nipa fruticans*, Wurmb., with fruit-heads nearly 1½ ft. in diameter, of a rich, glossy brown colour; the leaves, however, did not attain the height ascribed to them in other parts of the tropics. I could not hear of the natives using the fruit as food, but the leaves are used for thatching most of their houses on the coast. On the wide sandy beach of the bay into which the Mambare River empties, one may pick up a large collection of both flowers and fruit; but it was of only a very few that I could find the trees or shrubs from which they had

indigenous, but I have grave doubts as to others, although they may be recorded as such by botanists who have written upon the New Guinea flora. The mistakes have likely occurred owing to the missionaries, who have sent specimens to the botanists, not seeing the necessity of mentioning whether the particular specimens were taken from indigenous or naturalised plants. *Extracts from a Paper by F. Manson Bailey, F.L.S., read before the Royal Society of Queensland, August 20, 1898.*

TRAINED PEAR-TREES AT GORHAMBURY PARK.

THE ordinary garden wall is seldom built of such a height that a Pear-tree can be allowed to extend itself to anything approaching full dimensions; and a great deal of the vigour of a Pear-tree is expended in making growth, which the exigencies of space compel the gardener to sacrifice at the summer and winter prunings, and doubtless thus contribute to the loss of numerous small roots. Given, however, a higher wall, as that afforded by the blank wall of buildings of good height, as in this case, a well managed Pear-tree can be made to cover it in the course of ten or twelve years with regularly disposed, horizontal branches. These branches, should, for most varieties of the Pear, be separated from each other from 10 to 12 inches; and in the case of those that fruit on long pendulous spurs of which Jargonelle and Marie Louise are familiar examples, 14 to 15 inches is not too much. In the future, when our people more fully appreciate the numerous benefits to be derived from the *petite culture*, take up, among other things, the more general cultivation of good varieties of hardy fruits, cottage and farm-house walls, and those of country houses generally, will be clothed with fruit-trees affording gratification and profit to their owners.

The illustrations, pp. 219, 223, show a tree each of *Beurré Rance* and *Marie Louise*, 25 feet high, and 22 feet broad, growing in the gardens of the Earl of Verulam, Gorhambury Park, St. Albans, photographs of which were kindly furnished by Mr. W. Newberry, his lordship's head gardener.

PLANT NOTES.

HOYA BELLA.

THIS charming little plant is well adapted for culture in hanging baskets, having dwarf, slender branching stems, about 1 foot in length. It requires more heat than *H. carnosa*, and is distinctly different in habit. The leaves somewhat resemble the size and shape of the Myrtle, and the little umbels of flowers are very sweetly scented, being waxy white, with a rosy carmine centre. It is a native of India, and was introduced in 1847. A plant is now flowering freely here.

FRUITING CAPSICUMS.

A group of these ornamental plants form a very interesting feature in one of the houses here. The following varieties amongst others are well worth cultivating: Long Yellow, Bull's Nose, Mammoth Long Red, Tomato Shaped, Red Cherry, Long Pod Chili, and Erect Fruiting, the latter being remarkable for the erect manner in which its fruits are produced. The fruits of all are either red or yellow when ripe, and their various sizes and shapes are singular. Seed should be sown in heat early in March, and the plants grown on in the same temperature during the early stages. Then, after being gradually hardened off, they should be removed to a light, airy, and cool house. An occasional tap when in flower is all that is necessary in order to induce the flowers to set. The fruits are not only very attractive, but they may also be used in some cases for the more profitable purpose of flavoured pickles. *J. G., Botanic Gardens, Liverpool.*

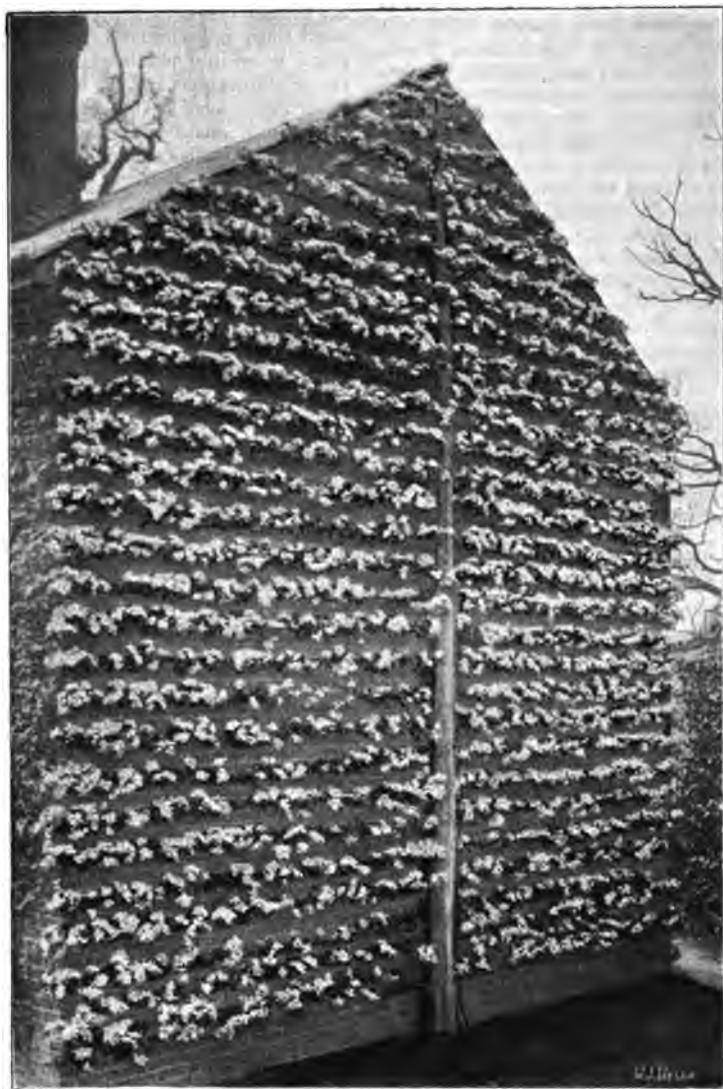


FIG. 76.—PEAR MARIE LOUISE AT GORHAMBURY PARK, ST. ALBANS.

which they belonged. I was particularly taken, in more senses than one, by a grand "lawyer cane," a species of *Korthalsia*—a genus, so far as at present known, not belonging to Australia. It is in all probability *K. Zippelii*, Blume, but the plants were neither in flower nor fruit at the time. On the bank of this river I saw the only Fern-tree met with during the trip. The trunk was about 12 feet high, but after spending some time in obtaining specimens, it was found to be only a form of our common species, *Alsophila australis*, R. Br. The absence of Fern Trees along the coast is only what one would expect, as these plants are usually found in the gully scrubs, often some distance from the coast.

Near the mouth of the river was a very dense

fallen. Many, doubtless, had been brought down the river and washed up by the tides. At the time of our visit a fruit closely resembling, in colour and shape, an Orange, was very abundant. This proved to belong to *Tabernaemontana aurantiaca*, Gaud.

At the Ope River, some of the party brought on board the steamer a specimen of the "green-light fungus," *Hiatula Wynnii*, B. and Br. This beautiful object gave out its faint green light again as soon as night set in, and was a source of wonder and delight to those who had not previously seen it. The species is not of frequent occurrence. The Papuans are evidently very fond of bright, showy colours, and we always found plants of this character planted near their houses. Some of these may be

THE MUNCHES, DALBEATTIE, N.B.

THE name of Mr. Wellwood H. Maxwell, of The Munches, has long been familiar to all interested in gardening and forestry in Scotland. For many years Mr. Maxwell has taken an ardent interest in these kindred arts, and its results are now seen in the trees and shrubs which ornament his estate, and the flowers with which the gardens are made attractive. A hot August day found one experiencing the regret that one had not gone earlier in the season, as there was now nothing to be seen in the garden. It was certainly not the best time to see hardy border flowers in perfection, but there was more than enough in the way of plant-life to fill up the time available and to make the notes taken too voluminous to permit of proper condensation.

The mansion of Munches is situated close to the River Urr, near where it flows into the Solway. The proximity of the latter gives the estate a climate favourable to many things which in other localities are often tender. The mansion is an imposing, if somewhat plain, pile of Dalbeattie granite. It stands on a portion of the site of the old gardens. On the position occupied by the old house, which was on a knoll so close to the river that it was said one could fish out of the windows, a small garden has been laid out. This is filled with hardy perennials and shrubs, supplemented in autumn by hardy annuals. The latter, as is general in S.W. Scotland this season, are far from satisfactory. The most noteworthy features at the time of my visit were two magnificent *Retinosporas*, the growth of long years. *Cornus mas* elegantissima was also exceedingly beautiful, its colouring being very fine. The borders are mostly edged with Sedums, and contain a good collection of Delphiniums, Potentillas, Phloxes, Papavers, and such plants, with *Alstroemeria chilensis*, *A. aurantiaca*, and others of more or less rarity. The drought was telling upon some, and, as the water supply is limited, rain was needed.

From this garden we had a look at the many trees and shrubs which have been collected and grown for so long. Mr. Maxwell has taken special pride in forestry, and one does not only see choice trees, but also the results of the care taken to give them full space for developing their true character. Conifers have always been favourites, and here are to be seen the various genera and species which supplied the specimens sent by Mr. Maxwell to the Chiswick Conference. If these delightful trees are favourites, they are not so to the exclusion of others, as other evergreens and deciduous trees are present in unusual variety. The collection is particularly rich in specimens with golden, dark, or variegated foliage, but so planted as to be without the bizarre effect often seen. Only a life-long student of arboriculture could properly appraise the comparative value of the choice trees, yet one could not but admire the noble proportions of a grand old Scots Fir, the stateliness of *Wellingtonia gigantea*, or the good specimen of *Sciadopitys verticillata*, now about twenty-five years old; *Abies Douglasii* Stairi, the white Douglas Pine, which was raised at Castle Kennedy, is a fine specimen of much beauty. *Cupressus* in variety, *Cryptomeria elegans*, and a fine *Pinus Cembra*, may only be mentioned as among the arboreal treasures of The Munches. Maples are apparently favourites, and many species and varieties are represented. There are unusually good examples of the Japanese Maples, which the climate seems to suit.

For its autumn tints, *Parrotia persica* is largely grown, and *Rhus Cotinus* is also called into use. The more popular forest trees such as the Oak are not neglected, but do well in the district. One could spend much longer among these trees and shrubs, but time would not permit of further and more minute inspection.

From the woods we passed into the gardens, where one had again evidence that their owner's tastes are somewhat eclectic. Hardy border flowers are largely used here also. In these, one observed the comparatively new *Rudbeckia*

laciniata Golden Glow, a good plant with double flowers; what had been a good spike of the shy-blooming *Gentiana lutea*, and a short row of plants of *Incarvillea Delavayi*. These deserve more than an allusion on account of their vigour. Mr. Murray, the head gardener, kindly furnished the information that the seed was sown five years ago, and that the plants, grown without protection, were improving yearly. They produced this year an average of four spikes each, and the longest of those in seed measured 52 inches. Their vigour was apparent, and the plants were the finest of this species, the writer has yet seen.

There was a brilliant display of other flowers, although the Sweet Peas had been a comparative failure in a portion of the garden. In a more open border they were quite good. *Mignonette* was in abundance, its fragrance being grateful. Beside it lines of good Asters and of East Lothian Stocks were effective. One noted also *Gladioli*, Crozy's Cannas, Lantanas, Dahlias, Marguerite-Carnations, and other flowering plants. *Carpentaria californica* was observed in a cool border under a wall, and *Vitis Coignetiae* was flourishing on a sunny wall.

Both Mr. Maxwell and his gardener were regretting the unsatisfactory growth of the Brassica group. This is, however, the common experience in the locality this season, though the comparative failure of Cabbages and allied plants and the prevalence of mildew on Peas has been the cause of much disappointment. A capital crop of perfectly formed and highly-coloured Tomato Eclipse was growing in pits, and a good crop of Melons in a Melon-house.

Out-door fruits have been an average crop, and those in the houses showed excellent cultivation. Grapes looked well. Pears in the orchard-house, with Guavas and the Cape Gooseberry, do not exhaust the numerous fruits grown at The Munches.

The plants in the glass structures would delight my friend Mr. Burbidge, and would require his skilled and facile pen to do them justice. They are the fruits of years of collecting, and include many usually strangers to private gardens. *Fuchsias*, *Pelargoniums*, *Begonias*, *Strelitzias*, *Nandinas*, *Strobilanthes Dyerianus*, *Ceropegia Woodii*, *Kamperferias*, *Acalypha Sanderi*, *Datura Knightii*, *Crotons*, *Bougainvilleas*, *Cycas*, *Sansevieras*, *Achimenes*, *Hedychiums*, and *Gloxinias*, are only a few things, noted, as it were, at random, to show the varied character of the collection. Like the subjects outside, they are the result of many years of interest taken in plants. Interesting in themselves, many have special associations from having been brought from abroad or raised from seeds sent home by Mr. Maxwell or members of his family in a somewhat wide experience of travel in far-off lands. S. A.

TREES AND SHRUBS.

CRATÆGO-MESPILUS DARDARI.

IN the current fortnightly number of the *Revue Horticole* is described the above-named new flowering shrub, which is a most curious instance of the nature of a stock being influenced and changed by the grafting upon it of another species, and which occurred recently in his nursery at Plantières. He says that the new shrub is exactly intermediate between the Medlar and the common Whitethorn, and is the result of grafting the former on the latter. After many years a shoot appeared below the graft on the stock, which when it bloomed produced bunches of white flowers, sometimes as many as twelve in number, somewhat smaller in size than those of the Medlar, which always has solitary flowers. The new shrub is of vigorous growth, but the stems, instead of being nearly smooth, as in the Medlar, are very thorny. The fruit is rather small, and generally flat. This new shrub will ere long be distributed by Messrs. Simon-Louis, and from its description should, I think, be an acquisition to our gardens. W. E. Gumbleton. (See p. 226).

THE PRINCIPLES AND PRACTICE OF FERN-CULTURE.

(Concluded from p. 201.)

PROPAGATION BY VEGETATIVE MEANS.—Perhaps the most interesting feature of the cultivation of Ferns is their propagation. This is effected along two chief lines—(1) vegetatively, or (2) by means of spores. There are various ways in which Ferns may be vegetatively reproduced. Some, like *Adiantums*, *Nephrolepis*, *Platyocrium*, produce tiny plants and bulbils on their roots, which, at the proper time, may be severed from the parent-plant and made to start life on their own account. Others, again, develop young plants at the tips of their fronds, such as some *Aspleniums* and *Adiantums*. These, if the parent-fronds are pegged down to the soil, will emit roots in a short time, and soon after being severed from the frond, grow into plants resembling their parents. Other *Aspleniums*, as *A. bulbiferum*, and a few other Ferns, such as *Cystopteris bulbifera*, produce tiny bulbils on their fronds. This mode of vegetative reproduction differs from the last in the fact that the young plantlets do not develop foliage-leaves until after they have established themselves as independent units, and put forth roots into the soil, and in the fact that while in the former case the offspring become fixed by their roots in the soil before severance from the parent-fronds takes place, the bulbils drop off at an early period, and having food-substance stored up in their fleshy tissues can set about emitting roots and establishing themselves, preparatory to developing into ordinary individuals, at their leisure.

APOSPORY.

There is a species of aberrant vegetative reproduction termed apospory, in which, not as in the *Asplenium*, &c., a "Fern-plant," but a sexual plant or prothallus, is produced in the place of spores. In the *Athyrium filix-femina* var. *clarissima* and *Pteris aquilina*, the sporangium suspends its usual function of spore-production and develops a green prothallus in their place. In *Polystichum angulare* var. *pulcherrima*, *Scolopendrium vulgare*, and *Trichomanes alatum*, the prothalli are produced quite independently of the sporangia, as outgrowths from the edges of the pinnae. An abnormally moist environment may be one of the factors inducing this phenomenon.

Ferns with underground rhizomes, such as some *Adiantums* and *Struthiopteris*, as also those with creeping sub-aerial rhizomes, such as *Davallia*, may be propagated by careful division of their rhizomes, care being taken that each severed portion is provided both with a growing-point, root, and fronds, and has not yet started into new growth. Plants such as *Adiantum cuneatum* and *A. Farleyense*, as also some of our common hardy Ferns, such as the *Polystichums* and *Lastreas*, which form a number of distinct crowns, may be easily multiplied by careful division and pulling apart of these crowns, so that each new piece which is to form a fresh plant shall be possessed of plenty of roots and leaves wherewith to start its independent existence. Lastly, the *Nephrolepis*, and a few others, send out runners or sarmenia bearing bulbils at intervals, which, eventually rooting, start life on their own account, and become severed from the parent stem.

APOGAMY.

I have spoken hitherto of vegetative reproduction (i.e., in which the special reproductive organs of this generation, known as spores, take no part as it occurs in the "Fern-plant." But in the sexual plant vegetative reproduction is also known to occur under certain conditions, in which a young "Fern-plant" is developed as an out-growth of the prothallus quite apart from, and independently of, the sexual organs. This phenomenon is known as apogamy. It must be regarded as an abnormal species of reproduction, due, probably, to the peculiar conditions to which the prothalli are subjected. Apogamy is known to occur in *Pteris cretica*, *Aspidium filix-mas* var. *cristatum*, *A. fal-*

catum, *A. frondosum*, *Lastrea dilatata* var. *cristata gracilis*, *Scolopendrium vulgare* var. *ramulosissima*, *Athyrium filix-femina*, *Todea africana*, *T. pellucida*, and *T. rivularis*. In *Trichomanes alatum* apogamy and apospory are combined, the prothalli produced on the fronds being apogamous.

In *Scolopendrium vulgare* var. *ramulosissima* and *Lastrea dilatata* var. *cristata gracilis* prothalli have been discovered assuming partially the rôle of "Fern-plants," for they bore sporangia like those produced normally on the fronds of the asexual generation.

In *Gymnogramma leptophylla* the "Fern-plant" is annual; but the prothallus is perennial, forming adventitious branches, which subsist as tubers in the ground from year to year.

In the *Hymenophyllaceæ*, or filmy Ferns, the production of small gemmæ, or buds, from the prothallus, is of frequent occurrence, as in *Hymenophyllum* and *Trichomanes alatum*. In *Vittaria*, one of the *Polypodiaceæ*, peculiar chains of gemmæ are formed at the ends of short stalks. In all these cases, the gemmæ on germination give rise to new prothalli. This formation of gemmæ is no doubt connected with the damp habitat of the plants concerned.

It will thus be seen how Ferns, like many other plants, have adopted numerous methods of reproducing themselves vegetatively, i.e., without the aid of spores or sexual organs, whether it be by means of bulbils or tiny plants produced on the fronds, stems, roots of the asexual or "Fern-plant," or on the thallus of the sexual plant or prothallus, or by means of the lateral extension of the rhizome, whose newly-formed portions may or may not become eventually detached from the original parent stock. It would seem also, that, as in the case of many another plant, so also with Ferns, many of those species which for a long period have become addicted to this vegetative method of propagation, have, in some degree, lost the power to reproduce themselves by means of spores or sexual organs. This, however, as in the case of some of the higher plants, may be partly a result of the long treatment under cultivation to which they have been subjected.

The species with an upright caudex or stem, such as the Tree Ferns, some *Lomarias*, and many of our hardy forms, such as the Lady and Male Ferns, which are naturally incapable of having their stems divided, must always be propagated by means of spores.

PROPAGATION OF FERNS FROM SPORES.

The circumstances connected with the development of Ferns from spores, are amongst the most captivating and interesting in the whole history of plant-life. The ordinary Fern-plant, consisting of stem, roots, and leaves, so well known to everyone, can hardly, strange as it may seem to say so, be considered as representing the ordinary normal stage of the plant's life-history; the latter must rather, as in the Moss-plant, and all flowering-plants, be that in which the sexual reproductive organs are developed—organs which in the "Fern-plant," as "the man in the street" knows it, are entirely absent. The Fern-plant is rather to be regarded as a new stage—a new generation, as it were—intercalated into the life-history, when the ancestors of these plants first assumed a terrestrial habit of life. On adoption of this terrestrial mode of life, the plant, which before was a simply-built organism, gradually became a highly complex being, with strongly differentiated tissues, which eventually, in the course of ages, culminated in the "Fern-plant" as we know it to-day. The main object of this greater differentiation of the various organs, and their increase in size and number, was the production in as large numbers as possible of asexual reproductive organs, known as spores, adapted by their minute size and lightness for transportation by the wind to a great distance. But the original, simply-built sexual generation, still, of course, persisted, although it, too, assumed a terrestrial life, though confined always

to situations sufficiently moist to allow of the antherozoids, or male reproductive bodies, swimming about and reaching the female organs. Every new individual developed asexually from the simple primitive generation gives rise to the "Fern-plant," or asexual generation. Each spore thrown off from an asexual "Fern-plant" develops in its turn into a sexual plant, bearing antheridia and archegonia, and commonly termed a "prothallus." This is the highly interesting and absorbing cycle of the life-history of the Fern. The multiplication by means of spores enables the plant to spread itself widely over the face of the earth; but there must always be the constant cyclic return to sexual reproduction at a given period, or else the vigour and extensive distribution of the race could not be maintained.

The compost used on which to sow the spores should consist either of the mixture of loam, peat, leaf-mould, and sand above given, when the soil should be well sterilised, so as to destroy all spores of other Ferns or of fungi, &c., which may be lurking therein, or it may consist of finely-broken bits of peat, sandstone, brick, or loam; we used a mixture of chopped sphagnum-moss and finely-broken crocks. The surface of the compost in the pot or pan, after being moistened, should be thickly covered with spores, and the pot or pan then covered with a glass shade or lid, so as both to keep the surface moist and to prevent the entry of any foreign bodies. The pots or pans should thereafter stand in saucers, and be watered from below, so that the water rises from the saucer up through the soil to the spores on the surface, and thus constantly keeps the latter damp. If watered from above, the spores are sure to get displaced and disturbed.

After a certain period the spores will begin to develop, by the extension of its tissue, and the production of chlorophyll therein, each into a green body, the prothallus bearing the sexual reproductive organs, the antheridia and the archegonia on its lower surface. Each such sexual plant exhibits no differentiation into stem and leaf, like the asexual plant, but consists simply of a flat thallus, like a Liverwort, in which stem and leaf are united in one, and roots emitted from the lower surface of the latter. The moisture in which these prothalli must constantly be bathed by means of adequate watering from below, affords the medium in which the spermatozooids, escaping from the antheridia, are enabled to swim about and reach the archegonia, whose ova they fertilise.

Small areas of the mass of prothalli, after they have reached a certain age, must be separated, and placed in pans, and when the young Fern-plants which have developed from the fertilised archegonia have attained a certain size, they require to be pricked out in rows in pans or boxes until they are large enough to be planted in some suitable shady situation out-of-doors.

Thus we see how different must be the cultural treatment of these lowly cryptogamous plants from what obtains in the higher circles of plant-life, and a careful study of their life-history will necessarily greatly aid us in acquiring a right comprehension of the why and wherefore of their peculiar mode of culture. *W. C. Worsdell, F.L.S.*

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

PLANTS cultivated to produce large blooms for exhibition or home use will require considerable attention during the present month. Stimulants will need to be given, and the foliage must be kept free from any pest.

FUNGOID PESTS.

Mildew is capable of creating much mischief in a short time if not checked in its infancy. In September mildew generally makes its appearance, especially after an exceptionally hot and dry August. It is generally found on the underside of the leaves, and

too often has obtained a strong hold before its presence is suspected. Dry sulphur scattered over the affected parts, when the leaves and atmosphere are dry, will as a rule arrest the spread of mildew; but when it has obtained a firm hold, much more drastic measures are necessary to eradicate the pest. I have found nothing equal to the use of quicklime and sulphur, whether the mildew be upon *Chrysanthemums*, *Roses*, or other plants. Place 2 lb. of sulphur and 2 lb. of unslaked lime in 10 quarts water, and boil for twenty minutes. Use 2 wineglassfuls of this mixture to 4 gallons of clean water, and syringe the plants with it. A Vermorel sprayer, or an ordinary syringe with the jet affixed, which causes a single stream, is the best method of applying the liquid; by placing the forefinger over the orifice the liquid can be directed upwards, and spread over the plant where required. If a slight discoloration of the leaves follows from the sediment of the mixture, it will not be injurious, but can be removed, if desired, by a vigorous washing with clean water.

Although some collections of plants are badly affected with "rust" this season, there are plenty that have not yet shown the slightest trace of it. This "rust" pest is a source of much trouble if treated with neglect, but is easily combated if intelligence is brought to bear upon it at the right moment. If upon the first sign of this fungus the "rust" be touched with a small brush dipped in methylated spirit or petroleum, it will completely kill the spores, and thus check the growth before the roots have time to take a firm hold of the leaves.

"TAKING" THE BUDS.

No time should be lost now in securing all flower-buds as fast as they form. The early days of September are late enough for bud formation, even for the incurved section. Directly the buds are perceptible in the point of the leading shoots, remove promptly all growths which push from below the flower-bud, and which are really caused by the formation of this flower-bud. By an early removal of these, the whole energy of the plant will be concentrated in the development of the selected bud. But one flower on a shoot is sufficient, for thus only can the desired size, colour, and form of flower be obtained.

If the best results are wished, it is imperative that the plants be encouraged by the affording of frequent stimulants. It may be remembered that frequent doses of diluted manure are preferable to applications of strong stimulants; also that a change in the stimulant afforded is occasionally of absolute necessity. *E. Molyneux.*

THE DANGER OF OVER-FEEDING IN CULTIVATION.

AFTER a pretty wide reading of garden literature during the last fifty or sixty years, I remain impressed with the idea that many of our writers on gardening are not sufficiently guarded in their recommendations of the use of manures. The practical man who knows his business and thinks before he acts is not likely to be led astray, but in these days when so many who have little knowledge of gardening are anxious to make it a hobby, they and their assistants are open to be unfavourably influenced by the too general or too emphatic recommendations of this or that manure. I met with an instance, not very long ago, of a man watering some Rose-bushes with liquid manure from a sewage-pond, which instead of increasing the size of the flowers, as was intended, caused both flowers and leaves to turn yellow and drop off. I have often seen spots of ground on which heaps of manure had lain during winter refuse to grow anything until ridged up and well exposed to the air for a season; if plants and trees were put on them without this intervention, they dwindled and died, poisoned by over-feeding. These, I admit, are extreme cases; but there is a gradual and almost imperceptible poisoning by over-feeding often going on from day to day, year to

year, culminating in serious results at last, made manifest by an overdose, or by some peculiarity of the season. It would, perhaps, not be difficult to prove that many of our strains of florists' flowers have been brought into a delicate and tender state through over-feeding, with the view of getting large flowers. Cultivators of these should be wary in this practice; feed liberally [at sufficient intervals], but do not gorge your plants.

It is the same in the vegetable as in the animal kingdom, nutrition does not depend on what is taken into the system, but upon what is digested. I remember the Potato on a neighbouring farm prior to the appearance of the Potato-disease being an easily cultivated esculent free from disease and serious insect attacks, until it was deluged with fresh manure, and its functions of flowering and seeding also arrested with the view of adding to the number and size of the tubers. Then came disease with all its sad consequences. This I attributed principally to over-feeding, and I did not come to this conclusion without ascertaining the antecedents of cultivation of the particular crop under observation, and studying the individuals with the aid of one of Ross's best single microscopes.

If a second case in point were needed, one might quote the Hollyhock. Originally, one of the hardiest of biennials; it almost died out a few years ago, after previous years of high cultivation with the view of getting giant spikes and flowers. But nevertheless are the instances of debility met with during a long life, and which rise to my mind while I write, which it seems most reasonable to attribute to what is called high cultivation, brought about principally by over-feeding. *Wm. Paul, Paul's Nurseries, Wallham Cross.*

THE HERBACEOUS BORDER.

ANTHEMIS TINCTORIA (*New Variety*).

By way of distinction, I have ventured to apply the name, *Coed Derw*—that of Mr. Buxton's residence at Bettws-y-Coed—to a variety of *Anthemis tinctoria*, which originated there. [Why not call it Buxton's variety? Only a minority speak Welsh. Ed.] In 1897, Mr. Buxton, in a letter regarding other plants, mentioned this seedling as continuing longer in bloom than any others in his garden. As this prolonged blooming is, at times, the result of climatic conditions, or of the character of the soil, Mr. Buxton kindly sent me a piece of his plant, so that the test of complete change might be applied. It came into bloom last year, with the other plants of the species grown here, and continued to flower without intermission until nearly Christmas, in the open. This season, the plant again displays the same persistent flowering habit, and one is disposed to look upon this variety as quite an acquisition to those who like the *Dyer's Chamomile*. The *Coed Derw* form is, moreover, a good one from the point of view of a garden flower. The blooms are not quite so bright in their colour as *A. t. Kelwayi*, but the yellow is good enough to please anyone, and the flowers are also well formed.

It may be said with truth, that by cutting them back, almost any plants of *A. tinctoria* will produce late flowers. This is quite true, but the *Coed Derw* form does not require to have this done, and blooms on without the removal of the withered flowers, although the plant looks neater and less untidy if these are removed.

BOLTONIA ASTEROIDES.

Although a trifle too tall for my taste if grown in strong soil, *Boltonia asteroides* has been a favourite here since it was given me by a friend a number of years ago. Resembling to some degree the perennial *Asters*, it has yet some general features which, as seen in the garden, give it a distinct appearance. It is difficult to describe these, and it is equally difficult to tell why one has grown to like the plant. There is something particularly pleasing in its tall wand-like stems, clothed with lanceolate

light green leaves, and its pretty, well-formed, flesh-coloured flowers. The precise colour of these is not easily indicated by any other term than "flesh," but it is soft and pleasant to the eye. In this garden it grows to about 4 feet high, and comes into bloom early in August, continuing in flower for a long time. It is easily propagated by division, and has the advantage over a considerable number of the *Asters* that it is not inclined to run at the root, to the injury of neighbouring plants. It is one of our many North American plants long introduced, but little grown.

HELENIUM NUDIFLORUM.

So far as one knows, it does not seem to be definitely settled that this is the correct name of the plant introduced as *H. grandicephalum striatum*, but the weight of evidence is, perhaps, in favour of superseding the latter, by which the plant has found its way into gardens. It is now so well known that it does not require much said in its favour; but one is desirous of ascertaining if the differences seen in the flowers in this country are the results of soil or climate, or are due to variation among the plants themselves.

The plant grown here, which was procured soon after its introduction, always produces flowers with a large proportion of red upon the petals; these being, indeed, principally of that colour. This season they are very brilliant, but in most other gardens I have seen this season, and in stands of herbaceous flowers at shows, this *Helenium* has shown only a small degree of crimson, so small, indeed, that the flowers are only made rather dull thereby. Perhaps the Rev. C. Wolley-Dod, who, I know, has been at a great deal of trouble to find out something about *Helenium nudiflorum*, may be able to furnish some information upon the question I have ventured to raise. If the flower is to retain its place in gardens, only the best coloured forms—if such there are—should be grown. If, however, the poor colour of some of the plants seen is due to improper cultivation, we may be able to give them the treatment they require. My own plant is grown in a light and dry soil, so dry that it has required occasional soakings with water in the dry season we have just passed through. *S. Arnott, Dumfries.*

AMERICAN NOTES.

THE ANNUAL CONVENTION OF THE SOCIETY OF AMERICAN FLORISTS.

[From our Own Correspondent.]

THE 15th annual convention of this trade organisation held at Detroit, Mich., August 15 to 18, has proved to be one of the most successful that the body has held. The strange addition to the title of the Society, which was made so as to give it a semblance of being something more than a trade affair, has not apparently accomplished what was intended, and one of the most prominent members very recently alluded to the ornamental-horticulturist part of the name as an excrescence, which by its very sound and suggestion seems to imply a lurking desire for amputation or excision. But be the name what it may, and let the ruling powers be never so suave to the private gardener and amateur element, the Society of American Florists, as it is still called, remains a distinctly trade society, with its main interests centred in the commercial plant grower and raiser of cut flowers. Its end-all is in the retail florist's store. It is a great institution, which concentrates itself once a year in some prominent city, indulges in a deal of talk and amusement, and then lies low until its next convention, except so far as, occasionally, a committee may do a little work in the interim.

The Society also has a register bureau for new plants introduced into the trade, for which kindly service it makes a tax on the one registering the name. Now this register is, after all, merely a record of a name, and carries with it no manner of certificate as to the value of the plant or flower. The arrangement, however, works well, and helps to obviate the appearance on the market of several different varieties under one name.

The city of Detroit is, indeed, a favoured spot. It has grand parks, as, indeed, have most representative American cities. The city itself is only two years short of 200 years in age, and was originally French. The president, Mr. Rudin, of Chicago, is a well-known, popular and progressive florist;

his address was a strange mixture of journalistic comment on current events, and a "speech" of Queen Victoria on the opening of a parliament at Westminster. It was observed that the florist trade did not get a fair share of benefit from the experiment stations, but it was more truly added that this was due to the florists themselves. "We have neglected to make our wants known in an intelligent way, and have not accepted gracefully what little work has been done." It is alas, too true, that here, where so much is done for horticultural investigation by the public purse, that the florist has, to a large extent, not availed himself of it. There are some of them who "know it all," and are therefore hopeless; but as a younger generation is getting into the lead, an alteration is gradually being made. The president himself is a graduate of Cornell.

CO-OPERATIVE BUYING.

The society has been experimenting in co-operative purchasing, and the work of the committee in charge appears to have been very satisfactory, so much so, indeed, that it would look as though a permanent organisation will be effected for that purpose.

THE TARIFF.

Of course the working of the tariff law came into discussion, and as a result of the intervention of the Legislative Committee there is likely to be less friction between importers and the appraisers than was the case last season.

The Protectionist squeals when the shoe is on his own foot, and he can see it. As a result of a duty of 140 per cent. on glass, the cost of glazing has of late been rapidly advancing. The figure practically excludes foreign glass, and the domestic manufacturers are holding up the price at a figure that is almost impossible for florists. One man suggests a "trust" in plants. We have heard of this before, but how the selling price of such stock as a florist manufactures can be controlled by a board passes comprehension. Anyhow, the whole case seems to make a good argument for free-trade, or, at all events, for duties for revenue purposes only. The most practical suggestion—and it goes to show not only the dire straits the trade is in, but also the great capacity of the Society of American Florists for looking to its trade interests—is a proposal to start a glass-making factory of its own! It is a stock argument of the protectionist party that the foreign manufacturer pays the duty, and not the importer (= consumer). Theory is one thing and practice another, and one speaker voiced the truth when he said "When the glass tariff is reduced, the price of glass will come down." If the florists are in earnest they have their opportunity, for on the day after the subject was discussed a telegram was received offering a glass works for sale!

But these annual affairs are not all business; there is recreation in the shape of excursions, and inter-urban contests in shooting and bowling, the latter a game that has become an essential adjunct to the American florists' outing. Valuable prizes and challenge trophies are given, and now we have organised a National Florists' Bowling Association with ten cities in the league.

THE NEW PRESIDENT.

The president-elect, and who will preside at the next convention, is Edmund M. Wood, of Natick, Mass., where he is connected with the famous Waban Rose conservatories. He has been an active worker in the Massachusetts Horticultural Society for years, and since associating himself with the S.A.F., has taken a deep interest in its affairs. Mr. Wood is also concerned very largely in numerous other commercial enterprises, and is a sound business man.

THE VICE-PRESIDENT.

The vice-president-elect, Mr. Paul M. Pierson, is a well-known and leading florist and plantman, carrying on business at Tarrytown, N.Y. He was born in Boston in 1835, and is the son of P. R. B. Pierson, one of the most celebrated of wood engravers. At the age of sixteen years, he entered the large establishment of Peter Henderson & Co., New York. His aptitude for handling and placing advertisements brought him to the attention of Mr. Peter Henderson, and he was put in charge of this very important division of the business.

When not yet twenty-three years of age, Mr. Pierson returned to Tarrytown, and commenced business on his own account as a retail florist, in a small way, in 1878. Shortly after this the *Harriall Lily* began to attract attention in America, and Mr. Pierson was one of the first to see the commercial possibilities in this now popular bulb. A trip to Bermuda convinced him of the suitability of the islands for the successful production of the *Harriall*, and in 1881 he entered into partnership with General Hastings for its cultivation in Bermuda. In 1895 a combination of the producers in Bermuda, under the title of the Bermuda Bulb Company, was formed, and Mr. Pierson was chosen president and distributing agent for the United States and other countries. From various causes this combination was but short-lived. He was the first to have the *Lily* on the market at Christmas, and for some years held a monopoly on it. The celebrated American Beauty Rose and Meteor have been largely introduced through his efforts.

NEW YORK, NEXT YEAR.

The next convention of the Society of American Florists and Ornamental Horticulturists will be held in New York City, the most available point, by-the-by, for any European friends who desire to meet a maximum of horticultural men with a minimum of travel. A three weeks' trip from London would enable one to just do it—think it over, some of you!

CULTURAL MEMORANDA.

CENTAUREA RAGUSINA.

THIS plant is very valuable for bedding purposes, where its bright silvery foliage helps to tone down the colours of flowering plants in the geometrical garden, or indeed, in any part of the flower-garden. *C. ragusina* will thrive in almost any position throughout the summer months, although it is desirable to keep it from the drip of overhanging trees. Its propagation has been

soil and sharp sand. Put one strong cutting in the centre of a small thumb-pot, or dibble several around the sides of a 3-inch pot; if the latter method be adopted, greater care will be necessary when potting them off, for the fibrous roots are very tender. If the side-shoots be pulled downward from the old plant, and afterwards carefully smoothed off with a sharp knife, there is less chance of decay setting in than would be the case from cuttings made in the usual way.

The pots containing the cuttings should be plunged in fibre or sawdust, and kept shaded and



FIG. 77.—PEAR BEURRÉ RANCE AT GORHAMBURY PARK, ST. ALBANS.
(SEE P. 219.)

attended in many cases with unsatisfactory results, hence the scarcity of the plant in some gardens. The error usually made is that of affording a too copious supply of water to the cuttings; one good soaking after they have been inserted is sufficient for many days.

A good bed of leaves and stable-manure with a frame placed over it will answer admirably, but it must be allowed to become partially spent in order that any steam may pass away, otherwise the moisture will cause the woolly stems of the plant to decay. Take the cuttings in September, and select shoots that are well ripened and firm; use a compost of two parts loam, and one part each of leaf-

close, but admit a little air to the frame during the middle part of the day.

I have raised annually a good batch of plants from seed gathered when ripe, and sown immediately. As soon as the seedlings form the first rough leaf, they are potted off singly, and encouraged to make growth by placing them on a shelf in a temperate-house. They are potted on in the early part of the year, and much stronger plants are thus obtained than were the seeds not sown until spring. Plants so raised from seeds have proved true, and have generally made better plants than those from cuttings. *H. T. Martin, Stoneleigh Abbey Gardens.*

NITROGENOUS MANURES.

GREAT progress has been made in the use of commercial fertilisers in the garden during the past few years, and Prof. E. B. Voorhees, of the New Jersey Experimental Station, has done yeoman service to the cause in a recently issued bulletin of the State, by showing how to use the materials containing the plant-food elements in order to secure the largest return from their application to the different crosses. He says that while the three constituents—nitrogen, phosphoric acid, and potash—are all essential, because all are liable to exhaustion, nitrogen is the one that should receive more careful attention than the others, first, because it is the most expensive of the three to supply; second, because the forms in which it exists differ so widely in their rate of availability or immediate usefulness to the plant; and, third, because when it is applied in an immediately available form, it is so readily soluble and so completely carried in the soil-water that there is great danger of its loss by drainage.

The mineral elements, potash and phosphoric acid, on the other hand, are relatively cheap as compared with nitrogen. In the case of potash, the availability of the different forms in which it is usually obtained is not a matter of importance, since all are readily available, while in the case of phosphoric acid, the soluble and immediately available forms contained in superphosphates may be obtained quite as cheaply as many of the organic forms, as in ground-bones, which are not so immediately useful. These mineral elements, too, however soluble when applied, are fixed by the soil, and are thus not liable to rapid loss by drainage. When the gardener applies the minerals or materials containing phosphoric acid or potash in their best forms, his expenditure is not so great as for an equal amount of nitrogen; he can place his dependence upon its presence there during the growing season, and that the plants can readily obtain it, and he can readily obtain it, and he can rest assured that if the one season's growth of the plants does not use the entire amount supplied, the residues will remain for future crops, though they may be less readily acquired by them.

In the next place, the gardener should remember that the best use of nitrogen is attained when it is applied to soils in good condition, rather than to poor or worn-out soils, and he should also consider whether, even if the increased yield from its use should be as great as can be expected, there is a possibility of obtaining a profit. The soils to which high-class fertilisers are applied should possess good absorptive and retentive properties, in order that the materials applied may be held and retained for the use of the crop, and the physical character also should be such as to permit a ready penetration of heat, and an easy circulation of water, conditions which are essential in order that the activities within the soil may be unimpeded, thus making it possible for the plants to obtain their needed food. In too many cases good plant-food is wasted, because applied to mixtures of sand, clay, and other materials, rather than to soils in the true sense. *J. J. Willis, Harpenden.*

(To be continued.)

SOUTH AFRICAN NOTES.

FORESTRY IN THE TRANSVAAL.

ABOUT a year ago I propounded in a local paper a scheme which I have long pondered over, but which, from its very vastness, attracted no public notice or approval whatever. Convinced as I am, however, that there is something practical in the proposal, I crave space to restate it here.

Looking at any good map of the Transvaal, we find a tract of flat, treeless table-land, between 5,000 and 6,000 feet above sea level; and roughly speaking, 150 miles in extent from east to west, with a breadth of 100 miles from north to south,

From this collecting ground, which has an average annual rainfall of about 27 inches, all the larger rivers of South Africa may be said to take their rise. The Vaal, Crocodile, Olifants, Tugela, Sabie, Umfolosi and Maputa rivers, which water the Cape Colony, Transvaal, Free State, Natal, Zululand and Swaziland, all have their beginnings on the high Veld. This table-land is almost destitute of trees, except in sheltered valleys; and in a word I have proposed to clothe this tract of land with trees, and the certain, though distant result, will be that the whole of South Africa will reap the benefit.

At present we have a vast arid plain covered with short grass over which heavy thunder showers rush to find the shortest way to the sea. The radiation of moisture is excessive during the cloudless day, and the cold is biting at night. Cover the ground with trees, and you arrest the storm-water to a great extent, and replenish the springs. The country is as bare of clothing as the natives; such a project, if carried out, means employment and a living to thousands of people, and a settled industry for all time.

To set such a gigantic business going, the Government alone is able and long-lived enough; for as M. Bagnier remarks, in his *Elements of Sylviculture*, "The state, which is, so to speak, imperishable, is the only body which is able to produce the most useful timber, for private companies are obliged to guard against the accumulation of a large capital in the shape of standing timber."

I confess I have brought these facts before this Government, but hitherto without the smallest effect. All the timber used for the mines, and for building and general purposes, is imported at vast expense. Even fencing-poles of *Acacia mollissima* are now largely imported from Natal. Some time ago it was proposed to import blocks of *Eucalyptus diversicolor* from Western Australia, for paving the streets of Johannesburg, but the cost was prohibitive.

Readers of my previous notes are well aware that our soil and climate is very well suited to many kinds of timber-trees. The trees I should name as most suitable to begin with are *Eucalyptus viminalis*, *Acacia dealbata*, and *Pinus pinaster*; to be followed by *Pinus insignis*, *Casuarina tenuissima*, *Eucalyptus Globulus*, *Quercus suber*, *Acacia mollissima*, *A. melanoxylon*, and in warm, frostless places, the famous Karri Gum, *Eucalyptus diversicolor*. R. W. Adlam, Curator, Joubert Park, Johannesburg.

COLONIAL NOTES.

CALCUTTA.

THE annual report of the Government Cinchona Plantation and Factory in Bengal for 1897-98, and of the Royal Botanic Garden, Calcutta, for the same period, are now before us. As regards Calcutta—"The weather during the year was more normal than that of the preceding two years. The show of Orchids regained its old standard of excellence. During the year the gardens were improved by extensive repairs to the river banks, and repairs to the Roxburgh Avenue were also taken in hand. . . . An interesting introduction to India during the year was *Polygala butyracea*, an African species which yields an excellent vegetable oil. . . . The collection in the herbarium was increased by 10,672 specimens."

In Bengal the season was also normal as regards the weather, and there were during the season no specially marked fluctuations in the quantities of sulphate of quinine or other products of the plantation.

PLANT PORTRAITS.

NECTARINE EARLY RIVERS, *Bulletin d'Arboriculture*, &c., July, 1899.

ANHELLIA OOKOENRII and A. CONFUSA.—These, according to M. Laurent, appear to be variations of one species, but they have very different geographical areas. Both are illustrated in the current number of the *Revue de l'Horticulture Belge*.

THE WEEK'S WORK.

PLANTS UNDER GLASS.

By C. R. FIELDER, Gardener, St. James's House, Malvern.

Epiphyllums.—Plants which have been shaded during the growing season may now be exposed to full sunshine, and be given more ventilation. For the present an airy and light position in the greenhouse will suit them. When they are required to flower, they may be placed in a temperature of from 55° to 60°, when they will soon come into bloom, and may then be removed to the conservatory. Throughout the winter, and until growth commences in the spring, only sufficient water should be afforded as will keep the foliage plump. Avoid over-potting, but when re-potting becomes necessary it should be done in the spring just when the plants are commencing to grow. As much of the old soil as it is possible to take away without injury to the roots should be removed, and the plants potted in a compost of an open and gritty nature, such as one formed of three parts sandy loam, one part peat or leaf-soil, and plenty of coarse silver-sand, together with a little broken mortar-rubble. The pots should be thoroughly well drained. After potting the plants, place them in an intermediate temperature.

Azalea indica.—If wet weather should set in, plants which are out-of-doors should be placed in their winter quarters without delay. If tying be contemplated, let it be undertaken as soon as possible, in order to allow the foliage and buds to assume a natural position. Examine all *Azaleas* closely, and if thrips be detected prompt measures should be adopted in order to thoroughly cleanse the plants. This operation has been greatly simplified of late years by the introduction of efficient insecticides. Plants which have not been repotted may be greatly assisted now that the flower-buds are being formed, by affording them an occasional application of weak liquid-manure.

Camellias.—Any necessary cleaning may be much more readily performed before the flower-buds become prominent than afterwards. Shading may now be dispensed with, except in the case of plants growing near the glass in structures having a southern aspect, where it may be retained until the end of the month. Continue to ply the syringe freely during bright weather, and afford a plentiful supply of water to the roots.

THE HARDY FRUIT GARDEN.

By G. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

The Morello Cherry.—Trees from which the fruits have been gathered should be cleared of the old fruiting wood; and the young shoots still growing freely, tacked temporarily to the wall. Wash the trees with clear water, which should be applied with some force to cleanse them from dust and dirt, which generally accumulates during the time ripe fruit is hanging. Should any traces of black-fly be seen, the Quassia solution or some similar insecticide should be used to destroy them.

Peaches and Nectarines.—If the young growths have not been kept nailed or otherwise fastened, this should be done forthwith, and they will become the better matured before winter. Those trees from which the fruits have been gathered may now be relieved of the old fruiting growths that would be cut away at the winter pruning. In the case of early fruiters, such as Waterloo, Alexander and Amsden June Peaches, and Early Rivers' Nectarines that have fruited indifferently and made strong rank growth, it will not be too early now to set about root-pruning them, with a view to checking growth and inducing fruitfulness. If this operation be done early, a crop of fruit may be had from such trees next season. The borders should be watered a few days before root-pruning is commenced. Take out a semicircular trench at a distance of 4 feet from the base of the tree, and cut all roots clean away at this distance. Next work the soil carefully away from the roots up to a distance of 2 feet from the stem, and if strong tap-roots exist, burrow under the ball of soil until they can be reached and removed. Cut off with a sharp knife the points from all the strong roots, further reducing their length to about 2½ feet from the bole of the tree. If the soil be of a heavy nature, mix with it

some old lime rubbish, wood ashes, and charcoal before relaying the roots. I do not advise new loam to be added to the roots of fruit trees when root-pruning, as they soon make strong growth again when encouraged in this way. When returning the soil, ram it well under the ball and tread it firmly about the roots. Keep the roots in a horizontal position and near the surface, spreading them out evenly, and placing some of the finest soil about them. A day or two after the operation afford a good watering; and if the weather be dry, syringe the trees overhead occasionally to prevent flagging of the leaves. With Peach-trees that produce good crops, root-pruning is unnecessary; but young trees often require one or two such operations before growth is checked, and they are brought into a fruitful condition.

Miscellaneous.—Late Plums will require protection from flies and wasps, and for this purpose thin canvas should be spread over the trees, and tacked down closely around the edges. Coe's Golden Drop, Braby's Late Gage, and Reine Claude de Bavay are three late varieties quite worth such protection. Ordinary garden-netting placed over the trees in five or six thicknesses is also a partial protection, and where the former material is not available, this may be used. Trees that have been budded should be looked over carefully, and the ties around the buds loosened. If the buds have commenced to grow, the surrounding shoots upon the stock may be removed, that more vigour may be thrown into the bud-growth, and the shoot produced ripened off before winter. Peaches may yet be budded. Filberts and late Cob-nuts should be gathered while they are yet firm in the husk, and if it is desired to keep them late, stored in air-tight receptacles after they have been slightly dried.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Bedding-plants.—The propagation of the chief bedding-plants should now be completed as early as possible, for if they be struck late, the losses will be heavy during the winter months. Examine boxes that have been filled with *Pelargoniums*, and if any have damped-off, or are withered, replace such with cuttings of the same varieties, allowing them to remain exposed for a few hours before being inserted. *Coleus*, *Iresines*, *Heliotropes*, *Ageratum*, and other soft-wooded plants, as soon as the cuttings have formed roots, should be afforded more air by tilting the lights; and gradually expose them to more light, so that after another month they may be removed to a coal ash-border, for if placed on shelves the soil becomes dry, and the young and tender roots soon perish. If large plants of *Fuchsias* are required for vases or beds, the cuttings are best struck at this season, and potted-off early in the new year; but if smaller plants are needed, cuttings taken from store-pots in the spring will answer the purpose equally well.

Cyclamens (Hardy).—These form delightful cushions of foliage and flowers, and blossom at a season of the year when outdoor flowers are scarce. *C. europeum* and *C. Hederifolium* afford a continuance of flowers in the early autumn months, and they are closely followed in the new year by *C. vernum*, *C. ibericum*, and *C. Coum*. They show to advantage in a position on a north border, in shady nooks in the rock-garden, or under evergreen trees. The latter end of this month and in February are the best times to plant the corms, but the present time is preferable, as the soil is in a better working condition. Before planting, the ground must be well drained, and if the soil is of a retentive character, some leaf-mould and old mortar-rubbish should be well mixed with it, or a special compost of rich loam, leaf-mould, road-grit, and old mortar-rubbish placed to the depth of 12 inches. This should be well trodden to make it firm. From 1 foot to 18 inches apart is a sufficient distance to plant the corms, and the crown should be placed just below the surface. These usually take two seasons before they become thoroughly established; afterwards they grow to a larger size, and flower profusely. If the flowers are allowed to remain on the plants, seed will be produced, and soon form a large colony of plants. The deeper tints of red are the best to plant, as the blooms pale to a lighter colour after being out a few days. Where plants have been in the same ground for some years, afford them a light top-dressing, consisting of fine mould, with a little

soot, and Clay's fertiliser; or a weak solution of cow-manure water may be applied occasionally, when the plants are growing freely.

Roses.—Briars that were budded, should now be looked over, and the tying material removed from the buds. If any of these have started into growth, the Briar shoots should be shortened back, so that the strength may be thrown into the young shoot; but if the buds are dormant, it will not be advisable in any way to check or stop the Briar shoots, as the time is too limited to enable them to make shoots sufficiently strong to pass safely through the winter.

Miscellaneous.—Sub-tropical plants will now be at their best, and further applications of water will not be necessary. *Tritomas*, *Pampas-grass*, *Acanthas*, *Bamboos*, and other soft-growing plants, will require to be kept drier at the roots in order to afford them the opportunity to perfect the growths they have made, and go to rest before severe weather occurs. Remove dead leaves and seed-pods from *Begonias*, also select and label seedlings, in case early frosts should come and destroy the growths.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Potatoes.—As soon as the tops have decayed, no time should be lost in lifting the main and late crop *Potatoes*. In digging, care must be taken not to damage the tubers with the fork, and to choose a dry day for the job, commencing early in the day, and leaving the tubers on the ground till the afternoon. The damaged tubers, or those having a diseased appearance, should not be placed with those stored for consumption; and those of middle size, suitable for planting, should be stored apart. If there are large quantities, the bulk of the tubers may be placed in conical heaps or ridges out-of-doors, and moulded over. A ridge need not be more than 4 feet wide, and the spot selected for storage should be elevated and dry, and partly sheltered from the sun.

Cauliflowers.—The late crops of this vegetable now turning in should have the central leaves bent over the heads, in order to keep the curd white and afford a protection against early frost. After frosts set in, it is well to lift the more forward plants with a good ball of soil, laying them close together in trenches in some suitable out-of-the-way part of the garden.

Beet.—Some roots of the early varieties may be taken up and stored, although the main lot need not be disturbed for a month. When it is feared that the roots will grow too large, it is better practice to lift them than to let them grow larger, and lay them in trenches with the crown of the roots just below the level of the soil. When frosty weather comes, a covering of soil three inches thick will afford good protection. By this method of storing *Beet*, the roots keep sound and of good flavour till the spring.

Miscellaneous.—Now that rain has fallen generally, weeds may be expected to make their appearance everywhere, rendering the use of the hoe imperative, in fact every bit of land where a hoe can be used should be hoed in dry weather, and whilst the weeds are young. Liquid-manure should be copiously afforded to *Leeks* and other growing crops on soils that are of a light nature, or when extra large size is wanted. The *Vegetable-Marrow* beds may also require moisture, for although rain has wetted the surface, the lower part of the bed may be very dry, and require large quantities of water as well as liquid-manure to moisten it.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Aërides will now need to be watered with the utmost care, or the much-dreaded "spot" will appear upon the leaves. In the first place, if the sphagnum-moss has grown long, the tops should be picked off or the moss thinned out as may be most convenient. Thus, the water will not be retained in such large quantities. The long roots may be tied in where possible to the baskets or other receptacles. Do not continue to syringe the plants overhead, and afford them only sufficient water to keep the sphagnum-moss and drainage material in a moist condition. The species *A. Fieldingi*, *A. crassifolium*, *A. odoratum*, and *A.*

japonicum, being grown in the *Cattleya*-house under drier conditions than the warmth-loving species, are not as liable to suffer from "spot," but these now having ceased to grow should also be afforded a much lessened supply of water.

Saccolabiums require drier conditions than any of the *Vanda* tribe, their thick leathery leaves being more adapted to withstand drought. An excess of moisture at this season, when they are immature, in conjunction with a low temperature in the morning, is very harmful. *S. curvifolium*, *S. guttatum*, *S. Blumei*, *S. giganteum*, *S. præmorsum*, &c., need little water during the winter months, atmospheric moisture being almost sufficient for their needs.

Vandas of the tricolor section, although rooting freely, should be treated according to the above directions, also affording them more light and air than formerly.

Vanda Sanderiana, now developing its flower-spikes, should be given a light position in the East India house; keep the sphagnum-moss moist until the flowers have been removed, which should take place soon after the buds have expanded. Few orchids suffer so much from flower-production as this species; and weak plants should not be allowed to flower at all.

Vanda cœrulea, also developing its flower-spikes, should be given a moderately cool, light and airy position, restricting at the same time the supply of water so that the material will become dry in the course of a few days. The difficulty attending the cultivation of this species is in large measure due to the varying altitudes of its native habitats and the ignorance of the cultivator as to the conditions under which his particular specimens were found. Those from the higher regions root freely and thrive generally during the autumn months when placed in a cool house, whilst those from lower elevations require much warmer treatment. If importers would only tell us more about the plants they sell to us there would be a vast gain. When growth is completed, remove all the sphagnum-moss, leaving only the crocks to hold the little moisture necessary.

Angraecums should on no account be allowed to remain dry for any lengthened period, even in the winter, but now a gradual decrease in the water supply should commence. If the plants remain dry for a day or two only, no harm will result, and the increased amount of air that will be admitted to the rooting material, will have a purifying effect.

Phalaenopsis usually grows very rapidly during this month, and great care must be exercised in order to obtain an equally balanced atmosphere and temperature. A slight scratch or puncture is sufficient to produce decay and loss of one of the fleshy leaves if a cold moisture-laden atmosphere prevail. When decay is noticed at the apex, it can sometimes be checked by severing the leaf with a sharp knife below the affected part, and keeping the plant drier for a day or two. *Phalaenopsis* do not require nearly so much water applied to them direct as is generally supposed. Root action and leaf development is much more free when the sphagnum-moss is allowed to become dry before affording water. But the atmosphere must not be dry, and to prevent this, the surfaces in the house may be damped as often as may be necessary. Sponge the leaves with clean water frequently, so that they may be able to perform their functions properly, and to rid them of any insects.

FRUITS UNDER GLASS.

By W. STOVENELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

Pines.—Now that the days are shorter, and the sun less powerful, *Pines* will need less water at the root. Syringing of the plants overhead ought now to be done in the morning, on fine days only, so that no water will lie in the leaf-axils during the night. Ventilation, too, will require care, so that it may be adapted to the aspect of the pits, the condition of the plants, and the prevailing weather. It would be unwise to force growth by a close, stuffy atmosphere from sun or fire-heat, or the free use of the watering-pot and syringe. The treatment altogether should be modified to suit the decline of the season, and prepare the plants for steady progress through the winter. The fruiting plants may be arranged either in separate structures, or otherwise, according to their stage of forwardness.

Where separate structures do not exist for their accommodation, the only course is to grade them from the forwardest down to the latest in one house in batches, giving the warmest end to those that most require it, whether they are early fruiterers or succession-plants. Those that are intended for starting in the spring of next year for summer ripening need cooler treatment for a time, so that when forcing-time comes round they will respond the more readily. These cooler conditions require that the atmospheric and root moisture be modified. Forward plants with their pots full of roots may be afforded weak liquid-manure when moisture is needed.

Pot-Vines.—Fruiting *Vines* produced from cut-backs ought by this date to be in a sufficiently forward state to be put out-of-doors, in order that exposure may arrest growth and complete their ripening. Place them under a sunny wall, and in the event of heavy rain falling, it will be well to lay the pots on their sides to prevent the soil becoming saturated; they must not, however, be allowed to get dust-dry. The canes should either be tied to stakes or lightly nailed to the wall. Spring-struck *Vines* must be treated according to their present state of foliage. If this is still green they should be permitted to remain some time longer indoors; others that are showing signs of maturity may shortly be turned out and treated the same as cut-backs. If there is any shortening of the rods necessary, this can be done now, as this will tend to lessen the danger of bleeding at starting-time. Free ventilation should be allowed *Vines* during the day-time after this date, with a lesser amount at night for those in a backward state.

Inarched Vines.—When this has been performed late with young *Vines* struck in the spring, it will be found necessary to loosen the binding, otherwise this will cut deeply into the bark. It is not safe, however, to cut away the binding and leave them without any protection, or the union between stock and scion may become broken. A tie placed at each end of the grafted portion before the ligatures are loosened will prevent such mishaps.

Wasps in Vineries.—The absence of these destructive insects until the end of August raised a hope that they were not likely to be troublesome in the fruit-houses this year; but they have become exceedingly numerous in the space of a fortnight, and the destruction they are capable of working among choice fruits can scarcely be measured. Davis' wasp-destroyer entirely fails to keep them out of the vineries, which renders necessary the closing of all open spaces against them with muslin or similar fine-meshed material. The destruction of nests is an absolute necessity, and is easily effected with cyanide of potassium, obtained in a lump or granulated state from the chemist, and dissolved in warm water. A spoonful of this poured into their nest during the daytime is instantaneous in its action, but the comb needs to be dug out and smashed up a few hours afterwards, otherwise young ones soon hatch out. This is much the simplest expedient, and although itself a virulent poison, is perfectly safe when due caution in its use is exercised.

"ALL ABOUT RUBBER."—The further title of this handbook mentions that it deals with "all varieties in all countries, with harvesting and preparation, and gutta-percha." Therefore, Mr. J. FERGUSON has launched out upon a large and important subject, with which, as editor of the *Ceylon Observer* and the *Tropical Agriculturist* he has proved himself qualified to deal. The volume is destined to be the *India-rubber Planters' Manual*, and it "includes the latest statistics and information, more particularly in regard to cultivation and scientific experiments in Trinidad and Ceylon." Having mentioned the scope of the book, and the fact that Mr. FERGUSON may be trusted both as regards original writing and the sources from which he draws his quotations, it is merely necessary to add that all directly or indirectly interested in the *India-rubber* industry must acknowledge the convenience of obtaining so much valuable information in a handy form. Publishers—London: J. HADDON & Co.; LUZAC & Co.; KEGAN PAUL, TRENCH, TRUBNER & Co. Also issued from Colombo, Singapore, and Java.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR THE ENSUING WEEK.

SHOW.

TUESDAY, SEPT. 19 { National Dablia Society's Exhibition at the Royal Aquarium (2 days).

SALES.

MONDAY, SEPT. 18 { Dutch Bulbs at Protheroe & Morris' Rooms.
TUESDAY, SEPT. 19 { Dutch Bulbs at Protheroe & Morris' Rooms.
WEDNESDAY, SEPT. 20 { Dutch Bulbs at Protheroe & Morris' Rooms.
THURSDAY, SEPT. 21 { Dutch Bulbs at Protheroe & Morris' Rooms.
FRIDAY, SEPT. 22 { Dutch Bulbs and Established Orchids at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period September 3 to September 9, 1899. Height above sea-level 24 feet.

1899.	SEPTEMBER 3 TO SEPTEMBER 9.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			AT 9 A.M.		DAY.		NIGHT.		RAINFALL.	
			Dry Bulb.	Wet Bulb.	Highest.	Lowest.	Highest.	Lowest.	At 1-foot deep.	At 2-foot deep.
SUN.	3	W.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.
MON.	4	S.S.E.	61.9	56.7	73.1	44.0	...	61.7	63.2	61.9
TUE.	5	E.S.E.	70.0	68.9	86.3	54.5	...	68.9	63.1	61.5
WED.	6	E.N.E.	71.6	65.2	73.1	58.4	0.44	66.7	63.5	61.5
THU.	7	E.N.E.	64.1	68.3	73.0	62.5	0.07	65.1	63.7	61.5
FRI.	8	W.N.W.	65.5	62.6	74.7	57.5	...	64.7	63.5	61.5
SAT.	9	N.N.W.	60.2	53.0	67.5	54.4	...	64.5	63.7	61.5
MEANS...	...	...	66.2	60.8	75.2	54.0	0.51	64.1	63.4	61.6

Remarks.—For the most part the weather has been dull and misty. The temperature rose to 86° F. on the 5th inst., and was succeeded by a heavy thunderstorm on the 6th.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—56° F.

ACTUAL TEMPERATURES:—

LONDON.—September 13 (6 P.M.): MAX. 70°; MIN. 46°.

PROVINCES.—September 13 (6 P.M.): MAX. 65°, Scilly Isles; MIN. 53°, Holyhead.

To Le Jardin of Jan. 20, M. E.

Graft Hybrids. JOUIN communicated a paper, now published separately, in which he discusses whether or not the "sports" produced in consequence of grafting are true hybrids. He instances a Medlar-tree at Bronvaux of which he gives the following account:—

"This Medlar, more than a hundred years old, is grafted midway up the stock on Hawthorn, and was brought to our notice about three years ago by M. DARDAR, a gentleman of Bronvaux, near Metz, who for some time had the tree under observation. Immediately below the graft, the stock (Hawthorn) gave birth to a branch, which we will call No. 1,

intermediate between Hawthorn and Medlar (*Mespilus germanica*), but resembling the latter more closely than the Thorn. This branch differs from the grafted part of the tree, that is to say, from the true Medlar, in that it is spiny, and instead of bearing the flowers solitary, has them united in corymbs, including as many as twelve blooms. The fruits (Medlars), are rather small, and generally much flattened.

"Close by this branch, issuing from the same point, is developed another completely different form (No. 2), the young leaves of which are lobed, downy in form like those of Hawthorn; the adult leaves on the contrary, are little or not at all lobed, rather elongated; and in fact, have a certain resemblance to those of the Medlar. The young shoots are pubescent; the flowers in corymbs, somewhat analogous to those of the Hawthorn, but rather larger and with the calyx pubescent. These flowers were rose-coloured two years ago, and sometimes now pink petals alternate with others that are white. This year we remarked white flowers only; it is true we only saw them at the end of the flowering, this may explain the change of colour. The fruits of this form are, according to M. DARDAR, elongated, brown, very small, and quite different from true Medlars.

"The same tree has further produced, also just below the graft, another very remarkable branch (No. 3). The base of this one is no other than Hawthorn, but at the extremity merges into a branch that, if not identical to No. 2, is very near to it.

"This third form, unfortunately, now exists in the mother-stem only in a dry state. Possibly we cut the branch too short when taking pieces to graft. Luckily the grafts have taken well, so that we can study the form with facility.

"This year we noted two phenomena not chronicled before. No. 1 gave rise to a young branch that is the true Medlar (with solitary flower). On the same branch a forking twig has put forth on one side an inflorescence of Hawthorn, and on the other a corymb of eight Medlar flowers. Probably every year there will be new changes which will be duly reported."

What is to be concluded from these phenomena? In our opinion, the changes are all undoubtedly due to the influence of the graft (Medlar) upon the stock (Hawthorn). The intermediate forms produced, and of which we possess sturdy specimens two years old fixed by grafting, cannot logically be called anything but hybrids; unless some other special designation be adopted for the bastards produced by grafting. Many times already has the influence of the graft upon the stock been remarked. The influence of the stock upon the graft we have not mentioned, although it is manifested by experiments made by M. DANIEL, Doctor of Science, of Rennes, and explained by him at the Pomological Conference at Rennes in 1897, and at the Horticultural Congress in Paris in May, 1898.

This year, in the nurseries at Plantières, a common Beech developed a branch with lacinate leaves. This Beech had been grafted in the spring with a variety bearing lacinate leaves, but the graft failed. The "sport" occurred much below the spot where the graft had been inserted, and this surprised us as, in analogous cases previously noted, especially with Maples, the transformed branches appeared in proximity to the graft, if not immediately below it.

The charming and widely-known *Cornus alba* Spæthi was raised—though this is little known

even among horticulturists who grow these handsome shrubs wholesale—from a branch that developed below the graft on *Cornus alba* when grafted on *Cornus alba* fol. arg. marg. M. Spæth, who obtained the variety, is a most distinguished German nurseryman, and he attributed this variation to the influence of the graft on the stock.

The following facts, taken from the *Bulletin* of the International Horticultural Congress, held in Brussels in April, 1864, only confirm what has been said above:—

"When he was directing the Cultural Department attached to the École Normale of Liège, Dr. RODIGAS budded a shoot of *Crataegus oxyacantha* fl. puniceo on the stem of *Sorbus aucuparia*. The bud was inserted about 3 feet above the soil. This was in July. The following spring the bud sprouted to a length of from .05 to .06 met. Then the leaves withered. But, at the same time, on the opposite side, and about .18 from the point of the insertion of the graft, was developed a true shoot of *Crataegus*, the leaves of which soon reached half the normal size, and were healthy and characteristic. Now, this shoot has withered in its turn. The stem at the spot is .09 met. round. It is perfectly smooth, and no vestige of the insertion of another graft is noticeable, even under a fairly strong lens, while the cicatrix of the graft remains plainly marked as in every similar instance. The eye, otherwise, has grown, just as does an adventitious shoot. The authenticity of this fact is guaranteed.

Is it possible that a cell including in itself the vital germ of the *Crataegus* could be borne from the place of insertion to where the bud saw daylight, .18 met. below, and on the opposite side? The affinity existing between the two neighbouring genera, *Sorbus* and *Crataegus*, might have favoured the case, but we dare not say. Explanations of the matter we should be glad to receive.

In considering the cause of these changes, two circumstances not known to our predecessors must be taken into consideration. The one is the continuity of protoplasm—that is, the permeability of the cell-wall, so that the plasma may pass from cell to cell throughout the younger-growing tissues—a fact discovered by Dr. GARDINER, of Cambridge. With this means of intercommunication it is much easier to understand how the contents of one cell pass into the cavity of another than it used to be when the cell was looked upon as a closed sac. Indeed, the wonder is that phenomena like those of graft-hybridisation, instead of being exceptional, should not be more frequent.

The minute subdivisions of the nucleus of the cell, and their singular methods of dividing and of changing their position, may be expected in future to offer explanations of many problems. At present, the research into these matters is as difficult as it is intricate, but in all probability not many years of the new century will have elapsed before the physiologists will have brought their science to such a condition that practitioners will be enabled to turn it to practical account.

ANTHURIUM VEITCHI.—The view of the end of a conservatory belonging to Mrs. T. L. AMES, Boston, Mass., U.S.A., affords a good example of the decorative value of a large, well-grown *Anthurium Veitchii*. It is evidently a very fine plant, furnished with leaves which measure from 2 to 3 feet in length. Provided the atmospheric conditions of a glass-house are suitable, this species is of as easy culture



FIG. 78.—ANTHURIUM VEITCHI IN THE CONSERVATORY OF MRS. T. L. AMES, MASS., U.S.A. (SEE P. 226.)

as other *Anthuriums*. We may add that *A. Veitohi* was discovered by Mr. WALLIS in Columbia, and introduced to this country by Messrs. J. Verron & Sons early in the seventies, and was figured by us in the issue for December 16, 1876, accompanied by a full description of the plant. We are indebted to Messrs. SANDER & Co., St. Albans, for the photograph from which the present illustration (fig. 78) was taken.

ROSES FOR FORMING HEDGES.—A correspondent has written us requesting advice upon the varieties of Roses best suited for planting to form a hedge 100 yards long. It is an interesting subject, and one in which locality and soil must be given consideration. The chief difficulty is to obtain kinds which flower continuously, and which will be sure to make a thick hedge. Summer Roses, flowering in masses, but only once, are suitable for dwarf hedges about 3 to 4 feet in height. Yellow Scotch are first rate, and better than Harrisoni or Persian Yellow, growing closer and more compact than these. Of the Penzance Briars, the varieties Lord and Lady Penzance, planted alternately, make a charming shading of colours, and grow from 3 to 5 feet high. Meg Merrilies is a good Rose, but a taller grower; Miss Blanche Norman is a fine white-flowered hedge Rose, 3 to 4 feet in height. Of single species, *R. rubrifolia* is charming for its leaves and hips; it grows 4 to 6 feet in height. *R. Brunonia*, 6 to 8 feet, is more prolific of bloom. Of autumn-flowering Roses, the best for a dwarf hedge are common China, 3 feet; Fellemberg, 4 to 5 feet; Rugosa blancha, double, do.; Coubert, double white, 4 to 5 feet; Paul's single white, 5 to 6 feet; *Alister Stella Gray*, yellow, 6 to 8 feet; Turner's Crimson Rambler, 6 to 8 feet; Carmine Pillar, 8 to 12 feet, the finest for a tall hedge (these last two are not autumnal flowerers); Viscountess Folkestone and Augustine Guinoisseau, 3 feet; Bouquet d'Or, 5 to 6 feet. Perhaps, on the whole, the best for tall hedges are Carmine Pillar, Crimson Rambler, and *Alister Stella Gray*. For medium-sized hedges, Bouquet d'Or, Penzance Briars, and Double-white Rugosa. For dwarf hedges, common China, Viscountess Folkestone, Augustine Guinoisseau, and Yellow Scotch.

ECONOMIC ENTOMOLOGY.—This is a branch of science that has hitherto been comparatively neglected in this country. It is probable, however, that in the Colonies at least greater attention will be devoted to it, especially in connection with the agricultural development going on in tropical countries. Recently the Government of Ceylon has appointed an entomologist at a salary of 5000 rupees per annum; and now we learn that it is in contemplation to appoint a scientific man as entomologist to the Imperial Department of Agriculture in the West Indies at a salary of £350 per annum, and a free passage to Barbados. Hitherto the number of persons who devoted themselves exclusively to economic entomology is a singularly small one. In the United States they are far in advance of us in this matter. If, however, there is likely to be a demand for capable men at good salaries, there is no reason why this demand should not be fully met.

HIPPOPHAE AT KEW (p. 210).—We understand that the standard tree now bearing fruit near the temperate-house (not the Palm-stove, as we stated by mistake), was fertilised by hand with pollen from a male plant at some distance.

THE NEW SINGLE DAHLIA "GIRLIE."—When writing in our last issue of this beautiful variety, we were under the impression that the raiser was Mr. STREDWICK, and we therefore hasten to correct our remark, by substituting the name of the late Mr. T. W. GIBBLESTONE, as this variety proves to be yet another single-flowered gem raised by that lamented gentleman. "We understand that it is hoped to exhibit other seedlings from Mr. GIBBLESTONE's garden, at the National Dahlia Society's show at the Aquarium on the 19th inst.

"BOTANICAL MAGAZINE."—The September number contains coloured illustrations of the following plants:—

Coleus thyrsoides, Baker, t. 7672.—A native of British Central Africa; raised from seed in the Royal Gardens, Kew. It is a Labiate undershrub, 2 to 3 feet in height, pilose, with shortly-stalked, cordate, ovate, lanceolate, coarsely-toothed leaves, and terminal, cymose panicles of azure blue flowers, each flower being about $\frac{1}{4}$ -inch long.

Begonia sinensis, A. de Candolle, t. 7673.—A Chinese tuberous species, with cordate, ovate, serrated leaves, and terminal cymes of small pink flowers. Royal Gardens, Kew.

Calathea picta, Hook. f., t. 7674.—A Brazilian species introduced by Mr. W. BULL, with sheathing, purple-stalked leaves of lanceolate, acuminate form, green above, purple beneath. The inflorescence is terminal with large, boat-shaped, yellowish bracts, margined with violet. The flowers are white.

Asparagus scandens, Thunberg, t. 7675.—A South African species, with small linear, curved leaves, and small red berries.

Dorstenia Phillipsia, Hook. f., t. 7676.—A botanical curiosity from Somaliland. It has a thick erect stem, 3 to 4 inches high, marked with the scars of fallen leaves. The leaves are clustered at the tips of the fleshy branches, and have short stalks with oblong, dentate blades, about $1\frac{1}{2}$ to 2 in. long. The long flower-stalks expand into a disc-shaped receptacle about 1 inch wide, from whose margins project seven to eight curved horn-like projections. It flowered in the Botanic Garden, Cambridge.

CROSSING VARIETIES OF WHEAT.—The *Bulletin* No. 62 of the Agricultural Experiment Station of the University of Minnesota contains a very valuable paper on 'Wheat-breeding, by Messrs. W. M. HAYS and ANDREW ROSS. It is very complete, and contains fuller information within small compass than we know of elsewhere. Considering the precarious prospects attendant upon Wheat-culture in this country, the development of new varieties better suited to our uncertain climate is a matter of vast importance. "The evidence seems conclusive," say the authors, "that better varieties of Wheat can be made at an expense which is, indeed, very small when compared with the increased value of varieties, which will raise the average yield per acre even only a part of a bushel."

SALAD PLANT.—The salad plant mentioned recently by Mr. CHRISTY has now flowered, and proves to be *Plantago Coronopus*, our Buckshorn Plantain, a common wild plant in some situations. It is sown in autumn and spring, says Vilmorin, and requires only hoeing and copious supplies of water. We have not been impressed with the merits of this plant on the Continent. Purslane, on the other hand, may be strongly recommended, and grows well in seasons like the present. In winter it may be grown on a hot bed in a frame, and is highly recommended as a salad, though one seldom sees it in English gardens.

"LES POIS POTAGERS."—(J. B. BAILLIÈRE et fils, 19, Rue Hautefeuille, Paris, and DENAÏFFE et fils, Oargnan, Ardennes). M. M. DENAÏFFE's book deals first with the derivation and evolution of the cultivated edible Pea; then with the many different varieties separately. The subject matter is duly classified into sections dealing with the different types of Pea, and there is much detailed information, fully illustrated in addition to the various tables. It is not an easy task, nowadays, when there are so many sorts, thus to distinguish between them, to classify and to tabulate them; and growers of Peas on a large and also those on a small scale should welcome this handy manual which deals with old and tried forms as well as with newer introductions.

BROWN BLIGHT OF TEA.—Mr. G. MASSEE describes in the *Kew Bulletin*, p. 90, a fungus which

he calls *Colletotrichum Camelliae*, a mould which is destructive to Tea in Ceylon. Spraying with Bordeaux Mixture is recommended as a remedy.

MR. W. N. NORMAN has been appointed Curator of the Botanic Station in Antigua, on the recommendation of the Director, Royal Gardens, Kew.

MR. MURDO MCNEILL has, through the recommendation of the Director, Royal Gardens, Kew, been appointed Agricultural Instructor in St. Vincent; and Mr. A. J. JORDAN, from the same gardens, has been appointed to a similar post in Montserrat.

MEETING OF THE GHENT AGRICULTURAL AND BOTANICAL SOCIETY.—At the meeting of the *Chambre Syndicale des Horticulteurs Belges*, and of the *Société Royale d'Agriculture et de Botanique*, at Ghent, on September 4, the following awards were made: Certificates of Merit for seedling *Dracenas*, from M. G. DE COCK (par acclamation); for two specimens of *Dracena Tolfaerti*, from M. A. TOLFFAERT (par acclamation); and for *Anthurium Scherzerianum* var. *amabilis*, from M. L. DE SMET-DUVIVIER (à l'unanimité). Cultural Certificates were allotted for: *Astrapea Wallichii*, from M. G. GYSELINCK; *Aralia leptophylla*, from M. CARELS; and *Asparagus Sprengeri*, from the same exhibitor (à l'unanimité). Certificates of Merit for Cut Flowers were given for those of *Hydrangea paniculata grandiflora*, from M. L. DE SMET-DUVIVIER; *Cactus Dahlias*, from M. F. BURVENICH, père (à l'unanimité); double *Begonias*, from M. M. DE GROOTE, frères; single *Begonias* from the same exhibitors; and *Lilium auratum platyphyllum* from M. L. BOTELBERGHE. Honourable mention was allotted for the following cut flowers: *Lilium lancifolium rubrum* and *Gladiolus* var., both exhibits from M. G. DE SAEGER.

FLORA CAPENSIS.—Another part of this "Colonial Flora" has been published by LOVELL, REEVE & Co. It contains the continuation of the *Gramineæ*, by Dr. STAPP. His descriptions are scrupulously elaborated, sometimes occupying nearly a page to each species; while the synonymy fills up nearly as much space. *Avena* now contains only seven species, four of which are African; whilst other so-called *Avenas* are distributed in the genera *Avenastrum* and *Trisetum*.

AGRICULTURAL STATISTICS FROM IRELAND.—Under the superintendence of the Registrar-General, Dublin, general abstracts have been made and published relative to the acreage under crops and the number and description of live-stock in each county and province of Ireland in 1898-1899. The following are the results of some of the reports: The total extent under crops in 1899 is 4,627,273 acres, being, as compared with the extent in 1898, a decrease of 77,587 acres, or 1.6 per cent. Allowing for the alterations in county boundaries made by the Local Government Board under the Local Government (Ireland) Act, 1898, there was a decrease in the area under crops in Leinster of 38,496 acres, or 3.0 per cent.; in Ulster of 14,371 acres, or 0.9 per cent.; in Munster of 15,897 acres, or 1.3 per cent.; and in Connaught of 8,823 acres, or 1.4 per cent. In 1898 the extent returned under grass was 10,470,119 acres, in 1899 the amount returned is 10,575,003 acres, being an increase of 104,884 acres; the extent returned as fallow in 1898 was 16,839 acres, and in 1899 is 13,081 acres; the extent under woods and plantations was 307,661 acres in 1898, and 308,800 acres in 1899; and the extent returned under "turf, bog, marsh, barren mountain land, &c.," was 4,833,865 acres in 1898, and 4,869,187 acres in 1899, being a decrease of 24,678 acres; of the acreage thus returned in 1899, 1,196,208 acres have been entered by the enumerators as turf bog, 386,855 acres as marsh, and 2,261,046 acres as barren mountain land. Similar details are given with reference to the number and description of live-stock, showing a large decrease in horses, but an increase in asses, cattle, sheep, goats, pigs, and poultry.

MARKET GARDENING IN WORCESTERSHIRE.—In the Evesham district there is an immense quantity of Plums and of Asparagus grown. Most of the growers have some land at any rate devoted to "Grass," and in the course of a drive such a quantity may be seen as could not be found in any other part of the country. Plums this year have generally been a poor crop, but there appeared plenty round Evesham. Victorias and other good varieties are grown in moderate quantities, but the one variety that every small and every large grower has, is the "Pershore." Who has not heard of the "Pershore Plum?" It has been condemned again and again. Its qualities the critics have declared to be poor; and growers have been advised to root the trees out, and plant others. The reasons that they have not done so are these: The "Pershore Plum" is the easiest to cultivate of all Plums. The stock can be, and is, increased by suckers, it is one of the surest of croppers, and young trees come into bearing uncommonly soon. And then the "Pershore Plum" will sell. It is not of the best quality, but for culinary purposes this large, egg-shaped Plum sells readily enough; and if the prices obtained are not so high as for better sorts, neither is the cultivation so expensive, or the risks of non-cropping so great. It is the practice to gather them just before they are ripe; and in this condition they are sent over the greater part of the country. Nevertheless, it is not a first-class Plum.

THE TRAINING OF AZALEAS.—The formal training of Indian Azaleas ceases to be pleasing after one has seen it once or twice. At the Belgian shows (as formerly at our own), a group of Azaleas so trained had the appearance of decorated dish-covers on a large scale. The pyramidal form adopted by M. CH. VUYLSTEKE, and not uncommon here, is at least a change, but a freer, more natural form would be better still, even though a few more leaves were rendered visible.

ARBOR-DAY FOR ITALY.—The Italian people have come to the conclusion that the exclusion of forestry from its rural economy is unwise. They are now learning to do well, under the guidance of the Government, at the hands of the Department of Public Instruction. An Arbor-day has been instituted, and the Japanese plan of teaching wood-craft in the public schools has been adopted. On a day yet to be named in October proximo, the youth of Italy will take their first lesson under the improvised forester. The Minister of the above-named Department has been at work for some time past engaged in elaborating the scheme now to be started, finding, as we understand, that reforestry, or replanting, could not be done by the State; and so help was asked for from every school and commune or local authority in the land; and the reply has been in favour of the new scheme. Scholars in all parts of Italy will soon be engaged in the endeavour to make their native land more beautiful and more receptive of those gifts from the clouds which, as at present, run down to the sea—wasted. In spots adjacent to centres of population, large and small, sites are being prepared for the planting of young trees, and on Arbor-day the scholars will be marched from the school-house to the embryo plantation, accompanied by their master and some one or more of the local authorities, assisted by a practical hand, and when the planting has been accomplished—after the necessary explanations on the practice—an address will be delivered on "The Moral, Social, and Economic Value of Trees." And one may be allowed to express the hope that name-carving on bark may be condemned in strong terms. Doubtless during the year the youngsters will be trotted to the miniature plantations, and receive more instruction, as we believe is done in Japan; and so, year by year, the young may grow in knowledge and stature, and the rows of young trees be added to, and some transplanted to prominent positions in spots where they are most urgently required. One little feature of the scheme is not without

interest—as far as possible places celebrated in Italian history will be selected for the transplanted trees, and thus a double lesson taught to the scholars. All must wish every possible success to the new Italian Arbor-day.

TORSION IN THE LEAF.—One of the most interesting papers at the recent Hybridisation Conference was one by Professor HUGO DE VRIES, which dealt with the spiral torsion of the stem, not unfrequently met with in the stem of *Dipsacus*. The Professor has succeeded in "fixing" this mal-



FIG. 79.—TORSION OF THE LEAF OF A DANDELION.

formation, as gardeners say, and has produced a race of which a large percentage of the individuals come true from seed. The illustration here represented (fig. 79), shows the leaf of a Dandelion twisted on its axis from some cause which is unknown to us. Twisted leaves of this character are more uncommon than twisted stems. In some bulbous plants, as in some *Nerines*, this condition is normal. We are indebted to the Director of the Royal Gardens, Kew, for the opportunity of drawing this specimen.

CANADA RICE.—The following extract, from *Studies of Plant Life in Canada*, by Mrs. C. C. TRAILL, 1885, p. 103, will be read with interest in relation to the plants referred to at Kew, on p. 210. "The name of 'Rice Lake,' is derived from the

fields of Wild Rice, *Zizania aquatica* (L.), which abound in the shallower waters of this fine inland sheet of water, and give the appearance of low verdant islands clothing its waters. When the Rice is ripened, and the leaves faded, a golden tint comes over the aquatic field; and the low Rice islands, as they catch the rays of the sun, take the form of sands glowing with yellow light. Where the water is low, the Rice-beds increase so as nearly to fill the shallow lakes and impede the progress of boats, changing the channel and altering the aspect of the waters. In the month of June, the tender green spikes of the leaves begin to appear; in July, the Rice begins to push up its stiff, upright stalk; sheathed within its folds are the delicate, fragile flowers; from the slender glumes, the beautiful straw-coloured and purple anthers hang down, fluttering in the breeze, which stir the grassy leaves that float loosely upon the surface of the water, rising and falling with every movement. The plant grows in lakes, ponds, and other waters, where the current is not very strong, to the depth of from 3 to 8 feet, or even deeper. The grass, or ribbon-like flexible leaves, are very long. I remember a gentleman who was rowing me across the lake drew up one at a chance on his oar, and measured it, the length being 11 feet, but with the culm and flower it would have measured 12 or 13 feet in length. The month of September or later, in October, is the Indian's Rice harvest. The grain, which is long and narrow, and of an olive-green or brown tinge, is then ripe. The Indian woman (they do not like to be called *aquas* since they have become Christians) pushes her light bark canoe or skiff to the edge of the Rice-beds, armed, not with a sickle, but with a more primitive instrument—a short, thin-bladed, somewhat curved wooden paddle, with which she strikes the heads of ripe grain over a stick which she holds in her other hand, directing the stroke so as to let the grain fall to the bottom of the canoe; and thus the wild Rice crop is reaped, to give pleasant, nourishing, and satisfying food to her hungry family. There are many ways of preparing dishes of Indian Rice: as an ingredient for savoury soups or stews; or with milk, sugar and spices, as puddings; but the most important thing to be observed in cooking the article is steeping the grain—pouring off the water it is steeped in, and the first water it is boiled in, which removes any weedy taste from it. It used to be a favourite dish at many tables, but it is more difficult to obtain now. The grain all collected, it is winnowed in wide baskets from the chaff and weedy matter, parched by a certain process peculiar to the Indians, and stored in mats or rough boxes made from the bark of the Birch-tree—the Indians' own tree. Formerly, we could buy the Indian Rice in any of the grocery-stores at 7s. 6d. per bushel, but it is much more costly now, as the Indians find it more difficult to obtain."

USEFUL PLANTS OF SENEGAL.—Father SÉBIRE, Director of the Botanic Garden of Thiès, Senegal, has published through Messrs. BAILLIÈRE & SONS, a useful little treatise, in the French language, on the plants of economic importance in the colony of Senegal. Wild plants and introduced species are passed in review. The rainy season begins towards the end of June, and continues, with slight intermissions to the middle of October. Malarial fevers are rife at the later period. In the dry season but little rain falls, so that it is necessary to secure artificial supplies of water. The soil is mostly sandy, with some clay. Father SÉBIRE gives an interesting account of the methods of cultivation adopted by the natives, and of the results of the experiments made by the colonists and settlers. The bulk of the book is made up of slight descriptions of the various economic and decorative plants arranged according to their natural orders. Numerous illustrations are given, together with a full index and table of contents. The strictly botanical details are somewhat meagre, but the particulars as to mode of cultivation and properties are well suited for the purpose. The book, though primarily

intended for Senegal, will be useful to settlers in other parts of Africa having a similar climate. A debt of gratitude is due to Father SÉBIRE for this accurate and useful publication.

STOCK-TAKING: AUGUST.—It would seem to require a very dark cloud indeed on the political horizon to affect the energies of this section of the commercial and manufacturing world, for once again the Trade and Navigation Returns point to a heavy increase in both imports and exports. The value of the imports for the month of August is placed at £40,693,398, an increase of £3,489,213 on the same period last year, when the total value was £37,204,185. Our excerpt from the "summary" table is as follows:—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	37,204,185	40,693,398	+3,489,213
(A.) Articles of food and drink—duty free ...	13,710,309	14,822,711	+1,112,502
(B.) Articles of food & drink—dutiable ...	1,910,115	1,925,291	+15,176
Raw materials for textile manufactures ...	2,880,014	3,056,428	+176,414
Raw materials for sundry industries and manufactures ...	6,102,167	6,512,586	+410,419
(A.) Miscellaneous articles ...	1,106,082	1,179,405	+73,463
(B.) Parcel Post ...	106,652	81,711	—24,941

It will be seen from these figures that the great increase is in articles of food and drink, and in considerable measure it indicates the healthy tone of the home labour market. The "States" and Canada figure largely for breadstuffs, bacon, and butter; and there remain over from last harvest a fairly large quantity of Wheat and flour, as per advices from Washington. Raw materials for textile manufactures show an increase in various classes. A very interesting little table this month is that made up by us from fruit, roots, and vegetables imported, and is as follows:—

IMPORTS.	1898.	1899.	Difference.
Fruits, raw:—			
Almonds ... cwt.	1,506	8,870	+ 2,864
Apples ... bush.	116,890	131,315	+14,465
Cherries ... "	84,535	13,780	—70,755
Grapes ... "	296,641	305,871	+ 9,230
Lemons ... "	71,840	144,280	+72,440
Oranges ... "	22,121	18,647	— 3,474
Pears ... "	128,854	219,969	+91,115
Plums ... "	491,668	323,048	—168,615
Unenumerated ... "	438,457	440,207	+ 1,750
Roots and Vegetables:—			
Onions ... bush.	629,799	561,821	—67,978
Potatoes ... cwt.	90,980	119,865	+28,885
Vegetables, raw, unenumerated ... value	£207,716	£220,741	+£13,025

The unenumerated section here looms large, both in quantities and values, and the President of the Board of Trade would gain much credit by reducing these, through enumeration. Some of the tabulated totals are very suggestive, and confirmatory of harvest reports already published. The imports for the past eight months foot up £317,327,164, against £309,064,153 for the same period in 1898—a gain of £8,263,011. Coming to the

EXPORTS,

We find still another increase. The total for the month of August is placed at £22,258,538, against £20,186,016 in August, 1898—a gain of £2,072,522. The figures for the past eight months are £171,976,390, against £152,784,073 in 1898.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—We are asked to announce that the annual dinner of the above society will take

place at the Holborn Restaurant on Thursday, October 5, at 6.30 P.M. Mr. W. Y. BAKER will preside.

THE BRITISH ASSOCIATION has assembled this year at Dover, and horticulturists will feel proud that so learned and eminent a body meets under the presidency of a zealous and devoted botanist and gardener. Sir MICHAEL FOSTER, is known to our readers in various ways. Not only has he written frequently in these columns upon horticultural subjects, especially *Iris*, of which he has an unique knowledge, but in past years he has done a large amount of work on behalf of the Royal Horticultural Society, being one of those who took office in that society when its affairs were in a deplorable condition, and remained a member of the Council until the society was completely rescued from the helpless state into which the adoption of a wrong policy had brought it. Sir MICHAEL FOSTER, is one of the leading scientists of the present day, and his presidential speech delivered on Wednesday evening at Dover, though not specially relating to our own science of horticulture, was a masterly review of the progress of science generally during the century now rapidly approaching its close. The address was delivered in the Town Hall, which was filled to its utmost capacity. Among the eminent members of the Association present upon the platform were Sir W. T. Thiselton Dyer, Director of the Royal Gardens, Kew; Sir W. Crookes, retiring President; Lord Lister, Sir H. Roscoe, Prof. G. H. Darwin, Prof. Ray Lankester, Prof. Kronecker of Berlin, Prof. J. T. Thompson, Prof. Richet of Paris, Sir W. H. Preece, &c. During the proceedings at Dover, there will be a deputation from the French Society, and the British Association will visit Boulogne. Section K. is the one devoted to Botany, and in future issues we hope to give our readers some account of the proceedings in this section.

PUBLICATIONS RECEIVED.—*Journal of the Essex Technical Laboratories*, Summer, 1899 (County Technical Laboratories, Chelmsford).—This includes papers on Planting Fruit-trees, by C. Wakely; Destruction of Charlock by spraying with solution of sulphate of copper, by R. W. Christy and T. S. Dymond; and Check list for Botanical Ramblers, by E. Turner.—*Anne Pratt's Flowering Plants* (F. W. & Co., Bedford Street, Strand), vol. II., parts 13 and 14.—*Nature Notes*, September.—*Tropical Agriculturist*, August; this contains a portrait and notice of Mr. W. B. Lamont, a "pioneer" Coffee and Tea planter; articles on Rubber Cultivation in Ceylon; Coffee Cultivation in Ceylon, &c.—From the University of Illinois Agricultural Experiment Station, Urbana, July 1899, Bulletin No. 55, *Recent Work on the San Jose Scale in Illinois*.—*Annales Agronomiques*, August 25.—*Botanisches Centralblatt*, Band LXXIX., Nos. 9, 10.

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY.—The advantages and the benefits conferred on all concerned in horticulture by the Royal Horticultural Society are too well known to require comment from me—but it has often occurred to me and probably to others that it is most inconvenient to have only one place in the kingdom to which all new plants and fruits must be sent for awards. I propose that there should be four branches, viz., North, South, East, and West. This would be to the advantage of all of those who reside at a long distance from London; moreover, the expense and loss of time, and the injury to fragile things, would be in a measure averted. If there were branches conducted on the same lines as the parent society, with committees and staff selected from the gentlemen and gardeners of each part of the kingdom, under the control of the head society—many gardeners would be glad of the opportunity thus afforded to display their productions. A. J. Long, Wyfold Court, Oxfordshire. [We do not think the proposal is feasible. Ed.]

BIGNONIA GRANDIFLORA, ETC., AT PARK PLACE, HENLEY.—This is the best of the so-called "Trumpet-ash" climbers, the other useful one being *B. radicans* major, which does well on a dry border against a wall or fence, and there flowers freely. *B. grandiflora*, however, is somewhat tender, and only in

exceptionally hot and dry summers are its flowers perfect in the open; though planted out in a cool conservatory or in a winter-garden, it flowers moderately well. As I saw it the other day, growing over the porch of the head-gardener's (Mr. Stanton) house at Mrs. Noble's, Park Place, Henley, it was beautiful. It was planted near to one of the rustic Oak supports of the porch, and, bifurcating, was carried along the front to left and right, and on the right side inward towards the house. The pinnate foliage was unusually large and handsome; and the terminal spikes of flower were no fewer than forty-two, the number of flowers on each being twelve to fifteen finely-developed campanulate blossoms, of a bright orange-scarlet colour, paling to rich warm yellow as they mature. This *Bignonia* evidently loves drought and heat, for I have very frequently had plants abundantly budded at the termination of the shoots and laterals, but, before opening, the flowers invariably dropped off. There are also fine Conifers here, including well-coloured specimens of Young's Golden Chinese Juniper (*J. sinensis aurea*), and the finest example of a still rarer Conifer, *Cupressus macrocarpa aurea*; at least, so named, but from its stout growth and dense habit, the shrub to me appeared more like a golden-tinted form of the Upright Cypress (*C. fastigiata*). There was also a fine piece of the lovely *Abies Engelmanni glauca*. Experience.

THE PERPETUITY OF FEEBLENESS BY HYBRIDISATION.—One result of the recent congress on hybridisation, will, I have no doubt, be a large addition to the number of those engaging in attempts to vary and improve the different forms of vegetable life. May I be permitted to suggest, with due deference, that in all efforts of this kind the parents chosen on both sides should possess, if not a strong, at the least a sound and wiry constitution. How many feeble varieties of florists' flowers, admittedly of great beauty, have been ushered into the floral world—varieties which it requires the utmost watchfulness and skill to develop fully, and which no amount of watchfulness and skill could keep in health or life over a lengthened period? This production is, we believe, generally, though not always, due to the setting up of a standard of ideal beauty, in form, colour, &c., and working for its attainment, overlooking the vital point of constitution. How disappointing and disheartening to the ordinary cultivator to have to deal with such puny things! Nature, we admit, free of man's interference, often gives us such, and disposes of them in her own way, but do not let us by our interference add to the number whose cultivation gives us more pain than pleasure, but rather strive to lessen it by judicious selection in parentage. Wm. Paul, Pauls Nurseries, Waltham Cross.

PROTECTING PEACH-TREES WHEN IN FLOWER.

Unprotected Peach and Nectarine-trees have borne heavy crops of fruits this season, though the weather during the critical period of flowering was most severe. Is the protection of the flowers by fish-netting and other light materials a fad only? I invariably find that unprotected trees bear as freely as protected trees. At Wrotham this year we have had heavy crops of fruit, and although we made use of netting and Laurel branches after registering 14° of frost, the fully-expanded flowers having been previously blackened, we obtained a heavy set of fruit; but there were trees and parts of trees that had no protection whatever, and during the frosty weather ice and snow were frozen to the branches, and yet these bore equally good crops. I visited the gardens at Woodgreen Park at the time the trees were in bloom, and I believe that upwards of 20° of frost were registered there. The flowers were miserably black, but there has been a very fine crop of large Peaches. These were protected with a single fish-net. On the same wall a Walburton Admirable that had no protection bore heavily. In my case, the unexpanded blooms proved best. But if trees bear freely after several nights in succession of severe frost, it is not always that frost is to blame for failure. What have others to say on the subject? H. Markham.

THE GROWL ABOUT SHREWSBURY SHOW.—I like a "growl"; it shows something is not perfect, or some one has a grievance. I like to investigate "growls," and do the best to prevent them in future. Our friend from Surrey complains on p. 212 of the dust in the fruit tent; so did many others. I did myself. But what could be done?

During our twenty-five shows it has occurred twice—in 1897 and this year. The reason is lack of rain. For many weeks before the shows scarcely a drop of rain fell in either year on the show-ground, which is light, consequently the soil became as dry as dust for many inches below the surface. In consequence of the enormous number of visitors going round the tents, the dust rises in proportion to the amount of traffic. Sprinkling with watering-cans is of no use. It becomes dry again in ten minutes. In 1897 we had a water-cart for an hour going round the tents without any permanent effect; the dust in an hour rose as badly as before. I should only be too glad to receive suggestions how to avoid such dust in future; but if there is no rain for ten weeks previously to the show, I can see no remedy. We have had shows where planks from tent to tent lie still buried where they sank in the mud, and ladies' boots were lost by the dozen. Some "growled" then; so did I. *H. W. Adnitt.*

"TREE," OR "PERPETUAL" CARNATIONS.—In reference to Mr. W. J. Godfrey's remarks, on p. 204, I favour neither of the above terms for this section of Carnations, but have a great objection to creating new names for old friends. Having in my previous note stated that both terms are misleading, I preferred to adopt that by which they are generally catalogued. When the term "Tree" was originally applied, there were good grounds for it, as those included had such a distinct tall growing habit. In my earlier associations with these, when we used to grow the same plants on from year to year, I have known them attain from 3 to 4 feet in height. I am very pleased to learn that there are many varieties superior to Miss Jolliffe and Mdlle. Thérèse Franco, but I have yet to make their acquaintance. If Mr. Godfrey can send me blooms to confirm his statement, I shall certainly be anxious to secure a stock of them. With reference to the American varieties, I have been disappointed with those I have tried, Flora Hill being no exception. *A. Hemaley.*

I was much interested in the remarks of Mr. Hemaley on p. 163, where he says varieties vary in different parts of the country. I have grown Primrose Day in Kent, Manchester, and am now growing it in Scotland, and do not wish for a better yellow. I have found it a truly perpetual variety, and by growing the plants a second season they flower magnificently. For this purpose, it is better to shorten all the growths at the end of May, and when they have again started into growth to put them into 8-inch pots, and stand them on a coal-ash bed out of doors. You may then expect a splendid crop of flowers in October, and a continuous supply through the winter. These remarks hold good in the case of all varieties generally cultivated for cut blooms. I find some of the newer introductions answer equally well. Countess Ferrara, a lovely deep flesh colour; Mrs. Clibran, a reddish-rose with a pure white edge, and powerful fragrance; Lord Armstrong, a glowing chestnut; Baron Rothschild, deep apricot, make splendid plants the second season, and flower profusely throughout the winter and spring. Countess of Warwick also does well, but I have found Flora Hill does not answer. Like Mr. Hemaley, I have not yet found a good white variety. I keep my plants at a higher temperature than most growers, and advocate 65° to 75° with plenty of air at all times. This method is now being practised in continental nurseries where Carnations are a specialty. The stock plants must be kept in a cooler house, in order to provide strong cuttings. *W. Clifford, Maxwellthugh, Kelso.*

SUBSTITUTE FOR GRAFTING-WAX.—I think that any contribution to this subject is useful as the old recipe of clay and cowdung is not only disagreeable to use but often cracks badly, thus necessitating extra labour and serving as a harbour to earwigs and other injurious insects. For the last three years I have used ordinary painters' knotting both for Apples and Pears, and the results have been entirely satisfactory. The scions are tied in the usual way, and the knotting painted over the whole with a sash tool. It quickly forms a hard, glazey, impervious coat, which is not affected by any kind of weather. Under glass I have only tried it on Oranges, for which it proved successful, and I have no doubt it would be equally effective for any kind of hard-wooded plants. Painters' knotting is the best material for painting over wounds or the cut surfaces of Vines and other plants after pruning, as it effectually stops up the injured cells, preventing bleeding or evaporation,

and the drying up of the wood. *J. H. Woolley, Leicester Frith Gardens.*

FLAVOUR IN POTATOS.—I do not know how or where "A. D." obtains his data as to what my experience of Potato-growing is, or its extent, inasmuch as it is generally thought but right to be well associated with a man before offering an opinion as to his attainments and capabilities. "A. D." seems to think this needless, and without scruple, sums up my knowledge and "experience of the Potato," cooked and uncooked, as not being large enough to render me impartial. Why, though my understanding of the Potato may be small, I am not impartial, I should like explained. Having acted as a judge at Potato shows, I hope and trust that my decisions have been impartial. This knowing of what another knows, or does not know, without even an acquaintanceship with the person, is a great gift that many would like to possess, and is seldom met with, though apparently "A. D." feels that it is well within his competence, and so in my case exercises his wonderful powers in this science. Having grown the Ashleaf Kidney more than fifty years, and after that Rivers' Ash-leaf, I can testify to its excellence, and that on some ground it is by no means a small cropper, nor with me was the old Forty-Fold, nor the Early Shaws, and the Kent Blue-Eyes (one of the very best, yet now extinct), with me none of these had "the disease." I like Sharpe's Victor and some others, but what I complain of, and still do, is that these "quality" Potatoes are not to be bought, but must be home-grown for our tables. "A. D." remarks that many of the Potato consumers object to such a Potato as the Ashleaf Kidney. Here, perhaps owing to my inexperience, I must join issue, for though familiar with a vast number of people, I have never known one that decried the old Ashleaf; nor do I know at the present time a single person but what is perfectly discontented with the dry, tasteless balls of flour. Such may be good croppers, and so wrongfully called good market Potatoes. But of this I am certain, and that is, the Potato of the salesman is a thing to be avoided and not sought for with pleasure, as it was years before it was improved. Why a third or fourth-rate article should be considered good enough for the people is beyond my comprehension, and in this I am not alone. *Harrison Weir.*

THE CONDITIONS UNDER WHICH ODONTOGLOSSUM CRISPUM GROWS.—Having read Mr. Young's advice in the "Week's Work," on p. 188, on the culture of the *Odontoglossum crispum*, and also "T. L. C.'s" experience as regards the plant, I feel a little in doubt as to the kind of treatment the species requires during the summer months. Mr. Young says, "a little shrivelling is more a blessing in disguise than an injury;" whilst "T. L. C.," at p. 202, remarks, "as this plant grows at an altitude of 8000 feet, it must always be in a free air, and as the vapour-laden clouds rise to that height, they become condensed, and descend in copious showers upon the plants frequently, but not constantly," which certainly would not give the pseudo-bulbs any chance of shrivelling; and as *O. crispum* is growing more or less throughout the year, it is quite obvious that neither the atmosphere nor the plants themselves should be allowed to get dry at any time, so as to allow the pseudo-bulbs to shrivel. The above opinions seem to me so conflicting that I would like to solicit the advice of other cultivators of *Odontoglossums* for the benefit of others, as well as *A Young Gardener*.

PITTOSPORUMS.—I am very glad to see a good figure of *Pittosporum crassifolium*, at p. 205 of the *Gardeners' Chronicle*. It grows well in Ireland, and has flowered this spring at Woodside, Howth, with Dr. George Vaughan Hart, Q.C., who flowered *Olearia Forsteri*, that you figured about a year ago. I now send you a fruiting twig of *P. viridiflorum*, a nearly allied species, hoping it may be of interest. It is a plant I first saw in fruit in the old greenhouse at the Oxford Botanical Gardens, a year ago. *Pittosporum Mayi* is a good shrub here, and flowers and fruits freely. Its glaucous, glossy leaves colour of a beautiful bronze in the autumn; and at Castlewella, Co. Down, there are fine specimens on the lawn, 8 to 10 feet or more in height, and perfect columnar pyramids. Though a common shrub in Ireland, its origin seems obscure. In the *Kew Index* it appears as "*P. Mayi*, Hort. ex. Regel Cat. Pl. Hort.

Aksakov. 112, nomen. Hab.?" no authentic description being cited. Its black twigs smell of terebinte, or turpentine, like those of a Conifer if bruised or scraped; and it is always a clean, neat, and healthy bush, far more valuable than *Ligustrum Walkeri*, which resembles it in general part, except that its foliage is of a paler green. So far as I see at present, *P. Mayi* is by far the best and hardiest of all the species of *Pittosporum* in Irish gardens, and even as a small specimen in pots or tubs it is very pretty and desirable, and its foliage is useful for cutting during autumn and winter. *F. W. Burbidge.*

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 12.—An ordinary fortnightly meeting of the committee of this Society was held on Tuesday last in the Drill Hall, James Street, Westminster, when there was a very much better display than on the last occasion. There was more of every section of exhibits, excluding Orchids, and the Orchid Committee, as will be seen below, recommended the awards of one First-class and one Botanical Certificate, and two Awards of Merit. But Dahlias were the feature of Tuesday's show, and these were exhibited abundantly, most of the trade growers being represented by large collections of blooms. Little evidence was there in these bright, handsome Dahlias of the severe drought. Seedling Dahlias were put forward for Certificates in great numbers, and seventeen of these were granted Awards of Merit, most of the varieties being identical with those certificated last week at the Crystal Palace. Chrysanthemums were shown in two exhibits, one of cut flowers, and another of plants arranged in a group.

Sir Trevor Lawrence, Bart., showed a new hybrid *Eucharis*, "*Burfordensis*," and to this novelty, and to *Retinopora obtusa aurea* Crippell, First-class Certificates were awarded.

Mr. Jas. Hudson showed a sport from *Begonia Gloire de Lorraine* with larger flowers than the type (Award of Merit); and Messrs. W. PAUL & SON obtained a similar award for a new Rose, "*Corallina*."

The Fruit and Vegetable Committee had a large number of exhibits before them. Three new Apples received Awards of Merit, a most unusual occurrence, as did a new Cucumber, "*Achievement*," from Lord Aldenham's gardens.

In the afternoon Mr. ED. MAWLEY gave an interesting lecture upon "*The Drought of 1898*."

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. H. P. May, R. Dean, Jas. Hudson, J. F. McLeod, Chas. E. Pearson, Thos. Peed, W. Bain, J. W. Barr, J. D. Pawle, James Walker, Herbert J. Outbush, E. H. Jenkins, Chas. Bluck, E. T. Cook, D. B. Crane, E. Beckett, Geo. Paul, and Ed. Mawley.

DAHLIAS.

Mr. J. STREDWICK, St. Leonards, had a number of novelties, and in addition to those which received Awards of Merit, Princess, primrose-yellow; William Jowitt, deep scarlet; Goliath, orange-red; Mrs. Sanders, soft yellow; Clara, pale orange-red; and Autumn Queen, delicate pinkish-lilac, are all of a promising character.

Messrs. J. CHEAL & SONS, Crawley, had a large and representative collection of Dahlias, affording ample choice for those interested in the flower. There were grand bunches of the most approved Cactus varieties, Pompons, and singles in excellent character; several boards of show and fancy varieties, and a good representation of the fascinating single Cactus type, which were seen in their best character (Silver-gilt Banksian Medal).

Messrs. T. S. WARE (Ltd.), Tottenham, had a huge bank of cut flowers, in which Dahlias played an important part, the Cactus and Pompon varieties being in strong force. Among the former was Empress of Austria, a rich dark crimson variety, very promising, but not in its best character on this occasion (Silver Flora Medal).

Mr. M. V. SEALE, Sevenoaks, had a box of a dozen new varieties of Single Dahlias, and in addition to the two which received Awards of Merit, there were Gaiety Girl, orange red, tipped with yellow; Elsie, pale ground, tinted soft lilac, and flaked crimson; the Sircar, white, with side-edgings of maroon; and Mona, pale ground with slight side edgings of deep crimson.

Messrs. JONES & CO., Shophatch, Shrewsbury, set a good fashion in the way of the effective staging of cut blooms of Dahlias; having a back-ground of ahfields of Cactus varieties arranged with foliage, charming shower-bouquets of Dahlias, and a basket of Cactus Dahlias arranged with Asparagus foliage, which set everyone longing to possess it (Silver Banksian Medal).

Mr. J. T. WEST, Cornwall, Brentwood, had a large collection of Cactus Dahlias in handsome bunches, among which could be seen his fine, new varieties, Mrs. J. J. Crowe and Mrs. Carter Page; and a singularly beautiful light variety of this year named Violet Cornish, which would have obtained an Award

of Merit had it been duly entered. In addition, there were charming bunches of Pompons, and quite an array of show and fancy varieties (Silver Banksian Medal).

Messrs. KERNES & Co., Salisbury, had a collection of new varieties of Cactus, and of those which did not receive Awards of Merit, mention may be made of *Loyalty*, *Fearnought*, *The Leader*, *Cornucopia*, and *Wisdom*, as varieties with a future before them.

Mr. J. GREEN, Norfolk Nurseries, Dereham, was awarded a Silver Flora Medal for a group of choice Dahlias; and Messrs. J. PEED & Sons, West Norwood, a Silver Banksian Medal, also for Dahlias.

ROSES.

Messrs. WM. PAUL & SON, Waltham Cross Nurseries, Herts, made a fine display with cut Roses. There were something like eighty varieties staged, and many of them were represented by a large number of blooms. Some of the more prominent varieties were Queen Mab, Empress Alexandra of Russia, White Mamam Cochet, Marie Van Houtte, Papa Gontier, Kaiserin Aug. Victoria, Madame Abel Chatenay, Polyanthus Perle d'Or, and Perle Rouge; Alexandra, a new bedding Tea-Rose, with bronzy-yellow blooms; Mrs. W. J. Grant, Enchantress, Caroline Testout, Viscountess Folkestone, Gruss aus Tepitz, a new crimson H. T. Rose, &c. (Silver-gilt Flora Medal).

Mr. GEO. PRINCE, of Oxford, had a very artistic display of cut Roses. A large number of small glasses were used of different shapes, one variety of Rose filling several of them, and all were named neatly. Many of these were placed upon shelves covered with black velvet. Some tall Bamboo stands furnished with Tea Roses looked very pretty. Then there were others, in moss-surfaced boxes. So many lovely Tea-scented varieties were shown well, that we need not particularise (Silver Flora Medal).

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, in a very large exhibit of cut flowers, included a number of varieties of Roses, especially of the Noisette and Tea-scented sections. Also a fine lot of hardy herbaceous flowers. *Aster sinensis* was well shown, some with white flowers, and others with pink, blue, and crimson blooms; these single flowers are very pretty, and of great value for decorative purposes. *Helianthus* in variety and *Gaillardias*, a variegated form of *Rosa Wichuriana*, &c. Some pans containing plants in flower of *Cyclamen hederifolium* and *C. h. album* were very pretty (Silver Banksian Medal).

CHRYSANTHEMUMS.

Mr. W. WELLS, Earlswood Nurseries, Redhill, Surrey, showed a large collection of cut flowers of Chrysanthemums, representing forty varieties, from the outside border. The hot sun has been very trying to the Border Chrysanthemums this season; and probably the later-blooming varieties will succeed better. Mr. WELLS had a very pretty group of flowers.

Mr. J. W. WITTY, superintendent of the Nunhead cemetery, London, S.E., exhibited a fair-sized group of Chrysanthemums in pots, edged with Ferns, &c. Varieties of the Desgranges section and others were well shown, but it is rather too early to bring Chrysanthemums to the exhibition, as the numerous Dahlias are much superior in brightness (Silver Flora Medal).

MISCELLANEOUS EXHIBITS.

Mr. JAS. HUDSON, Gunnersbury House Gardens, Acton, W., showed nine remarkable specimens of *Acalypha hispida* in pots. They had been planted out in a warm-house in the spring; and, after making a clear straight stem 4 feet 6 inches high they were stopped, thus inducing the production of side-shoots. These side-shoots became pendent, owing to the number of flower racemes upon them, and numerous flowers were still hanging from the upper part of the main stem. In appearance, the shape of the plants above the bare stem was like that of a mammoth bunch of Grapes. Mr. HUDSON also showed a rather dwarf compact form of *Salvia splendens* (Silver Banksian Medal).

Sir TREVOR LAWRENCE, Bart., Burford (gr., Mr. Bain), exhibited a flower of *Aristolochia elegans*, one of the pretty small species very seldom flowered out-of-doors; and a fine variety of *Lobelia cardinalis*.

Mr. JNO. WEATHERS, Silverhall Nursery, Isleworth, showed cut flowers of *Callistephus chinensis*, the species from which has been obtained all the fine China Asters, now so popular for bedding purposes. It has long been out of cultivation in England, but was re-introduced about two years since. The flowers are a shade of purple, very decorative, and will last about a fortnight after being cut and placed in water. The plants were raised from seeds sown in April.

Messrs. F. SANDER & Co., St. Albans, exhibited several handsome varieties of *Sonchella*.

Messrs. W. CURTISH & Sons, Highgate Nurseries, London, W., exhibited some extraordinary trusses of flowers of *Hydrangea paniculata grandiflora*. There were eighteen trusses, and they were the largest we have seen.

Messrs. JNO. PEED & Sons, Norwood, London, showed a group of plants in pots, of a white flowered perennial Aster, named Mrs. W. Peters. The plants about 2 feet high from the ground. The variety has small flowers and foliage.

Messrs. BARR & Sons, King Street, Covent Garden, London, W.C., showed a collection of cut hardy flowers, including some of the choicer varieties of herbaceous Phloxes, *Helianthus*, and some of the earlier flowering of the perennial Asters.

AWARDS.

Begonia Mrs. Leopold de Rothschild.—This is a distinct sport from *B. Gloire de Lorraine*. It has similar foliage to that of the type, but the inflorescence is shorter, and the habit of the

plant more compact. The flowers are much larger, and lighter in colour, being pink rather than rose. Mr. HUDSON purchased six plants of *B. Gloire de Lorraine* in the spring of 1896, and the sport appeared last season. It may be described as a glorified form of the type. From Mr. JAS. HUDSON, Gunnersbury House Gardens, Acton (Award of Merit).

Eucharis "Burfordensis".—This is a very attractive Eucharis, and most likely the result of a cross between *E. Stevensii* and *E. Mastersii*. The leaves are very suggestive of those of *E. Mastersii*, but are narrowed in the direction of *E. Stevensii*. It is an exceptionally free bloomer. The flowers are rather more than 8 inches across, and about 2 inches long; not flat, like *E. grandiflora*, but bell-shaped. From Sir TREVOR LAWRENCE, Burford (First-class Certificate).

Rose "Corallina".—This is a brightly coloured, very showy bedding Tea Rose, raised at Waltham Cross. The variety is an extra strong grower, the maiden plants being about 3 feet in height this season. It is exceedingly free blooming, and the flowers, as seen in a bunch, are reddish-rose, passing lighter and silvery. From Messrs. W. PAUL & SON, Waltham Cross (Award of Merit).

Retinospora obtusa aurea Crippsii.—A very fine golden variety of *R. obtusa*, differing, as shown, from *R. o. aurea* previously certificated, in having a more slender, less dense habit of growth; the points of the growing shoots are pendulous. From Messrs. THOS. CRIPPS & SON, Tunbridge Wells (First-class Certificate).

DAHLIAS.

Awards of Merit were made to—

Mrs. J. J. CROVE (West), pale soft yellow, a variety highly refined, and of perfect shape; shown by the raiser, and by Messrs. KERNES, WILLIAMS & Co., nurserymen, Salisbury.

To *Cactus Innovation*, which maintains its character as a glorified *Arachne*;

Progenitor, bright reddish-crimson, the points of the petals cut and fimbriated in a novel manner;

Loadstone, dark orange-red, with a brighter hue in the centre; fine Cactus shape;

Emperor, orange-rose, suffused with purple, especially towards the points of the florets; a fine addition to the purple Cactus; and to

Pompon Cheerfulness, yellow, with an even and regular tip of bright orange-red, a charming variety of perfect shape; from Messrs. KERNES & Co.

Cactus Red Rover, unusually large in size, brilliant red in colour, while maintaining the true Cactus shape; and

Green's White, a new white variety, fully maintains its promising character. From Mr. J. GREEN, Norfolk Nursery Dereham.

Cactus Mayor Tuppenny, the basal petals bright salmon red, with clear yellow centre; fine Cactus type, and very bright

Augustus Hare, yellow, or salmon, overlaid with brilliant red; very handsome and distinct;

Major Weston, bright crimson, with a dark shading in the centre;

Uncle Tom, the basal petals maroon-crimson, with black centre; a valuable addition to the dark varieties.

Maurice T. Walsh, the basal petals amber, with a slight tint of reddish-salmon, and soft yellow centre; novel, and pleasing. The above from Mr. J. STANWICK, Silverhill, St. Leonards.

Fancy Dahlia Empress, a very welcome addition to a select class, having a pale ground, suffused with the most delicate lilac, striped and flaked with crimson and maroon, from Mr. G. ST. PIERRE HARRIS, Orpington.

Single Dahlia "Veronica", orange-red, each floret tipped with bright amber; fine shape, and very uniform. Also

Flame, yellow flaked, pencilled and striped with orange-red; a flower of fine shape in the way of Lord Rosebery, but distinct from it; and

Daisy, pale ground, flaked and pencilled with dark crimson and purple; novel, distinct, and of the finest shape. From Messrs. J. CARR & Sons, nurserymen, Crawley.

Single Dahlia Edie Obelin, a combination of gold, salmon, and mauve; a beautiful variety, of fine shape; and

Nellie Nicholson, white, the florets having narrow margins of bright rose. From Mr. M. V. SEALE, Vine Nursery, Sevenoaks.

Orchid Committee.

Present: Harry J. Velich, Esq. (in the Chair), and Messrs. Jas. O'Brien (Hon. Sec.), J. Gurney Fowler, De B. Crawshaw, H. Little, A. H. Smea, J. Gabriel, E. Hill, J. Jacques, J. Douglas, H. M. Pollett, H. J. Chapman, W. H. Young, T. W. Bond, and C. J. Lucas.

But very few Orchids awaited the attention of the Committee; the only group being a nice display of the fine white and orange *Dendrobium formosum*, arranged with that beautiful decorative plant, *Acalypha hispida* (Sander!), staged by Messrs. F. SANDER & Co., St. Albans.

Sir TREVOR LAWRENCE, Bart., Burford, showed the very pretty *Cypripedium niveum maculatum*, with pure white flowers, all the parts of which were uniformly spotted with dark purple.

FRED. HARDY, Esq., Tyntesfield, Ashton-on-Mersey (gr., Mr. T. Stafford), again showed *Sophro-Cattleya* x *George Hardy* (*Sophronitis grandiflora* x *Cattleya Aclandiae*), a very charming hybrid, with flowers of a peculiar reddish-scarlet

tint, with yellow base to the lip. It received an Award of Merit when shown on May 10, 1898.

C. L. N. INGRAM, Esq., Elstead House, Godalming (gr., Mr. T. W. Bond), showed four flowers of *Laelio-Cattleya* x *callistoglossa*, Ingram's variety, with very bright dark purple lip.

Mrs. TEMPLE, Leyswood, Groombridge (gr., Mr. E. Bristow), sent *Cattleya Gaskelliana* Temple.

Col. R. W. SHIPWAY, Grove House, Chiswick (gr., Mr. W. Walters), showed *Cattleya* x *Harly-na*, Grove House variety, a very large and highly-coloured form, with extraordinary development of the front lobe of the lip.

Awards.

Cattleya Lueddemanniana alba.—From W. DUCKWORTH, Esq., Shawe Hall, Flixton, Manchester (gr., Mr. H. H. Tundale). This is one of the rarest, and certainly one of the most beautiful albinos among the large-flowered *Cattleyas*. Flowers like those of typical *C. Lueddemanniana*, but pure white, with a clear light yellow centre to the lip (First-class Certificate).

Laelio-Cattleya x *callistoglossa*, *Leon's variety* (*Laelia purpurata Leonis* x *Warszewiczii*).—From H. S. LEON, Esq., Bitchley Park (gr., Mr. Hislop). This gorgeously-tinted hybrid gives a fine example of the good results to be obtained by crossing exceptionally good varieties, the introduction of *L. purpurata Leonis* in this case having resulted in obtaining a form scarcely reconcilable with other varieties of the same cross. The sepals and petals were bright lilac-rose, the fine lip almost entirely of a dark claret-purple, the colour extending to the base. It was but a small plant, and therefore capable of improving even upon its present fine appearance (Award of Merit).

Cattleya x *Kienastiana* var. *Aurore* (*Lueddemanniana* x *Downiana aurea*), from C. L. N. INGRAM, Esq., Elstead House, Godalming (gr., Mr. T. W. Bond). The flowers in some degree resembled a light form of *Cattleya* x *Hardyana*. Sepals and petals soft rose colour, slightly freckled with cream-white; the centre and base of the lip bright golden-yellow, with dark purplish-red lines, the crimped front lobe coloured rose like the petals, and with a purplish-rose irregular blotch in the centre (Award of Merit).

Cryptophanthus hypodiscus, Rolfe (*Masdevallia hypodiscus*, Rolfe).—A very extraordinary and distinct species, whose introduction is due to Consul F. C. LEBMANN. The plant is somewhat smaller in all its parts than *C. Dayanus*, but with the same general appearance, the flowers, like them, bearing some resemblance to a hawk's head, the eye-like windows of the closed sepals showing through, as in *C. fenestratus* and others of its class. The exterior of the flower is rugose, the base purple, the middle portion cream-colour, and the beak-like tip dark brownish-purple. It is a very extraordinary and quaint-looking species, and said to be very free-flowering (Botanical Certificate).

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq. (Chairman), and Messrs. Jos. Cheal, W. Ponpart, M. Gleeson, W. Pope, A. H. Pearson, Alex. Dean, S. Mortimer, G. T. Miles, Geo. Woodward, Geo. Wythes, Robt. Fife, Geo. Bunyard, W. Wilks, and Geo. Reynolds.

Mr. C. ROSE, the gardens, Welford Park, Berks, sent Apple Thomas Andrew Knight, described in the Awards; also a small one named *Margaretta*, but of little value; also Melon The Captain, of moderate quality.

Messrs. W. J. BROWN, Stamford, sent Apple Stamford Beauty, good sized, ribbed, and richly coloured. It greatly resembled Hollandbury, but deeper coloured.

Mr. JAS. RUTTER showed Apple Lord Kitchener, something like Potts' Seedling, but earlier and soft; but as only one fruit was sent, it was passed over.

Messrs. R. VERTCH & Sons, Exeter, had a large Melon named Tannion Hero, an old variety. This was regarded as the same as Golden Gem. It was devoid of flavour. Also from them came a plant and fruits of Tomato Abundance, of the Perfection type, and a heavy cropper. There is an Abundance Tomato already in commerce.

Messrs. G. BUNYARD & Co., Maidstone, showed Apple Bielo Boradawka, of Russian origin.

Messrs. HOBBS, Dereham, Norfolk, had Tomato Wonder of Italy, a variety that has been grown at Chiswick this season under the name of *Semper fructifera*, having been sent from Naples. The fruits are about the size and shape of Damsons, and borne in huge clusters. It does well outdoors, and is very nice for the dessert.

Some large and not handsome Aubergines came from the Chiswick Gardens.

Mr. J. MILLER, gr. to Lord FOLEY, Huxley Lodge, Esher, received a Cultural Commendation for a box of very fine Princess of Wales Peaches.

Mr. G. WYTHES, Syon House Gardens, Brentford, showed green Corn-cobs in six varieties, produced in four months from seed. The cobs were more or less set with seed, but neither seemed so good as Cobbett's Corn, once largely grown in Middlesex.

Mr. S. MORTIMER, Farnham, Surrey, staged twenty-four fine Melons, grown in wooden troughs in a house. The troughs are 18 inches wide and 6 inches deep. To show what fine fruits can be thus produced, one of each of the varieties were cut and tasted, Sutton's Favourite, Hero of Lockinge, and Perfection; the two latter were of delicious flavour, the former was not quite ripe (Silver Banksian Medal).

Mr. F. WALKER, Balcombe, Sussex (gr., Mr. J. Cole), set up a neat collection of fruit, including fine *Esquiste* and

Walburton Admirable Peaches, Magnum Bonum and Pond's Seedling Plums, Violette Hative and Elrige Nectarines; The Queen, Lord Grosvenor, and other Apples; and Morello Cherries (Silver Bankian Medal).

Mr. Taylor, gr. to C. BAYES, Esq., Forest Hill, had a capital collection, including Alicante, Directeur Tisserande, Alnwick Seedling, and Gros Maroc, Black; and Muscat of Alexandria and Foster's Seedling White Grapes; Mr. Gladstone and Princess of Wales Peaches; Coe's Golden Drop, Primate, and late Orange Plums; Williams' Bon Chretien Pears; Cox's Pomona, good Nonsuch and King of Tomkin's County Apples, and several nice-looking Tomatoes (Silver Knightian Medal).

Mr. Geo. Woodward, gr. to ROGERS, Esq., Barham Court, Maidstone, had very fine examples of Beurre Mortillet, and Triomphe de Vienne Pears, fine Sea Eagle and Nectarine Peaches, and capital Humboldt and Rivers' Orange Nectarines, all from the open wall; also fine, rich coloured Dymond Peaches from trees one year planted against a north wall, and capital Royal George Peaches from a standard in the open garden, that has fruited well for eight years (Silver Bankian Medal).

Messrs. W. PAUL & SONS, Waltham Cross, had not only forty-five dishes of fine Apples, very representative, but also eighteen trees in pots, of diverse sizes, and all heavily fruited. These included Beauty of Kent, Lewis's Incomparable, Mabbot's Pearmain, Chelmsford Wonder, Annie Elizabeth, Cellini Pippin, Small's Admirable, Lane's Prince Albert, Belle Pontoise, Peasegood's Nonsuch, and Gloria Mundi (Silver-gilt Knightian Medal).

Messrs. JAS. VERRIC & SONS, Chelsea, set up in very attractive fashion a collection of Tomato plants, in twenty varieties, all heavily fruited, just as they were pulled from the open ground. It was a most interesting collection, and fully displayed the remarkable cropping qualities of varieties this season under such culture. Very fine reds were noted in Frogmore Selected, Duke of York, Perfection, Trophy, Acquisition, Ham Green, Cherry Red, and Conqueror. Good yellows were Golden Jubilee, very fine and handsome; Golden Queen, Golden Cherry, &c. (Silver Knightian Medal).

Mr. E. Beckett, gr. to Lord ALDENHAM, Elstree, set up a superb collection of vegetables of the highest merit. There were forty-seven dishes, and included symmetrical Model and New Intermediate Carrots, Autumn Giant Cauliflowers, Autocrat Peas, Dwarf French and Runner Beans; Satisfaction, Windsor Castle, and Goldfinder Potatoes; Model Leeks, hardy green Coleworts, specially good; Prizetaker, White Gem, and Standard Bearer Celery; The Wildsmith, Cocoa Nut, and Ailsa Craig Onions; long, white, green, and Moore's Prolific Marrows, handsome and luxuriant Cucumbers, White Turnips, and various other vegetables (Gold Medal).

Awards.

App's Ben's Red.—A variety showing rich colour; a seedling from Red Quarrenden and Farleigh Beauty. It is large and red, not unlike Mère de Ménégo, but ripens earlier. From Messrs. GEO. BUNYARD & CO., Maidstone (Award of Merit).

Apple Thomas Andrew Knight.—This was raised from a cross between Cox's Orange Pippin and Peasegood's Nonsuch. The fruits are exactly of the form of Cox's, and have the rich flesh and flavour of that excellent variety; but they were more than double its size, very handsome, and well coloured. It promises to be one of the best dessert Apples in the country. From Mr. C. ROSS, Welford Park gardens, Berkshire (Award of Merit).

Apple Venus Pippin.—A medium-sized, conical fruit, smooth, and handsome. It is greenish-yellow, with soft flesh. A pleasant-eating fruit. From Mr. W. GODFREY, Exmouth (Award of Merit).

Cucumber "Achievement".—A handsome, dark, slightly spiny fruit, with a dense bloom, from Mr. BECKETT, Aldenham House gardens, Elstree (Award of Merit).

"LESSONS FROM THE GREAT DROUGHT OF 1898."

MR. ED. MAWLEY has had so much experience in relation to statistics, and more especially statistics relating to the weather, that his lecture in the Drill Hall on Tuesday last, was expected to be a most interesting one; and so it was.

Amongst the items concerning the drought of 1898, Mr. Mawley stated that in the North of Scotland there was no great deficiency of rain; and in Ireland, not any at all. The North of England was not so badly hit either, the deficiency there being one gal. on or less per square yard per week, reckoning from the beginning of June until the middle of October. In the southern counties the deficiency was 1½ gallons per square yard. This merely confirms what we already knew, for the condition of the soil and crops south of London last year was one that will be long remembered.

The drought was a very severe one, for during a period of sixty-eight days the rainfall was less than half a gallon per square yard per week. But it was an essentially autumn drought. Mr. Mawley, by displaying several diagrams, and by quoting figures in abundance, gave his audience facts relating to the actual rainfall during last year's drought in the different counties, and during selected periods of the drought. He compared that of 1898 with former droughts, referred to the value of summer and winter rains, respectively; quoted the number of droughts experienced for the past eighty-four years, and gave a great deal of relevant information including a little about that drought through which we have just passed.

Then turning to the practical side of the question, Mr. Mawley said that the only natural source of moisture for crops, was that obtained from rain and dew, in addition to that already stored in the soil.

To economise during drought the moisture already in the

earth, Mr. Mawley recommended (1) The good old custom of thorough trenching for flowering plants and kitchen-garden crops. The soil will then the better conserve the moisture, and the roots be better enabled to penetrate deeply; (2) Mulching with farmyard or other manure, not thicker than 8 inches; but it is well never to apply a mulching before the latter end of May, as until then, the warmth of the soil is more valuable than moisture; (3) Hoing frequently the surface of the soil to the depth of about 8 inches, and so ensure a layer of fine, dry soil, which will largely act as a conservator of moisture; (4) Well manuring the soil before planting, with farmyard animal manure, or decayed vegetable matter; (5) Water should only be applied on a large scale, when experience has proved that other means will not be sufficient. If water is afforded, the applications should be thorough and infrequent; (6) Selection of crops for the garden of species and varieties, which, by possessing a habit of rooting deeply, or an extra robust constitution, will not feel the effects of drought so severely.

Mr. Geo. Bunyard said that at Maidstone they found that cow-dung and kainit, both of which manures contain a proportion of salt, were excellent manures for dry soils. He thought also that much more use might be made of common salt for the same purpose.

NATIONAL DAHLIA.

NEW DAHLIAS AT THE CRYSTAL PALACE.

SEPTEMBER 1, 2.—One remarkable feature of the exhibition of the National Dahlia Society's show held at the Crystal Palace last week was the large number of new Cactus varieties staged, and they appear to be becoming as plentiful as the new Japanese Chrysanthemums.

Messrs. Keynes & Co., Burrell & Co., J. Stredwick, J. Green, and others are busy raising new varieties, and despite the care exercised by the committee of the National Dahlia Society in awarding Certificates of Merit, not a few new varieties were so honoured, and it is satisfactory to note that with increased variety in the flowers, and with acceptable changes in the form of the flowers, there is decided improvement in the habit of growth; the plants grow dwarfer, are more bushy in growth, bloom much more freely, and throw their flowers well above the foliage. This may not be true of every new variety; but the time has arrived when habit of growth should be considered in granting awards in the form of Certificates of Merit. The time has come when a lofty ideal should be set up, and adhered to.

Certificates of Merit were awarded to the following new Cactus Dahlias:—William Tresseder, bluish, the basal petals tinted with delicate lilac—a charming light variety, from Mr. W. TRESSADER. Innovation, in the way of The Clown, the fluted petals deep crimson, with white tips, and the centre of the flower white—a fine exhibition variety; Emperor, ruby, flushed with purple, and dark centre—a purple Gloriosa; and Mrs. J. Crowe, delicate yellow, a medium-sized variety of great refinement—all three from Messrs. KEYNES, WILLIAMS & Co. Mrs. Sanders, pale yellow, a soft and pleasing tint, and of the best Cactus type; Major Weston, bright crimson, with darker centre—a bold and striking variety; Mayor Tuppenny, salmon-red, with yellow centre, novel and distinct; Augustus Hare, rich orange-red, very bright and effective; and Uncle Tom, shaded maroon, with black centre, a good addition to the dark varieties—all the foregoing five were raised and exhibited by Mr. J. STREDWICK, Silver Hill, St. Leonards. To Elsie, a lovely variety, yellow ground, the petals tinted mauve-pink, from Messrs. J. BURRELL & Co., Cambridge. To Green's White, the finest white yet produced, pure, perfect in form, and a grand exhibition variety; and to Zephyr, soft rosy-pink, delicate and beautiful, and of the best Cactus type, from Mr. J. GREEN, Norfolk Nursery, Dereham. Red Rover, a large and very striking deep-red variety, of perfect Cactus shape, was passed over, apparently because of its large size; but as no authority has set up a limitation of size, and as it has all the true Cactus character, the objection was scarcely logical. Increased size is certain to appear in the newer Cactus Dahlias; it is one of the certain results of development. Two pretty single varieties also received Certificates of Merit: one, Girle, cream, with narrow side edgings of pale red, and of fine shape, from Miss E. J. GIRDLESTONE, Sunningdale; and Flame, orange-flaked, and pencilled with orange-crimson, from Messrs. J. CHEAL & SONS, Crawley.

WARGRAVE AND DISTRICT GARDENERS.

SEPTEMBER 6.—A meeting was held on this date, and Mr. W. H. SCOTT read a paper on "Begonia Culture." He said Van Houten was the first hybridiser, and brought the plant to the notice of the public as a florist's flower. The Begonia had a robust constitution, and would stand a certain amount of severe handling. He then described experiments he had made on the plant with various chemical manures, and gave his opinion that nitrate of soda produced the best results.

Mr. J. HASKETT followed with a short practical paper on "The Onion." The varieties, the structure of the bulb, the colour, manures, and enemies, were in turn touched upon. Soot and wood-ashes were recommended as the best manures. Potato Onions were advocated as the best cottagers' Onion, being enormous croppers, and growing anywhere.

The exhibits included some fine Giant Rocca Onion (Mr. HASKETT), Charlton's Beet (Mr. FULLERBROOK), Noblesse and Royal George Peaches (Mr. GREENAWAY), and two dishes of Tomatoes (Mr. FORZ).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

SEPTEMBER 7.—Present: Messrs. G. Shortland Ball (chairman), R. Johnson, W. Duckworth, Chas. Parker, and P. Weathers (Secretary).

Messrs. CHARLESWORTH & Co., Heaton Bradford, staged a few handsome Orchids, amongst which were Lelia Iona, L. tenebrosa × L. Dayana, a bright little flower, showing the parentage very distinctly; the size of L. Dayana, however, is maintained, thus proving somewhat a drawback to the production. Lellio-Cattleya × Admiral Dewey was the best plant shown by this firm, and was awarded a First-class Certificate. Lycaste Denningiana was shown with one flower of good proportions, and received an Award of Merit. Cypripedium × Mrs. Harry Smith is one of the numerous results which are showing themselves just now of O. Rothschildianum hybrids, the other parent in this case being C. Veitchii, Demidoff's var.; the result is a fine bold flower, well-balanced, and handsome (Award of Merit). A very fine plant of Houletia Brocklehurstiana came from the same firm, bearing upwards of a dozen fine flowers, which are sweetly scented (Award of Merit).

J. LIEHMANN, Esq., of Heaton Mersey, showed a fine plant of Vanda Sanderiana, with a spike of fine flowers of good form and colouring (First-class Certificate).

Mrs. BARCOE-BURY, Accrington, sent Cypripedium × Leone in good form, but it failed to receive an award; as did also a peculiar Odontoglossum which is certainly a hybrid between O. Alexandrinum and Pescatorei, the latter species being traceable plainly in the labellum.

Mr. A. J. KEELING showed a good Cypripedium hybrid between Veitchii × Morganie; the flower was of a remarkably pale colour, comparable to C. T. B. Haywood in this respect, but of much more handsome form, being like C. Morganie in the droop of its petals, with the markings of C. Veitchii, while the dorsal sepal was almost purely C. Veitchii (Award of Merit). The same exhibitor showed a very good form of R. elegans var. Schilleriana, which had a magnificently-coloured lip, and splashed with rose in the petals.

The gem of the meeting was Cattleya speciosissima alba, a variety I think seen for the first time in this country; from the general habit of the plant one would take it for an ordinary C. speciosissima. The flowers (two) were of a very fine type, being strong and well formed, and of a fine opaque white. This plant was greatly admired by the amateurs present. Mr. Duckworth, possibly one of the most enthusiastic young amateurs of the day, must be congratulated in having such a treasure in his collection. The Committee unanimously awarded a First-class Certificate, and ordered the Society's artist to paint it for record.

GALLOWAY HORTICULTURAL.

SEPTEMBER 7.—After a lapse of one year, the Galloway Horticultural Society held a show in Castle-Douglas, on the above date. There was a good turn-out of exhibits, the entries being equal to those of former years, both as regards numbers and quality.

Mr. J. M. STEWART, Mollace, obtained the Lever Silver Cup offered to the most successful exhibitor, having 88 points; while Mr. J. AUSTIN, Hardgate, was awarded the 2nd prize, a Silver Medal, he having 44 points. Mr. J. M. STEWART carried off nearly all the awards in the gardeners' class, and besides took honours in the open class for Grapes and for table or pot plants (arranged for effect). Mr. AUSTIN was also the most successful exhibitor in the amateur department. Messrs. JOHN BLYTH & SONS, Castle-Douglas Nursery, exhibited a good table of plants and cut blooms. Mr. THOMAS MYERS, Gowanlee, made an energetic secretary.

BRENTWOOD HORTICULTURAL.

SEPTEMBER 7.—The autumn exhibition was held, as usual, under tents in the grounds of Middleton Hall. All the classes were for cut flowers, fruit, vegetables, and table decorations; and there was, on the whole, a very satisfactory exhibition.

Dahlias formed one of the leading features. The best twenty-four varieties, which included the leading show and fancy flowers, were from Mr. HARRIS, Chelmsford; Mr. Joy, gr. to H. RAPHAEL, Esq., was 2nd.

With twelve varieties in the class for amateurs, Mr. J. O. QUENWELL was 1st; and Mr. A. STARTING, Rosecourt, Havering, 2nd.

Cactus Dahlias were numerous shown in the class for twelve blooms. The 1st prize was won by Mr. T. BROWN, gr. to W. B. PARKER, Esq. Roses were rather sparsely shown.

A charming arrangement for a dinner-table was set up by Mrs. W. GREEN, jun., Harold Wood. Roses, Marguerites, and other flowers of soft tints, being tastefully arranged with foliage. This proved one of the most attractive features in the show.

FRUITS AND VEGETABLES.

The best collection of six dishes of fruit came from Mr. W. GREEN, jun., Harold Wood; and he was placed 1st in three classes for two bunches of Grapes, having very good examples. The best two bunches of white grapes were Foster's Seedling, from Mr. J. ELLER.

Peaches, Nectarines, Plums, in three classes; dessert and culinary Apples, Pears, and Currants were all in good character, and the competition in some of the classes was very keen.

Mr. TULLETT was 1st with nine dishes of vegetables; and the 1st of Messrs. Sutton & Sons' special prizes for six varieties was won by Mr. T. A. Beckett, gr. to Mrs. McIntosh, Havering. Vegetables generally were good, especially Potatoes, Celery, and Onions, in which fine Ailsa Craig was prominent.

NON-COMPETITIVE EXHIBITS.

A large and representative collection of Dahlias was set by Mr. J. T. West, Tower Hill, Brentwood.

Messrs. SALTMARSH & SON, nurserymen, Chelmsford, had a collection of Cactus Dahlias, Asters, Pentstemons, Zinnias, &c., and also of fruit.

WELLINGBOROUGH AND MIDLAND COUNTIES DAHLIA.

SEPTEMBER 8, 9. — Wellingborough can claim to have created a very successful Dahlia Society; and also to have called into existence a number of growers for exhibition. This was the fourth exhibition, and so decided was the increase in the number of entries, that the spacious Corn Exchange was filled to overflowing, making the work of judging somewhat arduous. Wellingborough is an excellent Dahlia growing district, and an appropriate centre for a midland exhibition.

Certain classes open to all comers brought the southern growers in strong force, and in the leading class for forty-eight show and fancy Dahlias, there were six entries; Mr. JOHN WALKER, nurseryman, Thame, adding to his triumphs of the present season by taking several 1st prizes. He was 1st in the class for thirty-six blooms, out of six competitors, having good-sized, symmetrical examples. Mr. M. V. SEALE, Vine Nursery, Sevenoaks, was a close 2nd.

With twenty-four blooms, there being seven competitors, Mr. WALKER was again 1st, and also for twelve blooms in class 3; Mr. S. MORTIMER, Swiss Nursery, Farnham, was 2nd in both classes.

The competition was remarkably keen in all three classes, and the judges regretted they could not award extra prizes.

Cactus Dahlias, staged as in the case of show Dahlias, were shown in two classes, one for eighteen blooms, the other for twelve blooms. Mr. S. MORTIMER was placed 1st in the former class, having in excellent character many leading varieties. Mr. SEALE was 2nd.

In the class for twelve blooms, there were eight competitors, Messrs. KEYNES, WILLIAMS & Co. taking the 1st prize with excellent flowers; Mr. S. MORTIMER was 2nd.

Bunches of Cactus blooms in twelve varieties, three blooms of each, were a fine feature, Messrs. KEYNES & Co. taking the 1st prize with the following in admirable character:—Mary Service, Loyalty (new), Magnificent, Charles Woodbridge, Keynes' White, Progenitor (new), quite a novel and distinct type; Mrs. Carter Page (new), Innovation (new), Loadstone (new), Starfish, Ebony, and Mrs. J. J. Crowe (new); Mr. R. Keeble, gr. to F. W. SHARPLES, Esq., Great Martins, Twyford, Berks, was a close 2nd, setting up flowers of fine quality.

Equally fine in quality were the bunches of twelve varieties of Pompon Dahlias. Mr. GEO. HUMPHRIES was 1st with medium-sized, even fresh blooms; and Messrs. KEYNES & Co. were 2nd.

Mr. SEALE was 1st with six bunches of single Dahlias, a very pretty selection, consisting of Jeannette, Alice Seale, Leslie Seale, Gulleim, The Gelsa, and Trilby; Mr. J. WALKER was 2nd.

Special prizes were offered by Mr. C. Turner for six blooms of one variety of fancy Dahlia. Mr. SEALE was 1st with Professor Fawcett, a model half-dozen blooms, finely marked; Mr. G. HUMPHRIES was 2nd, with Mrs. J. Downie, in excellent character.

The best three blooms of a yellow self were those of Mabel Stanton from Mr. SEALE.

AMATEURS' CLASSES.

In the two classes for show Dahlias, Messrs. SPRIGGS, T. PENDERED, and W. PRENTICE, were the principal prize-winners. Cactus flowers shown in bunches, as well as on boards, and Pompons, were shown in good character. Messrs. Keynes & Co. offered special prizes for twelve blooms of Cactus Dahlias sent out from Salisbury; the 1st prize was won by Mr. T. PENDERED, with very good flowers.

Messrs. WALKER & HUMPHRIES offered special prizes for Show and Fancy Dahlias exhibited by cottagers, and very creditable blooms were staged.

A Gold Medal, offered by Mr. R. DEAN, for the best eighteen blooms of Cactus Dahlias, brought a good competition, and it was awarded to Mr. J. YORK, Desborough.

There were open classes for fruit, in which good Grapes, Apples, Pears, and Plums, were staged; also, for esperegues and bouquets of Dahlias, and for Asters and vegetables exhibited by cottagers; and there were brisk competitions in all the classes.

The leading growers and exhibitors present, with the judges, formed a Floral Committee, awarding Certificates of Merit to new varieties of Dahlias.

Mr. J. GAKEN, sent from Dereham, a very interesting collection of new Cactus and Pompon Dahlias, among the former were the large Red Rover, Green's White, Zephyr, Grace Darling, Golden Plover, Eclair, &c., with some older varieties; this collection was highly commended; as was also a collection of twelve varieties of new seedling Dahlias, from Mr. SEALE, of Sevenoaks.

ROYAL CALEDONIAN HORTICULTURAL.

[SEPTEMBER 18 14.—The autumn exhibition of this Society was held on Wednesday and Thursday, in the vast Waverley Market, Edinburgh. At one time fruit bulked most largely among the exhibits at this show, and though it holds a more prominent position than ever, the quantity of cut flowers arranged and staged in the most attractive manner by nurserymen, as well as tables of plants suitable for decorative purposes, set up by the same public-spirited tradesmen, have now eclipsed the fruit as a show; and to these gentlemen the gardening public of the north are greatly indebted for these grand educational displays.

In order to gain a little extra time for the competitive exhibits, the following notes were made previous to the judging of the former.

NON-COMPETITIVE EXHIBITS

Among cut flowers, Mr. M. CUTHBERTSON, Rothessay, set up a very bright group, mainly of Montbretias, Cactus Dahlias, Lemoine's Gladiolus, Michaelmas Daisies, &c.

Messrs. KEIR BROS., Dumfries, has a splendid exhibition of Dahlias of all sections; and from Mr. CAMPBELL, High Blantyre, there was a large group, composed mainly of Pompon Dahlias, Border Carnations, including his new yellow variety, Miss Alley.

From Mr. JOHN FORBES came a unique collection of hardy florists' flowers, including the newer French Phloxes, Hollyhocks, Carnations, Dahlias, and a lot of herbaceous cut flowers.

Mr. IRVINE, Jedburgh, had a group of Pentstemons in variety, all his own raising, and characterised by brightness of colouring, along with lengthy spikes and good form of bloom.

Messrs. H. CANNELL & SONS, Swanley, Kent, along with a group of the best large-flowering Cannas, brought a superb collection of the best Cactus Dahlias, the blooms, in bunches of six, being arranged with sprays of Aster ericoides in bud.

Messrs. WALLACE & Co., Colchester, set up a nice table of various autumn-flowering Lilies, Montbretias, and Gladioli.

Mr. HENRY ECKFORD had, as usual, examples of his lovely Sweet Peas, including the charmingly tinted new form, Lady of Rinning.

Messrs. DOBBIE & Co., Rothessay, confined their efforts to an exceedingly effective and large group of all sections of Dahlias, among which none was more pretty than the stately, single-flowered Cactus varieties.

Mr. ROWATT, Glassford, staged fine Pentstemons.

Messrs. T. S. WARE, LTD., Hale Farm Nurseries, Tottenham, staged a most extensive exhibit of double and single Begonias.

Messrs. CLIBRAN & SONS, Altrincham, staged a very fine lot of Celosia pyramidalis in various colours, salmon, yellow, magenta, rose, and crimson; also a number of pots of St. Joseph Strawberry full of fruit.

Mr. DOWNIE, Princes Street, Edinburgh, had a charmingly arranged group of decorative plants arranged on the floor of the building; while another group, equally effective, was set up by Messrs. LAIRD & SONS, who also showed collections of shrubs and cut Dahlia blooms in variety.

Messrs. CUNNINGHAM, FRASER & Co. had a nice lot of decorative shrubs.

Mr. J. RUSSELL, Richmond, showed a collection of Ivies; Mr. HILL, Edmonton, Ferns; and Messrs. H. Low & Co., Clapton, Orchids. From Mr. H. J. JONES, Lewisham, came a nice group of decorative plants, such as Crotons, &c.

COMPETITIVE CLASSES, CUT-FLOWERS (AMATEURS).

In the Competitive Cut-flower Classes, Mr. A. BRYDON, Innerleithen, had the finest exhibit of twelve spikes of herbaceous perennial flowers in a large class; Mr. HOOD, Dalmore, Hellenburgh, the finest collection of twelve Tea Roses; Mr. W. MELVILLE, was 1st for twelve H. P.'s, having beautiful blooms, and he was 1st also in the class for six blooms of a pink Rose, showing fine specimens of Caroline Testout.

In a large class, Mr. ANGUS, Aberdeen, was 1st, for twelve bunches of Sweet Peas.

The finest Dahlias were from Mr. VITCH, Carlisle; and the prizes for the best and most tastefully arranged dinner-table decoration were secured respectively by Mr. MARTIN and by Mrs. DUNCAN, Fogo.

NURSERYMEN.

In the Nurserymen's Classes the cut Roses formed a grand display, the blooms generally being large and well coloured.

For thirty-six blooms, Messrs. D. & W. CROLL, Dundee, were 1st, and also for eighteen blooms; Mr. SMITH, Stranraer, being 2nd in both classes.

For twenty-four Roses, Messrs. CROLL were again successful.

The tables of herbaceous perennial cut flowers brought out three exhibitors, Messrs. HARKNESS & Co., Bedale, Yorks, being 1st. It comprised grand masses of blooms, in the freshest condition, of the leading flowers now in bloom. Messrs. J. COCKER & SONS, Aberdeen, were a very close 2nd; and Messrs. KEIR, BROTHERS, Dumfries, 3rd.

The best thirty spikes of Gladioli were shown by Mr. GEO. MOIR; Mr. FORBES, Hawick, taking 1st for eleven spikes of Hollyhocks; Mr. CAMPBELL, Blantyre, had the best twelve blooms of Carnations; and Mr. JOHN FORBES the best twelve blooms of Picotees.

FRUIT CLASSES.

In the fruit classes there was a grand collection of Grapes. Mr. T. LUNT, gr., Keir, securing 1st, both in the classes for six bunches and for four bunches; the Muscats being hardly so

well finished as those shown by the same exhibitor at Shrewsbury. In the class for six bunches, he staged Muscat of Alexandria, Mrs. Pince, and Alnwick Seedling; Messrs. BUCHANAN, Kippen, were a close 2nd with Muscats, slightly green, three magnificent clusters of Alicante, weighing respectively 5½, 6½, and 7½ pounds, and a fine bunch of Cooper's Black. In the four bunch class, Mr. LUNT staged Mrs. Pince, Muscat of Alexandria, Madresfield Court, and Cooper's Black. Messrs. BUCHANAN were 2nd in this class also, a fine cluster of their oval-berried black seedling, Diamond Jubilee, being one of the four staged.

Mr. LUNT was again successful with two bunches, and with one bunch of Muscat of Alexandria, with large, fine, and well-coloured clusters.

The best two bunches of Black Hamburg Grapes were shown by Mr. A. KENACHER.

Messrs. D. & W. BUCHANAN had the finest Alicante and Alnwick Seedling Grapes. The finest-flavoured Black Grapes were shown by Mr. D. MURRAY, Culzean Castle gardens. The best White Grapes for flavour were shown by Mr. LUNT; and the Grapes showing the finest bloom by Mr. GREEN.

HARDY FRUITS.

Of hardy fruit there was a very large exhibition of well-grown produce. Mr. BARNES, gr., Eaton Hall, Chester, had the best twelve varieties of Apples; Mr. WILLIAMSON, gr., Tarrit House, the best collection of dessert Plums; Mr. DAY, gr., Galloway House, Kirkcubright, taking a like position in the culinary class.

Peaches, Nectarines, Melons, and Figs were also well shown. Mr. A. IRELAND and Mr. DAY had the best Pears.

DECORATED DESSERT TABLE, AND COLLECTIONS OF FRUIT.

For the best decorated dessert table, Mr. BARNES, Eaton Hall, was the only exhibitor, and was awarded 1st prize. The fruit staged was fine, especially the Apples, Pears, and Peaches; and the floral decoration simple. The flowers used were Odonoglossum Alexandrine and Lily of the Valley, in vases.

Mr. MURRAY, gr. Culzean Castle, was 1st for a collection of twelve sorts of fruit, and included excellent Grapes, Peaches, and Nectarines; Mr. SMITH, Oxenford, 2nd.

PLANTS.

In the plant classes, Mr. WOOD, Canaan Lane, Edinburgh, had 1st prize for a table of plants arranged for effect.

Mr. MCCARTNEY was 1st for four stove or greenhouse plants in flower.

Mr. LUNT won in the classes for six foliage plants; six foliage plants in 9-inch pots; two Crotons, Palms, and Adiantums.

The best six Ferns were staged by Mr. J. H. PEARSON; and Mr. SHARP, Freeland, Perth, was 1st for four Orchids, for one Orchid, and for three Cypripediums.

VEGETABLES.

The vegetable classes were very largely filled, in some cases as many as thirty-three, thirty-six, and forty-two entries having been made in a class.

For a collection of twelve kinds there were eight entries, Mr. J. DYMCK securing the 1st prize, with fine produce and Mr. J. WALDIE was 2nd.

The Floral Committee.

The first meeting of the Fruit and Floral Committee was held on the afternoon of Wednesday.

At the latter a seedling Dracena, with broad foliage, having white markings, and named The Birdar, from Mr. ANGUS, Norwood Hall, Cults, Aberdeen, was recommended a Certificate; as was a golden variegated Ilex maderiensis, named Fraseri, from Messrs. CUNNINGHAM & FRASER, Comely Bank, Edinburgh; also a yellow-flowered Chrysanthemum, named Craig Millar, from Messrs. DICKSON & Co., Edinburgh; and a yellow Carnation from Mrs. WHITEHEAD, Selkirk, named Mrs. Whitehead.

The Fruit Committee

awarded Cultural Certificates to Mr. R. CAIRNS, Balnaddery, Dundee, for Apple Emperor Alexander, and Pear Pitmaston Duchess.

ENQUIRIES.

"PHYTOPHILIST" writes:—"Having noticed in your last week's issue some useful recipes for various garden purposes, it is suggested to me to write and ask you if you could give a good recipe for making some strong adhesive composition, which might be applied to strips of cloth or linen, so as to make them adhere to a wall? I find that I am unable to drive nails into a cemented wall against which I am trying to train Ivy, and I wish to bring the young-growing shoots (which are sometimes apt to grow away from the wall) into close contact with the wall. I have used some strong adhesive (sur-

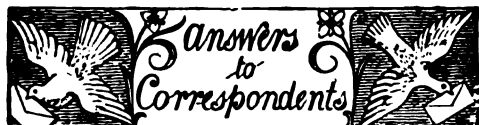
gical) strapping, but it is not strong enough in its adhesive power when the shoot is somewhat twisted or perverse."

PINE-BEETLE IN SCOTS FIR.—A correspondent would be glad to know how soon after the wood has been cut down will the beetle become extinct, and when could the ground be re-planted with safety?

HORSE-CHESTNUTS AND LIGHTNING.—Is the tradition a correct one, that Horse-Chestnut trees are non-conductors of lightning, and for this reason are planted round the houses in North Wales? Does this custom prevail in other parts of the country? and is it a reliable safeguard? *L. E. E.*

TRADE NOTE.

WE are informed that the partnership which existed between Messrs. Thos. Rigg and Walter Fixter, at South View Nurseries, Caversham, has been dissolved, and that in future the business will be conducted by Mr. Thos. Rigg.



BOOKS: *H. S. D.* The best is the *Illustrated Dictionary of Gardening and Encyclopedia of Horticulture*, by George Nicholson, A.L.S., published in four volumes by Upcott Gill, price about £3. Or there is *Johnson's Gardeners' Dictionary*, published in one volume by Geo. Bell & Sons, York Street, Covent Garden, London. This is a much cheaper work, and though small is worth the price.

CATERPILLAR: *A. W.* The caterpillar of the Death's-head Moth, Sphinx Atropos; feeds on Potato leaves, &c.

CHRYSANTHEMUM: *Mutual Friend.* It is not usual to leave such a shoot when "taking" or selecting the flower-bud; nor is it necessary to do so. You may convince yourself of the better of the two methods by practising both for a time. We think you will find little difference in the mature flowers.

DISEASED CATTLEYA: *E. T.* The diseased condition shown in the bulb of *Cattleya Dowiana aurea* has become common of late years, *C. Warscewiczii*, *C. Dowiana*, and others of that class being specially liable to this disease, the contributory conditions of which have not as yet been correctly determined. Among Orchid growers it is conceded that no blame attaches to those in charge of the plants, as the disease attacks the plants grown under different kinds of treatment.

EEL-WORMS: *A. A. L. S.* Simply to dig the land one or two spits deep is not enough to destroy the worms, as they would be sure to come near the surface, and feed on the roots of whatever plants and weeds they found there. If grass-land were dressed twice or thrice a year for a number of years with nitrate of soda or other chemical manure, the worms might be destroyed. For various reasons, turf in which there are eel-worms should be cut and carted to the earth deposit in the winter, and preferably when it is not sodden with moisture. If but small quantities of pasture-loam be wanted at a time, baking it is best.

ELAEAGNUS ARGENTEA: *Phytophilist.* The plant is deciduous.

GRAPES: *A. V.* The fruit is in such a condition that it is difficult to say what conditions have led to such a result. The mildew is clear enough, but this would not account for the berries cracking before ripe. Is your border well drained? Had you sent the fruit when first the trouble was noticed, an opinion might have been formed on them. But they are now a decaying mass only. *J. J.* The berries sent are "shanked," a condition which points to something being wrong at the root, or to over-cropping this year, or earlier, and other causes. The colour is likewise not up

to the mark. Examine the border and the roots of the Vines, obtaining the advice of some good gardener in your neighbourhood in carrying out the certainly very necessary renovations.

INSECTS: *Alpha.* The exact nature of the objects you send is very doubtful. We are inclined to think that they are the eggs of some insect attacked by a fungoid growth. We should not anticipate any mischief arising from them. *C. O. W.*

LYGODIUM SCANDENS INFESTED WITH SCALE: *Phytophilist.* Try the effect of syringing the plant with water at a temperature of about 150°.

MELON: *C. W. H.* The soil is quite unsuitable for Melon-growing, and that is probably the cause of the fruits being so very small. Can you not obtain some stiffish pasture-loam, or good garden soil?

NAMES OF FRUITS: *G. W.* We must ask you for a better specimen.—*S. B.* We must ask you for a better specimen, or, which would be better, two specimens. It is unfair to present for identification an Apple that is three parts decayed.—*H. H.* 1, Dr. Harvey; 2, Scarlet Leadington; 3, Fairy.—*G. N., Cheltenham.* 1, Pott's Seedling; 2, Ribston Pippin; 3, Curlytail; 4, Pear Martin Sire; 5, Flower of Herts; 6, Herefordshire Beefing.—*T. R., Sussex.* The Pear was quite rotten, but resembles the Summer Doyenné; the Apple appears to be a highly-coloured Red Hawthornden or Greenup's Pippin.—*W. O., Lancashire.* 1, Calville Blanche d'Été; 2, unknown.—*A. C.* 2, Worcester Pearmain; 3, Loddington; 4, Lane's Prince Albert. The Plum should have been packed separately.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*R. A.* A variety of single Dahlia.—*Grover.* *Odontoglossum Lindleyanum.*—*J. H. W.* *Eichornia crassipes*, figured in *Bot. Mag.*, t. 2932, as *Pontederia azurea*.—*W. W. Dicksonia* (*Cibotium*) *Barometz.*—*S. A.* 1, *Cyperus longus*; 2, *Begonia incarnata metallica*; 3, *Carex tinctoria*; 4, *C. latifolia*; 5, *Othonna crassifolia*, a very pretty plant for suspending in a cool-house.—*G. W. R.* *Datura Stramonium*, the Thorn Apple, a poisonous plant cultivated for the druggists. Apply to some wholesale druggist.—*A. T. C. J.* 1, *Equisetum arvense*; 2, *Astrantia major.*—*Blyth.* 1, *Schubertia graveolens*; 2, *Diervilla* (*Weigela*) *hortensis variegata*; 3, *Abutilon vexillarium variegatum*; 4, *Codiaeum* (*Croton*) *picatum*; 5, *C. Weissmanni*; 6, *C. chrysophyllum*; 7, *C. elegantissimum*; 8, *C. variegatum.*—*W. S.* 1, *Solidago species*, not *Tarragon*; 2 and 3, varieties of *Hibiscus syriacus*. *J. Miller.* 1, *Choisya ternata*; 2, *Phyllirea angustifolia*; 3, *Andromeda* probably, send when in flower; 4, *Taxodium distichum*; 5, *Phyllanthus nivosus*; 6, *Olearia Haasti*. No label, *Keria japonica*; fruit is *Pyrus japonica*. The bark may be as you state, that of *Wellingtonia gigantea*. We see no disease; it is the natural condition of the bark.—*Cambrian.* 1, *Lepidium rudale*; 2, *Senebiera coronopus.*—*Turti.* 1, *Negundo fraxinifolium*; 2, *Robinia pseudacacia* var.; 3, *Quercus coccinea*; 4, *Berberis vulgaris*; 5, apparently a variety of *Laburnum*; 6, *Salix rosmarinifolia.*—*Fuchsias* and *Pelargoniums*. Impossible to name such specimens as you send. Send good specimens to some nurseryman who deals in such plants.—*H. G. B. H.* sends leaves only. 1, not recognised; 2, *Abutilon Souvenir de Bonn*; 3, *Cratægus species*; 4, *Colutea arborescens*; 5, *Pseudotsuga Douglasii*; 6, *Calycanthus occidentalis.*—*F. S.* 1, *Sanguisorba officinalis*; 2, *Santolina incana*; 3, *Asparagus* sp.; 4, *Russelia juncea*; 5, *Smilax* sp.—*H. Kempshall.* *Betula nana*, a Scots species.—*W. H. M., Munchea.* 1, *Physalis Francheti*; 2, *Arctostaphylos uva urse.*—*C. G.* 1, *Thalictrum flavum*; 2, *Chenopodium polyspermum*; 3, *Akebia quinata.*—*T. B.* Send when in flower.

NASTURTIUM: *W. S. W.* The flowers were quite faded, so that the variety could not be determined. These plants come fairly true from seed, and they may be propagated from cuttings taken at this season and rooted in a cold frame, or from stock plants in gentle warmth in the spring.

NATIONAL DAHLIA SHOW.—In the amateurs' classes for Cactus Dahlias, at the Crystal Palace

Show, the 2nd prize for nine bunches was won by W. G. Handcock, Esq., Kingsnorth, Ashford (gr., Mr. Smith).

NEGLECTED LAWN: *Lawn.* If the lawn is not uneven, that which you purpose doing should suffice. You might supplement the top dressing with stiff loam, some slaked lime, and wood ashes. Turf may be laid from October to April, in mild weather.

PEARS FOR EAST WALLS, NEAR NEWCASTLE-ON-TYNE: *Matfen.* You might try Williams' Bon Chrétien, Dr. Jules Guyot, Triomphe de Vienne, Pitmaaston Duchess, Althorpe Crassane, Beurré d'Aremberg, Beurré Diel, Beurré Hardy, Eye-wood, Summer Franc Real, Conference, Jersey Gratioli, Jargonelle, and Napoleon.

ROSES FOR FORMING A HEDGE: *Cymru.* See note on p. 228.

TEA PLANTER, &c.: *F. J.* You should advertise your wants in the *Times of India*, the *London Times*, or other newspapers circulating in the East Indies; also scan the advertising columns of this and other likely journals. Some practical experience in horticulture would be an advantage, as would the possession of a little capital.

USE FOR A SPARE CUCUMBER-HOUSE IN THE WINTER: *Midland.* Naturally we should suggest Cucumber cultivation; and failing this, there are winter-flowering Carnations, requiring very little heat, Roses in pots or troughs, Mushrooms, Rhubarb, Asparagus, Mustard-and-Cress, all of which would fetch fair prices in the neighbouring towns.

COMMUNICATIONS RECEIVED.—*A. E. B.*—*R. H. W.*—*X. Y.*—*A. B. C.*—*H. W. W.*—*A. G. T.*—*J. I.*—*Chas. Ross* (with thanks).—*F. R.*—*Japonica.*—*T. D.*—*C. P.*—*D. T. F.*—*R. D.*—*A. O'N.*—*J. F. H.*—*E. B.*—*G. M.*—*T. W. O.*—*A. W. T.*—*J. P. K.*—*G. G. C.*—*F. C.*—*Buda-Pesth.*—*T. B.*—*L. Bohmer* & Co.—*R. T.*—*G. G.*—*G. F. Grindley.*



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (−) the Mean for the week ending September 9.	ACCUMULATED.				More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 45° for the Week.	Below 45° or the Week.	Above 45°, difference from Mean since January 1, 1899.	Below 45°, difference from Mean since January 1, 1899.					
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Inch.				
0	3 +	100	0	+ 354	− 6	2	145	28 0	31	30
1	3 +	104	0	+ 219	+ 20	5	133	21 0	32	33
2	4 +	128	0	+ 360	− 93	4	119	15 4	44	33
3	6 +	151	0	+ 412	− 196	2	107	13 6	50	44
4	5 +	141	0	+ 424	− 141	6	106	16 9	46	41
5	6 +	161	0	+ 536	− 183	2	91	14 5	64	48
6	3 +	106	0	+ 272	− 49	7	142	30 5	35	34
7	3 +	127	0	+ 421	− 146	5	128	22 2	46	39
8	6 +	149	0	+ 555	− 121	6	115	24 6	61	46
9	3 +	113	0	+ 323	− 72	4	149	23 7	38	34
10	3 +	129	0	+ 448	− 54	6	126	27 8	41	39
* 6 +	169	0	+ 634	− 67	67	4	108	17 0	68	55

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London. Principal Graining, &c., Districts—6, Scotland, W. 7, England, N.W.; 8, England, S.W.; 9, Ireland, N. 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending September 9, is furnished from the Meteorological Office:—

"The weather was fair or fine in all except our most northern and north-western districts during the earlier days of the week, but subsequently became very unsettled for a time, with considerable falls of rain and thunderstorms in places. Towards the end of the period the conditions had again become fair and dry over England and Ireland, S."

"The temperatures continued above the mean, the excess ranging from 8° in Ireland, Scotland, and England, N.W., to as much as 6° in England, E., S., and S.W., and the Channel Islands. The highest of the maxima were recorded on the 5th over England, earlier in the week in Ireland, and on irregular dates in Scotland; they varied from 89° in England, S., and 88° in England, E., to 73° in Scotland, N., and Ireland, S., and 71° in Scotland, W. The lowest of the minima, which were registered on somewhat irregular dates, ranged from 37° in England, S.W. (at Llandover), and 40° in Scotland, W., and Ireland, N., to 47° in England, S., and 52° in the Channel Islands."

"The rainfall was less than the mean in most districts, but more in England, S., and the Midland Counties; in the latter district, the fall was twice as large as the normal value. During a severe thunderstorm which passed over the metropolis on Wednesday, as much as an inch of rain fell at Brixton in about half an hour."

"The bright sunshine again exceeded the mean amount in nearly all districts; the percentage of the possible duration ranged from 68 in the Channel Islands, 64 in England, S., and 61 in England, S.W., to between 41 and 38 in Ireland, and to between 25 and 31 in Scotland."

MARKETS.

COVENT GARDEN, SEPTEMBER 14.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen	30-40	Odontoglossums, per dozen	36-56
Asparagus "Fern," bunch	20-26	Marguerites, p. doz.	80-40
Carnations, per doz.	16-20	Mignonette, dozen	40-60
Cattleyas, per dozen	15-18	Pelargoniums, doz.	40-60
Chachias, per dozen	40-60	Roses indoor, per dozen	20-60
Gardenias, per doz.	26-36	— Red, per doz.	30-50
Gladiolus The Bride, dozen bunches	50-60	— Tan, white, per dozen	20-80
— Branchlappensis, dozen spikes	16-26	— Yellow, per doz.	26-36
Lilium Harriall, per dozen bunches	40-50	— Safrano, per doz.	20-20
Lilium longiflorum, per dozen	40-60	Smilax, per bunch	80-46
Maidenhair Fern, per doz. bunches	40-60	Tuberose, per doz.	08-09

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	26-36	Marrows, in pads or pott.	16-30
Beans, English, Dwarf, per sieve	30-40	Mint, per dozen bunches	20-80
— Scarlet Runner, per bush	36-30	Mushrooms, house, per lb.	08-10
Beetroots, new, doz.	06-09	— Outdoor, per lb.	02-03
— in bush	20-30	Onions, Dutch, bags	36-40
Brussels Sprouts, sv.	30-40	— Onions, picklers, in bags	30-40
Cabbage, tally	70-100	— Oporto and Valencia, cases	50-60
— dozen	10-20	— new, bunches	30-40
Carrots, new Eng-lish, per dozen bunches	16-26	Parley, per dozen bunches	10-30
— good, cwt. bags	30-36	— per sieve	10-10
Cauliflowers, dozen	20-30	Potatoes, Hebrons, Snowdrops, &c.	55-60
Celery, new, per bundle	10-16	— per ton	08-10
Cress, per dozen punnets	16-26	Radishes, round, breakfast, per dozen bunches	16-26
Cucumbers, doz.	16-30	Salad, small, punnets, per dozen	16-26
— ridge in pots	20-30	Shallots, per sieve	16-26
Endive, new French, per dozen	16-26	Spinach, New Zealand, per peck	10-10
Garlic, new, per lb.	02-02	— sieves	20-30
— per cwt.	140-140	Tomatoes, new English, per lb.	02-03
Horseradish, Eng-lish, bundle	26-36	— Channel Islands, p. lb.	01-02
— foreign, per bundle	10-13	— French, baskets	10-16
Leeks, new, per doz. bunches	20-30	Turnips, dozen	40-50
Lettuce, French, Cabbage, dozen	16-20	— cwt. bags	30-36
Lettuce, Cos, doz.	16-20	Watercress, p. doz. bunches	04-06
Marrows, Veg., per dozen	10-20		
— tally	50-60		

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	6-70	Foliage plants, var., each	10-50
Arborvitae, var., doz.	6-30	Fuchsias, per dozen	40-60
Aspidistra, p. doz.	18-30	Heliotropes, p. doz.	60-80
— specimen, each	50-100	Hebe, each	15-105
Croton, per doz.	18-30	Hydrangea paniculata, each	26-36
Dracaena, var., doz.	12-30	Lilium Harriall, doz.	18-24
— viridis, per doz.	0-18	Lycopodium, doz.	80-40
Erica, var., per doz.	18-30	Marguerite Daisy, per dozen	60-90
Eunymus, various, per dozen	60-180	Myrtles, per dozen	60-90
Evergreens, var., per dozen	40-180	Palms, various, ea.	10-150
Ferns, in variety, per dozen	40-180	— specimens, each	21-63
— small, per 100	40-60	Pelargoniums, scarlet, per dozen	40-60
Ficus elastica, each	16-76		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, all home-grown:		Grapes, Almeria, bla.	6-15
— Ingestre, bus.	60-80	Lemons, Naples, per case of 420	18-30
— Julien, bush	30-40	— Palermo, case of 360	13-00
— Keswick, bush	20-26	Lyches, Chinese, packet, 1 lb.	13-00
— Manx, bush	36-40	Melons, in cases 24 or 36	7-90
— Sheffield, bush	40-60	— each, English...	10-19
— Worcester Pearmain	80-90	— F. Canteloupe, each	10-00
— Various Cookers, per bush	16-36	Nectarines, A. doz.	10-15
Bananas, per bunch	10-14	— B., per doz.	40-60
Blackberries, 12 lb.	16-20	Oranges, Australian, case of 160 or 200	14-15
— Sieve of 24 lb.	20-40	Peaches, A. doz.	10-15
Cobnuts, per lb.	06-07	— B., per dozen	40-60
Filberts, per lb.	04-05	Pears, Californian, cases	60-76
Figs, per dozen	09-16	— Duchesse, cases	20-30
— Italian, in boxes	20-29	— Hazel, bush	30-40
Grapes, English, Hamburg, lb.	06-13	— Williams, bush	69-80
— Alicante, per lb.	09-13	Plums, English, Bush, sieve	20-30
— Gros Colmar, lb.	10-19	— Pond Seedling, sieve	40-50
— Muscat, A., per lb.	13-20	— Victoria	40-50
— B., per lb.	10-16	— Blue, sieve	30-36
— Belgian, per lb.	07-10	Dansons, per sieve	36-50
— Channel Islands	05-10		
— Muscat, lb.	10-16		
— Lisbon, Black, boxes	18-15		
— White, boxes	10-12		

POTATOES.

Hebrons, Puritans, Snowdrop, Up-to-Date, &c., 60s. to 85s. John Bath, 83 & 84, Wellington Street, W.C.

REMARKS.—Good supplies all round, trade rather slow. Peas are nearly finished. Blackberries are plentiful. A few Sloes were in evidence to-day. Californian Peas are of various sorts; some of the Bartlett or Williams' Bon Chrétien are fine. Of home-grown Apples, there are plenty on sale, and prices are low.

SEEDS.

LONDON: September 13.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that the return of the drought naturally restricts the demand for those kinds of seeds required for immediate sowing for catch crops. Meantime, there is a good inquiry for Trifolium, which is getting scarce; French seed, by the way, is dearer, whilst the English samples come cheaper. Winter Tares are in short supply, and firm in value. There is no change in Rye, whilst full prices are quoted for Mustard and Rapeseed. The tendency for Haricot Beans is still upwards. Peas are strong, but quiet. Canary-seed shows no alteration; and, as regards Clover seeds, prices all round are distinctly on the up-grade. The Board of Trade Returns give the imports of Clover and grass-seeds into the United Kingdom for the eight months of this year, ending August 31, 1899, as—cwt. 173,233, value £231,267; as against cwt. 232,652, value £451,918, for the corresponding period of 1898.

FRUIT AND VEGETABLES.

GLASGOW: September 12.—The following are the averages of the prices recorded since our last report:—Fruit: Apples, Dutch, 4s. 3d. per bushel, and 4s. to 11s. per small hamper, and 9s. to 16s. per cask; do., American Colverts, 15s. to 18s. per barrel; Pears, French Duchesse, 36s. 3s. to 3s. 6d. per case; 48s. 2s. 6d. to 3s. 6d. do.; do., Louise Bonne Duchesse, loose, 7s. to 8s. do.; do., 11s. 6d. to 3s. per sieve basket; Victoria Plums, 2d. per lb.; Irish Plums, 12s. per cwt.; Dansons, 18s. do.; Lemons, Palermo, selected, sound, 14s. to 17s. per case; do., Messina, 15s. to 18s. do.; do., Naples, sound, 25s. to 32s. do.; Melons, Valencia, yellow, 24s. 7s. to 7s. 6d. per case; 36s. 7s. to 7s. 6d. do.; 48s. 7s. to 7s. 6d. do.; do., bronze, 24s. 7s. to 8s. do.; 36s. 7s. to 7s. 6d. do.; Grapes, English, 1s. to 2s. per lb.; Almeria, 11s. to 18s. per barrel; Bananas, extra, 12s. to 13s. per bunch; do., No. 1's, 10s. to 11s. do.; No. 2's, 9s. to 10s. do.; Vegetables: Carrots, 3s. per bag; Beetroots, 2s. 6d. to 4s. per bag; Onions, Valencia, 4s. 3s. 3d. to 4s. per case; do., 5s. 4s. 6d. to 5s. 6d. do.; Tomatoes, 3d. to 5d. per pound, English; do., Scotch, 4d. to 7d. do.; Mushrooms, 10d. to 1s. 6d. per pound; Turnips, 7d. to 9d. per dozen bunches; Swedes, 1s. 10d. per cwt.; Carrots, 7d. to 8d. per dozen bunches; Cucumbers, 1s. to 1s. 9d. per dozen; Cauliflowers, 1s. to 2s. 3d. per dozen; Cabbages, 1s. 6d. to 1s. 9d. per dozen.

PLANTS AND FLOWERS: September 12.—Lilium Harriall, 2s. 6d. to 3s. per dozen blooms; L. lancifolium, 9d. to 1s. 6d. do.; Orchids, 1s. to 8s. do.; Carnations, 2d. to 9d. per bunch; Roses, white, 6d. to 2s. 6d. per dozen; do., red, 1s. to 2s. do.; do., boxes, 2s. to 4s. each; Asters, 1s. to 2s. per dozen bunches; Sweet Peas, 1s. to 4s. do.; Maidenhair Fern, 3s. to 6s. do.; Gardenias, 1s. 6d. per dozen; Marguerites, 2s. do.; boxes of mixed flowers, 6d. to 4s. per box; Asparagus Ferns, 6d. to 2s. per bunch; Chrysanthemums, 2s. to 6s. per dozen.

LIVERPOOL: September 13.—Wholesale Vegetable Market.—Potatoes, per cwt.: Early Regents, 1s. 6d. to 2s.; Main Crop, 2s. to 3s. 6d.; Kidneys, 2s. 6d. to 3s. 3d.; Bruce, 1s. 9d. to 2s. 3d.; Turnips, 6d. to 8d. per doz. bunches; do., Swedes, 1s. to 2s. per cwt.; Carrots, 6d. to 8d. per dozen bunches; Parsley, 6d. to 8d. per dozen bunches; Onions, English, 6s. per cwt.; do., foreign, 8s. to 6s. do.; Cucumbers, 1s. to 3s. per dozen; Cauliflowers, 1s. 3d. to 2s. 6d. do.; Cabbages, 1s. 2d. to 3s. per dozen; Celery, 1s. 4d. to 2s. per dozen. St. John's.—Potatoes, 10d. to 1s. 2d. per peck; Grapes, English, 1s. 6d. to 2s. per lb.; do., foreign, 4d. to 8d. do.; Pines, English, 4s. to 8s. each; Damsons, 4d. per lb.; Cobnuts, 10d. do.; Cucumbers, 2d. to 4d. each; Mushrooms, 1s. per pound and basket. Birkenhead.—Potatoes, 8d. to 10d. per peck; Damsons, 4d. per lb.; Cucumbers, 2d. to 4d. each; Filberts, 8d. per lb.; Grapes, English, 1s. 6d. to 3s. per lb.; do., foreign, 4d. to 8d. do.; Mushrooms, 1s. to 1s. 9d. per lb.

CORN.

AVERAGE PRICES of British Corn (per Imperial qr.), for the week ending September 9, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1899.		1898.		Difference.
	s. d.	s. d.	s. d.	s. d.	
Wheat	36	10	35	5	- 1 5
Barley	27	9	26	5	- 1 4
Oats	17	10	16	6	- 1 4

CATALOGUES RECEIVED.

BULBS, FLOWER ROOTS, PLANTS, SEEDS, ETC.

ARMITAGE BROS., Ltd., Nottingham.
HARRISON & SONS, Leicester.
AMOS PERRY, Hardy Plant Farm, Winchmore Hill, London, N.
WILLIAM FELL & Co., Hexham.
T. SMITH, Daisy Hill Nursery, Newry.
CLARK, BROS., & Co., 65, Scotch St., Carlisle.
MAURICE FRITCHARD, Riverdale Nursery, Purewell, Christchurch, Hants.
JAS. CARTER & Co., High Holborn, London.
F. MILLER & Co., 110, Fulham Road, London, S.W.
ANT, ROOZEN & SON, Overveen, near Haarlem, near Holland.
L. SPATH, 104, Baumschule, Baumschulenweg, Berlin.

GARDENING APPOINTMENTS.

MR. H. CLARK, late Gardener to PERCY MORTIMER, Esq., Ash Park, Overton, Hampshire, as Gardener to R. A. H. MITCHELL, Esq., Mayford House, Mayford, Woking.
MR. ALEXANDER MCLEAN, for the past three years Gardener at Ryecourt, Crookstown, Cork, as Gardener to Mrs. VESEY, Dunleekney Manor, Bagnalstown, Co. Carlow.
MR. THOS. THOMPSON, for five years Gardener to F. A. NEWBIDGE, Esq., M.P., Weston-in-Arden, Nuneaton, as Gardener to R. WALKER, Esq., Ratcliffe Hall, Leicester.
MR. THOMAS HILL, plant foreman, Lonsborough Park, Market Weighton, Yorks, as Gardener to W. H. AYKROYD, Esq., Cliffe Hill, Lightcliffe, Bradford.
MR. THOMAS KERR, late Gardener to Miss FOWLER, St. Ann's, Sefton Park, Liverpool, as gardener to WILLIAM POTTER, Esq., Moorhall, Aughton, near Ormskirk, Lancashire.
MR. D. F. DERNAM, for the past five years foreman at Rotherham House, as gardener to R. H. BATTEN POOL, Esq., Road Manor, Bath.

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardener's Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle

No. 665.—SATURDAY, SEPT. 23, 1899.

JOHN STACKHOUSE AND ACTON CASTLE.

DURING the latter half of the last century a miniature mania seems to have prevailed for the erection of castles in Cornwall. About the year 1750, Stephens, a wealthy landowner in the Duchy, erected Tregenna Castle, which overlooks the beautiful bay of St. Ives; and a few years later John Stackhouse, the eminent botanist, also the owner of extensive properties in Cornwall, erected, on the opposite coast of the county, a fine castellated house, which, like Tregenna, commands a magnificent sea-view. For many years Tregenna Castle has been transformed into a big hotel; and as Acton Castle (fig. 80, p. 238) is on the point of being converted to the same usages, a brief account of its history and of the man who built it may not be out of place. Stackhouse, who was not only an eminent botanist himself, was connected, in a manner which will presently be shown, with Thomas Andrew Knight, of Downton Castle, co. Hereford, known to posterity as President for many years of the Horticultural Society of London (1811–1838).

John Stackhouse was the second son of the Rev. W. Stackhouse, rector of St. Erme, Cornwall, and was born at Trehane, in the same county, in 1742. He matriculated from Exeter College, Oxford, and was a Fellow of the College from 1761 to 1764. The writer (Mr. G. S. Boulger) of the notice in the *Dictionary of National Biography*, states that "from an early period Stackhouse devoted himself to botany, and especially to the study of Seaweeds, and of the plants mentioned by Theophrastus." He married on April 21, 1773, Susanna, only daughter and heiress of Edward Acton, of Acton Scott, Shropshire, by which he came into possession of the valuable estate of Acton Scott. Ten years before this, however, he succeeded to the Pendarves estates in Cornwall, when he resigned his fellowship, and travelled abroad for a couple of years; doing, in fact, the "grand tour," without which, at that time, no young English gentleman's education was considered complete. In or about 1775 he erected Acton Castle, which he obviously named in compliment to his wife's maiden name, and which he admittedly built for the express purpose of studying seaweed *in situ*.

The eighteenth century was a period of leisurely movements, and Stackhouse allowed just twenty years to elapse before he published the results of his studies. *Nereis Britannica sive fuci, ulvæ et Conserve in insulis Britannicis crescentes* was published in folio at Bath in 1795, with text in Latin and English, and twelve coloured plates from drawings by the author—coloured by a lady, whose name he does not disclose—of course, "*ad vivam depictis*." An enlarged edition, or an enlarge-

ment of the original issue, appeared in 1801, with twenty-four coloured plates; and fifteen years later it was published at Oxford in quarto size, the text considerably revised and added to, with Latin text only, and twenty folding-plates. In this work he had the friendly aid of such correspondents as Dawson Turner, T. J. Woodward, Dr. Samuel Goodenough (Bishop of Carlisle), Colonel T. Velley, and others. This very handsome book is written in the somewhat diffuse style common with scientific writers of the day, the author's theories on the sexual character of seaweeds and other allied topics being plentifully sprinkled among facts. But it is an indispensable volume in a library of books on Algæ.

His next work was *Illustrationes Theophrasti in usum Botanicorum præcipue peregrinantium*, which was privately printed at Oxford in 1811; it is specially interesting from an iconographic point of view, inasmuch as it contains a lithographic portrait, after an unnamed artist, of Stackhouse; this was reproduced in a smaller form, in his edition of *Theophrastus*, published in 1813. He is represented holding a plate, illustrative of *Fucus membranaceus*, drawn by himself ("J. S., del."). His edition of *Theophrasti Eresii de Historia Plantarum libri decem*, printed at Oxford by S. Collingwood, and published in 1813, in two octavo volumes, contains the Greek text, Latin notes, Greek-Latin, and Latin-Greek catalogues of the plants, is described by Mr. Daydon Jackson as "perhaps the most unsatisfactory ever published;" the bibliography of the editions of *Theophrastus*, and of the various commentaries on his works, would seem to prove that Stackhouse was a better bibliographer than editor. From this work, in 1814, he reprinted *De Libanoto Smyrna et Balsamo Theophrasti Notitiæ*, a pamphlet of sixteen leaves, with three plates; and in the following year, he privately printed *Extracts from Bruce's Travels in Abyssinia and other modern authorities regarding the Balsam and Myrrh Trees, illustrative of the Natural History of Theophrastus*; this appeared at Bath, and consisted of twenty-one pages of introductory matter, fifteen pages text, and three plates.

It is interesting to note that the British Museum copies of Stackhouse's books and pamphlets were originally in Sir Joseph Banks' library; the example of *De Libanoto*, &c., being a presentation copy, inscribed "with Mr. Stackhouse's compliments to Sir Jos. Banks."

Stackhouse was a Fellow of the Linnean Society, which was instituted in 1788, and to which he was elected in 1795, and to the *Transactions* of which, 1795 and 1798, he contributed two short papers, one of which is a description of *Ulva punctata*, and the other comprises observations on preserving specimens of plants; he was also a member of the *Société des Naturalistes* of Moscow, to the *Mémoires* of which, 1809, he contributed a paper entitled "*Tentamen Marino-Cryptogamicum*."

Mr. Boulger (*op. cit.*) mentions that Stackhouse contributed a translation in English verse of the Abbatte Alberto Fortis's *Dei Cataclismi Sifferti dal nostro Pianeta, Saggio Poetico*, from which it would appear that he occasionally relaxed from the severer scientific studies with which his name will always be honourably associated. The English title of this book is *A Poetical Sketch of the Revolutions that have happened in the Natural History of our Planet, intended as a specimen of a Philosophical and Theological Poem*. It was first published at Bath, in 1786; and a second edition appeared during

the same year in London, bearing the imprint of Benjamin White, the well-known natural history publisher, a relative of Gilbert White, whose well-known classic on Selborne was issued under the same auspices. That he was a valued correspondent of the botanists of the day goes without saying, and Sir James Edward Smith has perpetuated his memory by naming after him the genus *Stackhousia*. (See *Transactions of the Linnean Society*, iv., p. 218.)

The first volume of Lady Smith's *Memoirs and Correspondence* of her distinguished husband (1832) contains a very interesting letter from Stackhouse, dated Pendarves, September 16, 1795; it relates almost exclusively to seaweed, and in the course of it he says, in reference to his *Nereis*—"As I described every plant from Nature, and bestowed every attention in my power, I had some reason to hope it might be favourably received." He rendered considerable assistance to Coxe in compiling his *Literary Life and Select Works of Benjamin Stillingfleet*, 1811, and the notes in that interesting and varied medley of botanical and other information marked (S.), as well as the remarks on Theophrastus, are the work of "my worthy friend, John Stackhouse, Esq."

In the third edition of Withering's *Arrangement of British Plants*, 1796, the author acknowledges the "utmost liberality of John Stackhouse, Esq.," who "contributed by every means in his power to illustrate the *Fuci* and *Conserve*." A similar acknowledgment appeared in the fourth edition of the same work, published in 1801.

He died at Bath on November 22, 1819, and an appreciative notice of him appeared in the *Gentleman's Magazine*, 1820, p. 88. His third son, and eventual heir, Thomas Pendarves Stackhouse, assumed the surname of Acton at the decease of his mother, in 1834; he had married on January 28, 1812, Frances, eldest daughter of Thomas Andrew Knight, of Downton Castle, F.R.S., and President of the Horticultural Society of London.

The history of Acton Castle since Stackhouse's time can be compressed into a few lines. Shortly before the death of its original owner, the place was sold to Captain (afterwards Admiral) Bulkeley Mackworth Praed, who died here on October 6, 1852. The Admiral bequeathed it to his sister, Mrs. Smith, who almost immediately sold it to a Mr. Thomas Field, from whom it passed to Mr. Richard Lanyon, of the Kennal Powder Works; his widow, Mrs. Lanyon, occupied the Castle until a few months ago, when she died at the great age of ninety-four. *W. Roberts.*

BIRDS.

I WAS much interested a few months ago watching a Black-cap warbler (*Sylvia atricapilla*), busy taking the larvæ of some moth that was feeding on a batch of Hemlock in my wild garden. Another bird of the same species was near at hand doing like service. I mention this, for few persons are aware how much use our migratory soft-billed birds are, both in the fruit and flower-garden. The white-throat (*Silvia cinerea*), in the former, feeds on the Raspberry-maggot and on the green aphid. The chaff-duck seeks and finds many small caterpillars; and the nightingale (*Silvia lucina*), besides his sweet, harmonious song, takes his share of insect life. Of tits, the great tit (*Parus major*), is useful; also the coal-tit (*Parus ater*), and the marsh-tit (*Parus palustris*), are insectivorous, but fond of seeds, particularly those of the annual Sunflower. Growing these for my poultry, I found that my otherwise little friends would have taken every

seed had I not covered some of the huge flower-heads with gauze. The blue tit (*Parus cœruleus*), clears away much insect ova in winter, but he is naughty, indeed, when he bores holes about the stalks of my Pears; but this can be prevented by putting card collars around that portion of the fruit—the sort of thing florists put under the petals of their show Picotees and Carnations to improve them (eh?). And now to the dear old song-thrush, *Turdus musicus*. I only wish they were more plentiful in my garden, but they will not allow more than a pair to occupy a certain radius, from which all intruders are driven. One thing I have noted about the haunts of this truly gardeners' friend is, that on examining the broken snail-shells at the spot or stone chosen to break them on, I have invariably found that they are all, or very nearly so, the portions of the shells of full-sized snails, there being none of the small or

ORCHID NOTES AND GLEANINGS.

CELOGYNE UNIFLORA.

THIS singular species, which forms a good companion to the dwarf *C. Schilleriana*, was described as *Panisea uniflora* by Lindley, who afterwards referred it to *Ceologyne*. Its short, clustered, flask-shaped pseudo-bulbs are of a peculiar tint of green, and its comparatively large flowers appear singly, or rarely in pairs, close down to the former. The flowers are about 1 inch in length, the sepals and petals semi-transparent whitish-green; the rather showy labellum, whitish, with some orange streaks in the centre. It is a singular-looking plant, free-flowering and attractive when well-grown. A plant is at present flowering with Mr. J. W. Moore, Cragg Royd Nursery, Rawdon, Leeds, who kindly sends flowers.

channelled leaves, with a distinct curvature, a peduncle similar to that of the type, bearing usually six flowers, which are quite as large as, but much more fragrant than those of *E. grandiflora*. The six lines running down the tube are also of a richer green. Grown side by side with the type, it is distinct in its dwarf, sturdy habit; it is also comparatively free from diseases and mite. It would prove the better plant to grow for decorative effect, as it takes up but little space, and the flowers are thrown high above the foliage. It was probably collected from a high elevation; but its exact origin cannot be traced.

E. grandiflora Lowi (see fig. 81, p. 239).—Large-flowered forms of this variety are superior to the type; it is also of much stronger growth, producing leaves fully 3 ft. long and 8 in. wide. The peduncle is relatively tall, bearing from three to five flowers, which measure 4 inches in length and breadth. The three



FIG. 80.—ACTON CASTLE, CORNWALL. (SEE P. 237.)

immature. I should much like to know if any other besides myself have observed this. This year being very hot and dry, my thrushes have been unusually busy, and therefore have given me more chances of verifying what I believe as a discovery regarding this bird's peculiar selection of his food. They are also excellent help on the grass-lawns, rising by sunrise as they do, and thus getting the early worm before he can make his "castings," and so make unlevel the grassy smoothness. How he loves a worm! How he tugs little by little, until all is drawn out, then killed; and then, after it is swallowed, what a calm self-satisfied look around he gives; and then—good bird—he searches for another. But during all the hot, dry weather, that has parched—nay, baked—our grass-plots, it has been of no use to peep forth almost before dawn to watch the doings of the early-riser, for he was away to the haunt of the snail, and there was satisfying his hungry wants and thirst. Now he is back again, and the early worm has rather a bad time of it. *Harrison Weir*.

EUCHARIS.

THE genus *Eucharis* contains six fairly well marked species, among which the well known *E. grandiflora* ranks first and foremost as a garden plant. All have white flowers of great beauty. They are natives of the Andes of New Granada, occurring at low elevations. The treatment required by *E. grandiflora* will suit the others, whether hybrids or species.

SPECIES AND VARIETIES.

E. grandiflora (E. amazonica). This plant is found in almost every garden. It produces arching leaves 2 feet long, $\frac{1}{2}$ foot wide; a peduncle as long as the leaves, bearing five, occasionally six or seven flowers, each from 4 in. to 6 in. span. Fine specimens of this plant have been figured in these pages. A well marked variety of this, which has been called—

E. grandiflora fragrans was introduced to our gardens four years ago. It has small, sub-erect,

inner segments are very wide and wavy, and not so fully expanded as the three outer ones. The tube is wide at the throat, and is surmounted by a short, toothed staminal cup, and slender filaments. This plant is considered by some to be a natural hybrid between *E. grandiflora* and *E. Sanderi*. Although the characters are just intermediate, I must lodge a doubt here, as I have tried to repeat the cross, and not only do these species refuse to cross, but also to produce seeds when self impregnated, although I have subjected the plants to a variety of temperatures and atmospheres to induce fertilisation; anyway, it is a beautiful and free-flowering garden plant, as also is—

E. grandiflora Moorei, appears to differ only in having smaller flowers, a fully expanded perianth limb, and "clubby" filaments.

E. Masterii (*Bot. Mag.*, t. 6831) (see fig. 82, p. 241).—This is a much smaller plant, producing leaves 16 inches in length and 5 inches in width. The peduncle is 1 foot high, and bears an umbel

of two flowers, each $2\frac{1}{2}$ or more inches in length and width. The perianth-limb is quite spreading, the tube has the six yellowish stripes of *E. Sanderi*; and the staminal cup is small, and toothed. This is a comparatively recent introduction, and has not made its way into gardens to any appreciable extent, nor is it likely to do so when species with a greater number of larger flowers are available. It is by no means an undesirable plant for inclusion in a representative collection.

E. candida.—This plant produces eight or more flowers in each umbel. The perianth-segments are

texture of the leaves, which are four in number, the narrower and more recurved segments, and the trifid stigma. It is the only *Eucharis* in this collection that produces seeds freely, a point which stamps it as a useful parent in hybridisation. Its three-lobed, terra-cotta-coloured fruits are very striking. This plant is figured by Regel, in *Gartenflora*.

E. Sanderi.—This is a strong-growing plant, with tall leaves $\frac{1}{2}$ -inch wide, a peduncle 2 inches high, bearing four flowers, which are somewhat poor compared with others. The three inner

an-inch long. It has been called *Calliphurria subedentata*, and is a very tardy flowering-plant. The *Calliphurrias* are very difficult to flower.

A hybrid has been obtained between *E. grandiflora* and *Urceolina pendula*, called *Urceocharis Olibrani*, a figure of which is given on p. 251. I do not like the hybrid so well as either of its parents. I mention this hybrid to draw the attention of hybridists to *Urceolina miniata*, a pretty plant with bright scarlet flowers. We should probably have something good if this colour could be infused into the *Eucharis* by inter-breeding.



FIG. 81.—EUCHARIS GRANDIFLORA LOWL. (SEE P. 238.)

acute, somewhat recurved, and half an inch wide. A prominent feature in this flower is the staminal cup, which is tubular, half an inch long, and deeply cleft between the filaments. The leaves are 18 inches long, acute, narrowing gradually to the short, stout petiole. It is a distinct and pretty species, succeeding best in a very loose compost. The roots are very liable to rot if a close soil surrounds them. It is the only species with an entire stigma.

Eucharis \times *Stevensii* (see fig. 83, p. 243), is a hybrid between this species and *E. Sanderi*, combining the characters of each.

E. Lehmanni.—This plant is very near *E. candida*, differing only in the darker colour and firmer

segments of the perianth limb do not expand so fully as the three outer, and the staminal cup is rudimentary and entire. A better garden plant would be found in—

E. Sanderi multiflora, which produces eight to ten flowers to each umbel. The flower has six green stripes down the tube, instead of yellow, as in the type. Both plants produce offsets freely.

E. subedentata.—I have not flowered this plant, nor have I seen it in flower. The leaves are acute, a foot or more long. The peduncle is described as being as long as the leaves, bearing from six to eight flowers, each with a perianth-tube an inch long, the segments being oblong, ascending, half-

[*E. Bakeriana* (see fig. 85, p. 249), is a species collected by Messrs. F. Sander & Co., in Columbia. Its flowers are distinct from others of the genus in the corona, and in having the tube of the flower of nearly equal diameter almost up to the top, being very little dilated at the throat. A full description of this species will be found in the *Gardeners' Chronicle*, April 5, 1890, p. 416.

E. x "Burfordiennis" (see fig. 84, p. 247).—We take the opportunity to illustrate the fine *Eucharis* exhibited under this name at the last meeting of the Royal Horticultural Society by Sir Trevor Lawrence, Bart., when the Floral Committee recommended the award of a

First-class Certificate. This variety is most likely the result of a cross between *E. Stevensii* and *E. Mastersii*. The leaves, while resembling those of *E. Mastersii*, are narrowed in the direction of *E. Stevensii*. Mr. Bain, who has charge of Sir T. Lawrence's garden, describes the plant as unusually free in flowering. The flowers are rather more than 3 inches across, and about 2 inches long. They are not flat like those of *E. grandiflora*, but somewhat bell-shaped. *E. Burfordensis* is likely to become a popular garden variety. ED.]

CULTIVATION.

The cultivation of *Eucharis* is not difficult if the natural tendencies of the plant are carefully observed. Imported bulbs should be carefully cleaned of all dead tissue after twenty-four hours immersion in water, and potted in a rough compost consisting of chopped turf $\frac{3}{4}$, half-rotted leaf soil, and very coarse sand or other porous material $\frac{1}{4}$. It is advisable to only cover the bases of the bulbs, so as to allow of frequent examination until leaf growth commences, when the potting may be finished off. They should be started in a temperature of 70°, and kept growing in a moist atmosphere until the leaf growth is finished, when they may have a temperature of 60° with less water, but at no time should they be without some moisture at the root.

The *Eucharis* really has no resting season; for the roots are active, or should be active, all the year round. If the plants are not grown on a large scale for the production of cut flowers at all seasons, they may remain in a growing temperature all the year round, affording them water in accordance with the amount of leafage they carry. Many of the grand potfuls of healthy plants of considerable age found in country gardens are thus treated, and grow with the vigour of a Cabbage.

Weekly applications of liquid cow-manure during active growth is the best and only manure the plants should have, and failing this, weak soot-water is the next best. The plants require light shading in sunny weather.

FORCING.

Hard forcing accounts for the bushels of diseased and debilitated bulbs one sees consigned to the rubbish-heap on most cut-flower farms every year. A writer in a contemporary a short time since stated that "Nurserymen were giving up the cultivation of *Eucharis grandiflora* because they could not force the plants into flower more than three times a year." Such expectations verge on the impossible, as the bulbs cannot be forced to flower more than twice a year consistently with good health and longevity. A third flowering season may be secured biennially with very strong plants by hastening the maturity of the leafage, maintaining a drier atmosphere, and resting the plants drier. I have found, however, that such plants take a great length of time starting into leaf-growth again.

PESTS AND DISEASES.

The *Eucharis* or bulb-mite is the worst pest to deal with. I have tried the prepared remedies sold as efficacious, but have found them to be useless. Badly-infested bulbs are hopeless; bulbs lightly attacked will recover if they are painted with a soft-soap and petroleum emulsion of a similar strength to that generally used for destroying mealy-bug. The roots must not be touched with the preparation. The bulbs may be treated after cleansing as advised in the case of imported ones.

I am convinced that mites have origin in diseases, as I have found them on decaying bulbs of nearly every plant belonging to the *Amaryllidaceae* imported from every quarter of the globe. Where disease alone exists, the bulbs should be carefully washed, and dusted whilst still damp with flowers-of-sulphur, planting the bulbs with the sulphur adhering to them.

An open compost, free drainage, and the removal of the black slime fungus which infests the soil in moist hot-houses, are the best preventatives of diseases or mite. *Geo. B. Mallott, Isleworth.*

THE AGE OF THE DWARFING STOCK.

If one were requested to name the time when fruit-trees were first grafted on dwarfing stocks, it would be, I believe, impossible to assign a date. The *Paradise* (*Pomme de Paradis*) is mentioned in D'Estienne's *D'Agriculture*, in the sixteenth century. Markham's translation mentions it, and the reason why they were employed may be gathered from De Serres' *Théâtre d'Agriculture*, which was, that it fitted trees to grow and train as espaliers. The last-named writer has a very interesting chapter on the subject, and he shows that fruit was larger and finer off espaliers, and the trees came into bearing much earlier than standards. When he wrote (1598), all kinds of fruit-trees were trained espalier-fashion, but "*Les premiers espaliers ont esté faits de Pommiers nains, dits de S. Ian. Après s'y seruit on des petites Poires musquées,*" and by-and-by all kinds of hardy fruits followed. Writing in 1669, Worlidge has these remarks: "If you desire to raise dwarf trees, let the stocks whereon you graffe them, be of the *Paradise-Apple* for Apples; of the *Quince* for Pears; of the *Morello* for Cherries; being kept low according to the new mode, though I see but little pleasure or profit in that way." He, however, commended the "*Quince-stock* for the Pear, because it produceth its fruit better and fairer, and better-coloured, and the trees to bear sooner and more store of fruits." The Rev. John Laurence in his latest work, *A New System* (1726), has this interesting note on Apples:—"Everyone who hath seen the beauty and fruitfulness of those grafted upon *Paradise-stocks*, will allow that there is nothing either in the flower or kitchen-garden that can vie with it for its uncommon and pretty qualities. It is about thirty years since it was first brought over into England, and the plants were then sold at 5s. apiece." It is only fair to note that the Dutch *Paradise* may be referred to. The above must be taken for what it is worth, because we find Reid more than forty years earlier mentioning them, though he does not recommend the use of dwarfing stocks. Apples were worked on the "*Paradise*, or any that hath burry-knots; Codlings, Redstracks, &c.; dwarf Pears on the *Quince*, dwarf Cherries on the *Morella*, or on the common Red Cherrie, or on Red gree" (Gean).

Switzer (1724) named stocks suitable for certain sorts, and adds—"The Dwarf Medlar is by some in use for dwarfing of Pears, as the *Paradise-stock* is for dwarfing of Apples, and the *Bullace* for Apricocks." Miller mentions the French *Paradise* as losing or having already lost its popularity as a stock in his day. The Dutch *Paradise* and *Codlin* were, however, still in use for dwarf trees and espaliers; the last-named having come largely into vogue during the eighteenth century for forming dividing lines between walks and kitchen-garden quarters. With the beginning of the present century, Forsythe's work on fruit-trees appeared, and in it note is made of the *Paradise-stock* for strong soils, but he does not say to which variety of *Paradise* he refers.

Dwarfing stocks appear in the works of other writers; while others again, of whom Evelyn is a notable example, are silent as to their use. It is noteworthy that the property of rooting near the surface, possessed to so large an extent by these stocks, is never once commented on; they seem to have been employed almost solely on account of their potentially dwarfing effects, and thus rendering trees more amenable to wall and espalier training, and for forming bush-trees in kitchen-gardens. These stocks were credited at an early date with the attribute of shortening the life of trees, and there appears to have been always a dislike to their employment in general; and thus it occurred that the wilding Crab, and more especially "free stocks," were all along in most favour, and similarly the wilding Pear as a stock for Pears. Double grafting, it may be added, was in use at least as early at the beginning of the eighteenth century. *R. P. Brotherton.*

NURSERY NOTES.

E. WEBB AND SONS, WORDSLEY.

THOUGH the name of this firm is familiar enough to most readers of the *Gardeners' Chronicle*, it is probable that few of them have visited the establishment at Wordsley. It is not near the metropolis, nor on one of the great railway routes to the North. At the same time, should anyone be in the districts of Worcester or Birmingham, they would be able to call on Messrs. Webb very conveniently by alighting at Stourbridge, or Stourbridge Junction railway stations. Upon reaching Wordsley, which is but a short drive from either of these points, they would find that this large seed establishment, with its great warehouses, offices, and other buildings, affords another object-lesson in regard to the immense demand that exists over the British Empire for horticultural and agricultural seeds.

At Wordsley, the buildings that existed a few years ago, when our last visit to this neighbourhood was made, have been increased by the erection of another great warehouse on the opposite side of the street; and several houses for the cultivation and display of *Gloxinias*, tuberous *Begonias*, and other florists' plants, have been built. At the end of August is not the best time of year to catch the seed-cleaners busy, nor to see the warehouses stocked to their capacity with seeds.

THE KINVER GROUNDS.

An hour's drive to the trial grounds at Kinver brings the visitor to as picturesque a part of the country as he need wish to see. Who, in Smethwick, Stourbridge, and other manufacturing places, in what is termed the "Black Country," has not seen or heard of Kinver Edge? Kinver is visited by hundreds and thousands of people upon their holidays, and upon Sundays. But it is a rather long drive from most of the populous centres, and at the present time there is in course of completion an electric tramway with overhead wires from Stourbridge, which will open up the country to a much larger extent. Very near to the "Edge," which is a somewhat precipitous looking point, is Kinver Farm, and upon part of this farm are made trials of flowering plants and vegetables.

In a season such as the present has been, there are kitchen crops and bedding plants that have not been so successful as they sometimes are, but generally the trial-grounds were full of interest; here, nothing but colour as one scanned great breadths of some of the brighter bedding plants; there, a striking contrast in breadths of Cabbages, Onions, Peas, &c.

VEGETABLES, &c.

Noting the Onions first, there was a bed of a seedling variety from Ailsa Craig \times Improved Banbury, the latter one of the best Onions in cultivation. The seedling is an intermediate globe-shaped bulb, and would appear to be as it was described to us, "a good keeper, and of perfect quality." There were many Onions upon trial, but the favourite is *Masterpiece*, a large globular bulb with pale yellow skin. The next best is *Reliance*, a large cropper, excellent keeper, but not so globular in shape as the preceding, nor so flat as *Improved Banbury*.

Turning to Carrots there were twenty-two varieties on trial, but the best of these for most purposes is *Market Favourite*, rather shorter than *Intermediate*, growing 5 to 6 inches long, straight, thick, and of rich colour. It is a good keeper. Prize-winner and *Intermediate* are also Carrots to be recommended.

Paranips have not, and never will be known, in such bewildering variety as other vegetables. We noticed a fine batch of a good strain of the old *Hollow Crown*.

Of Kales there were excellent types of the *Perpetual Dwarf*, in green and purple varieties; a *Moss Curled* and *Curled Scotch*. A seedling variety of Kale was very interesting. The type

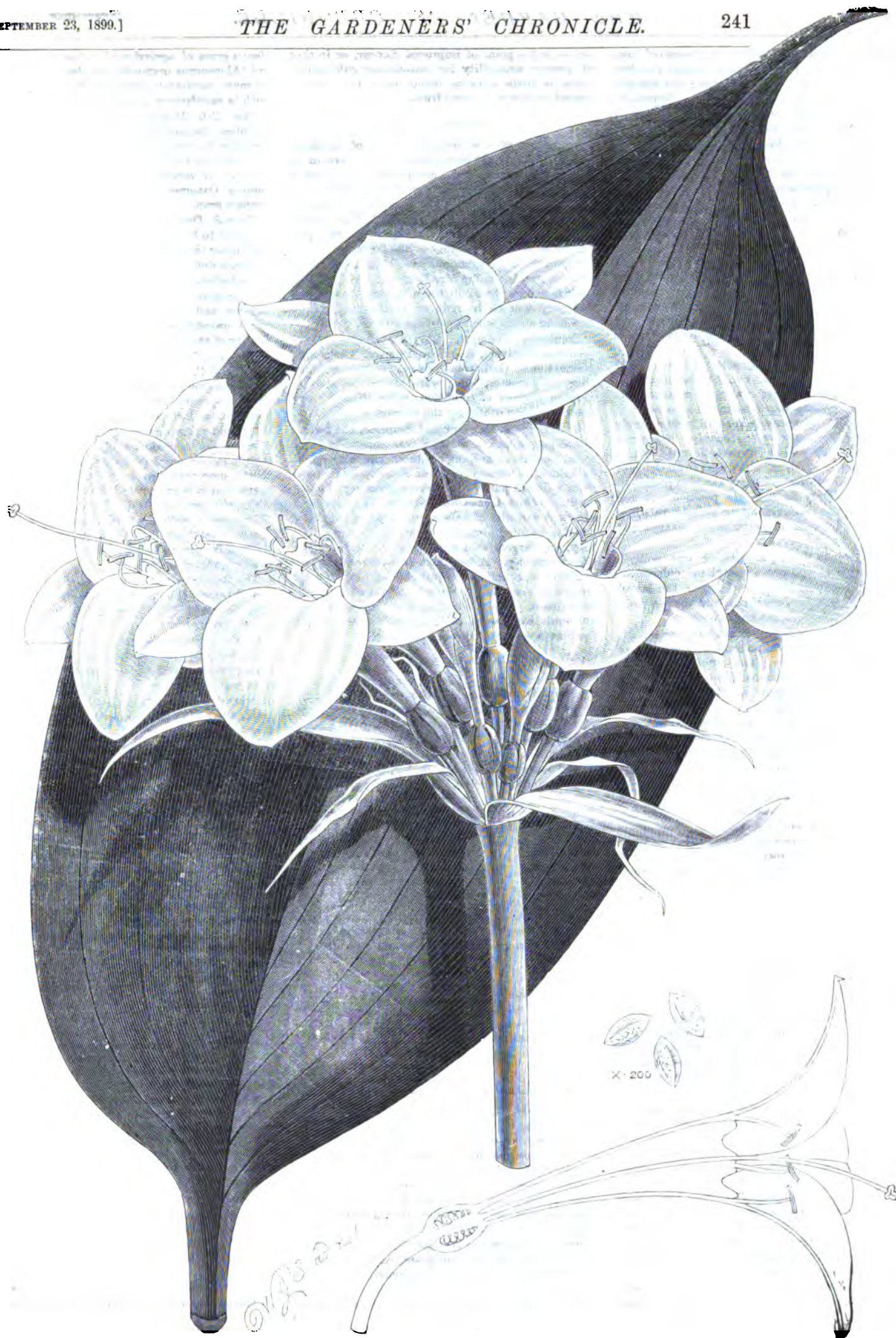


FIG. 82.—EUCHARIS MASTERSII. (SEE P. 238.)

appeared to be a perpetuation of a fasciated condition. In the leaves there was abnormal development of the mid and secondary ribs; the margins of the leaves were as the Moss Curled. Something good may come from a selection of this type.

Of the Cauliflowers, Early Mammoth (which is a type of Erfurt) and Peerless are the best in the collection, and they are really good. A novelty in Broccoli, purchased by the firm last year, is likely to soon gain popularity. It is known as Mont Blanc. The heads are well protected, are conical in shape, not extra large, but close, and pure white in colour. May generally be cut from January to April.

Savoy was looking very well in spite of the dry weather, and were commencing to form hard close heads. Among a large number of varieties the two best were Little Wonder and Kinver Globe. The first-named is the earliest to mature, and Kinver Globe is remarkable for its dwarf compact habit.

Cabbages occupied the greater part of a large field, and with Brussel Sprouts, &c., made quite an exhibition. The earliest Cabbage is known as First-of-All. It was new a season or two ago; it is small growing, and may be planted rather closely for affording an early spring supply. Notwithstanding that the variety Emperor is tried with a number of newer varieties, this well-known Cabbage is still the best Maincrop variety the firm possesses, and appears likely to hold its position. A red Cabbage, named Vesuvius, was noticed to differ from the Red Dutch in being much smaller and neater in habit.

Among French Beans, a seedling was pointed out to us, that should prove useful for cultivation in pots. It produces but little foliage; the leaves after the first 3 inches, are small, and the blossoms are thrown clear above the larger ones.

Peas are necessarily an important vegetable, and the varieties are so numerous at the close of the nineteenth century, that trials of them, in order to afford conclusive information, need to be undertaken upon a very large scale. There were something like 120 varieties at Kinver, and the best for all purposes was one named Senator, a variety raised some years ago at Kinver; it was a cross between Prince of Wales and Culverwell's Giant Marrow. Pioneer is a novelty, a blue wrinkled Marrow, grows about 3½ feet high, and turns in as early as Sangster No. 1; the pods are about the same size as those of Telephone. The best late Pea amongst those seen was Masterpiece. It has a long fruiting season, and sown upon the same day as other varieties, it proved to be in full bearing after those had passed; it grows about 4 feet in height, and the blunt-ended pods are deep green colour. There were many other good Peas, but we have mentioned only the three very best. It may be added that Talisman, growing 6 feet high, is especially recommended for supplying pods for exhibition purposes.

Potatoes, again, are important. The remarks respecting the Peas are even more applicable to these, for Potatoes are the most important crop of the kitchen garden; but we had not the time to examine the varieties on trial at Kinver, which would have necessitated the digging of samples of each. Suffice it to say, that all the best varieties up to date are used for comparison, with an immense amount of seedlings now on trial. Fifty unnamed seedlings, besides others, are at present at Kinver, and the best from the point of view of the firm are year by year catalogued. A new one "Motor," now on the market, is likely to be a popular free-cropping, kidney-shaped, white tuber. Several roots turned out very well under our notice.

We hope the correspondence that has lately taken place in these columns will induce all raisers and distributors of new varieties to secure as far as possible increased flavour in Potatoes, in addition to such essentials as free cropping, and disease-resisting constitution.

Of Celery, a variety named Pink Perfection was praiseworthy. Tomatoes were also under trial, but

unless in the point of improved flavour, or in that of greater suitability for out-of-door cultivation, there is little advance being made just now in regard to this wholesome fruit.

FLOWERING PLANTS.

So many of the popular kinds of bedding-plants and of hardy herbaceous species were to be seen at Kinver, that we are quite unable to refer to each fully. The Stocks, for instance, were very imposing, especially such types as Imperial Large-Flowering, and Dwarf German. The former showed a giant habit, branching away, and producing an immense number of fine flowers.

Sweet Peas in numerous varieties from many sources, and including Mr. Eckford's and Mr. Burpee's new ones, had still some flowers upon them, but they will all be reduced to the firm's large-flowering strain when seed-time arrives.

Coreopsis, Godetias, Chrysanthemums, Eschscholtias, Papavers, Aohilleas, Phloxes, Larkspurs, Nasturtiums, Gaillardias, Sweet Williams, Dianthus, Mignonette, &c., were all to be seen in varying degrees of condition, some affected very much less than others by the absence of rain.

Of Larkspurs, Emperor and Empress, the former bluish-purple and the latter rose colour, are fine sorts, well worth keeping distinct. The same might be said of a variety of China Aster named Snow-drift, a dwarf, pure white flowering variety of much merit. White Queen and Scarlet King are also excellent varieties of Asters, but forms of this most popular bedding-plant are now so numerous that they are largely sold according to colour rather than to variety. A very nice free-flowering strain of Zinnia was noticed in full bloom; and no plant created a more lovely show than did the beds of Salpiglossis. These had succeeded splendidly, and the seeds were sown in spring, in the beds where the plants were now flowering.

OTHER ITEMS.

But Messrs. Webb have a very large trade in farm seeds, and the number of acres of land annually devoted to the cultivation of grain and other seeds by the firm is wonderful. We are not so much concerned with agricultural crops, however, or particulars might be given of the amount of land occupied by Wheat, Barley, Oats, as well as roots, such as Mangolds, Turnips, &c.; and of the extreme care, and variety of means taken, to ensure the crops being pure. There is one interesting fact, however, respecting the grain crops that may be stated. Harvest operations were in full swing when our visit was made, and such a bountiful yield was it, that those best able to estimate it held the opinion that a greater quantity of seeds per acre had never been reaped by this firm. The quality, too, was, of course, perfect, and though the straw was a trifle short, it was, in this respect, not comparable to that further south and in our own district.

Messrs. Webb & Sons are also Hop merchants, and the storage of Hops could not be done without spacious warehouses. Then they have manure factories at Saltney, in Cheshire, where they manufacture various artificial manures.

THE SEED TRADE.

THE GRASS AND CLOVER CROPS.—From the grass-growing districts of Germany comes information of the crops of natural grasses, which leads to the conclusion that on the whole the yield of most grasses will be below the average; in some instances the yield is so short that it almost amounts to an utter failure. The Sweet Vernal (*Anthoxanthum odoratum*) has been harvested in extremely small quantities, while *A. Puelli* shows a rather larger return. The Creeping Bent-grass (*Agrostis stolonifera*), and the Brown Bent-grass (*A. canina*), are a very short crop, and it is anticipated it will not exceed one-half of last year's yield. The latter appears to be regarded more as a troublesome weed

than a grass of agricultural value. Meadow Fox-tail (*Alopecurus pratensis*), no doubt on account of its more persistent character, has been harvested both in satisfactory quantity and quality.

The Tall Meadow Oat-grass (*Avena elatior*) promises remarkably well, and the crop will probably be both larger and better in quality than last season's, and prices will, it is anticipated, be reduced as compared with last year. The true Golden Oat-grass (*A. flavescens*) will be a good average crop.

Crested Dogtail-grass (*Cynosurus cristatus*) is expected to be a short crop this season, and prices are higher than heretofore; still, it is a little early to give a definite estimate of the quantity.

Cocksfoot-grass (*Dactylis glomerata*) is a fairly good crop in Germany, and that of North America is large and good. The New Zealand supply is less in quantity than for some time past, while the quality of the seed is below the average.

The smaller Fescue-grasses (*F. duriuscula*, *F. ovina*, and *F. rubra*) are reported to have yielded only from one-half to, at most, two-thirds of a crop, and it appears certain the crop saved must be smaller than last year, as it is difficult to procure them, and prices are rising. The weather has also affected the appearance of the seed. *F. ovina tenuifolia*, or more probably *F. angustifolia*, is a shorter crop than has been experienced for many years, and it is anticipated the growth will be poor, while the prices will be high. Meadow Fescue (*F. pratensis*) will be a small crop from the United States, something like our production in the past, induced farmers to sow less than usual. The crops in Germany are insignificant.

The Ray-grasses (*Lolium perenne*), and its continental variety (*R. italicum*), has come to hand in very fine quality of the seeds, but in smaller quantities than usual.

Of the Poas, *P. nemoralis*, the Wood Meadow-grass, has, by the smallness of the crop, disappointed expectations; and it is reported that prices for pure seed will be very high. The smooth-stalked Meadow-Grass (*P. pratensis*), is apparently a good yield, and so far prices are lower than last season. The quantity of the seed is excellent, the colour bright, and the germination good. Rough-stalked Meadow-grass (*P. trivialis*), is said to be better in every respect than last year, and prices will be easy.

CLOVERS.

Of Clovers, little can be said at present, but it appears to be certain that the crops of Trefoil and Red Clover will be very poor in Germany, and it is thought by many that there will be an entire dearth of seed of Red Clover. French reports are also unfavourable; while from many districts of Austria better results are expected, and it seems that the production of this grass in Austria is being considerably increased. Accounts have still to come to hand from Russia, though the crop derived from thence, owing to the difficulty of securing deliveries up to sample, render the crop less important than it otherwise would be.

The stock of Crimson Clover has been sold out almost completely, and prices are extremely high. The crops of Alsike are said to be very indifferent. The quality of Sainfoin is good, and it is cheap in price. It is too early to judge of the crop of Lucerne, but it is to be feared the French supply will be limited; but better reports come from other countries. *Pisum*.

BULBS FOR THE LONDON PARKS.—We understand that Messrs. JAMES CARTER & Co., Seed-merchants of High Holborn, have again received the commands of Her Majesty's First Commissioner of Public Works to supply the whole of the bulbs required this autumn in Hyde Park, Regent's Park, St. James's Park, Kensington Gardens, &c. It is also their privilege to state that they have been similarly instructed by the London County Council to furnish the whole of the bulbs required for the parks and gardens under their control.

CULTURAL MEMORANDA.

PHRYNIUM VARIEGATUM.

THIS plant, when properly grown, is a great addition to the stove or greenhouse, and for decorating or exhibition purposes, the creamy-white

well, the soil should be shaken from the roots, which should be divided, each piece being planted in 3-inch flower-pots, using a compost consisting of fibrous loam two parts, peat one part, leaf-mould and sand one part. Having potted the divisions, place them in the propagating-case, applying shade till they are established, then stand them on the

using it in a rough state, with the addition of a small quantity of rotten manure, pressing the soil moderately firm, and placing them in the stove. The plants must now be syringed two or three times a day, otherwise red-spider may spoil them. If an attack of red-spider is severe, the better plan is to sponge the foliage. A slight amount of shade

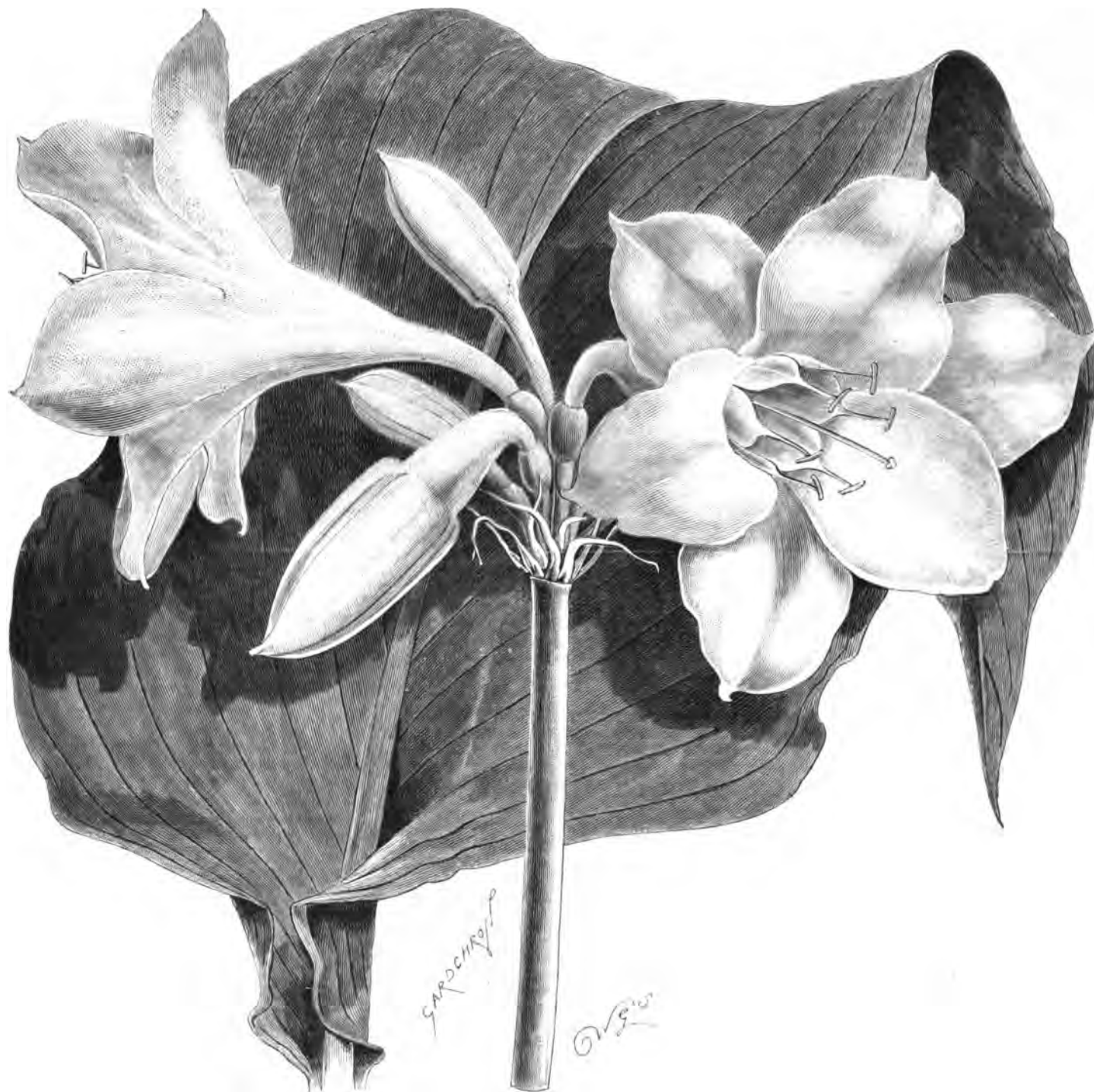


FIG 83.—EUPHARIS × STEVENSII. (SEE P. 239.)

and green leaves having a very effective appearance. To obtain good results, this plant should be treated as follows:—The plants should be rested in an intermediate-house in the winter, but not allowed to get entirely dry at the roots, but affording water occasionally. In the early spring they should be brought into the stove, and when they have started

stage. The first leaves that are made in this size of pot will be green, and may be left alone or cut down, when in the latter case the plants break from the bottom, the growths sent up will be well coloured, and the habit dwarfer than when the first growths are left. The plants should then be potted into 5-inch flower-pots, in the same kind of compost,

during sunny weather is desirable, and on no account should the plants be allowed to get into a starved condition. If big plants are required, three or four may be placed in large pots or pans, and in a short time they will make a nice specimen for placing in the cool conservatory during the summer months. X. Y. Z.

THE WEEK'S WORK.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Propagation of Roses from Cuttings.—Many of the varieties of Hybrid Perpetual and Noisette Roses grow and flower well on their own roots, and the time from this date till the end of the month of October, is the most suitable for inserting the cuttings in beds in the open. The position of the beds should be on a border facing or inclining to the north, or between other plants, where they will be partially shaded from the sun, and sheltered from the wind. The soil should be retentive rather than light, although the cuttings will make roots freely in ordinary garden-soil. Choose as cuttings, strong, well-ripened side-shoots; and if these are from 8 to 12 inches long, so much the better. The shoots should be cut with a heel, four or five leaves removed from the lower part, without however touching the buds in the axils of the leaves. Should the land have been recently dug, let it be made firm by trampling it, then make it level with a rake, and insert the cuttings in holes made with a dibber, 4 inches apart, placing them four buds deep, and fill in with some sharp road-grit or sand. Bourbon, Tea, and hybrid Tea-Roses may be propagated by cuttings, but hand-lights or cold frames should be used, protection being afforded them in frosty weather.

Violas.—Strong flowering plants for next summer's flowering may be obtained by taking cuttings not later than the end of the present month; the young shoots coming from the roots of healthy plants making the best cuttings. An empty pit or cold frame should be prepared for them by putting in first some drainage-materials, then a compost of leaf-mould, loam, and sharp sand or road-grit. Having made the bed firm and level, insert the cuttings 2 to 3 inches apart, and close the frame, affording the cuttings shade for a few days, then gradually exposing them to full light and air till cold weather sets in. If frost is likely to penetrate the pits or frames, mats or other covering should be placed over them.

Lantanas are pretty plants, easy of cultivation, which afford a pleasing contrast to other kinds of bedding-plants. Cuttings may now be put into store-pots, filled with a mixture of loam, leaf-mould, and sand, and placed in frames on a mild bottom-heat. They soon take root, and may then be subjected to the same kind of treatment as zonal Pelargoniums. Lantanas may be raised from seed sown in the spring, but it is preferable to grow a few good varieties with flowers of distinct colours, and the best are—La Neige, white; Rutilant, light yellow; Distinction, orange-scarlet; Eclat, reddish-crimson; Rayon de Soleil, very dark yellow.

Pelargoniums, Ivy-leaved.—For filling window-boxes, as trailers in plant-vases and as balcony-plants, nothing equals the varieties of *P. peltatum*. Three fine varieties for the last-named purpose, are, Sarah Bernhardt, white feathered maroon; Madame Crousse, pink; and Souvenir de Chas. Turner, deep rose. The stiffer growing varieties, Cordon's Glory, bright scarlet; Flambeau, orange scarlet; Beauty of Castlehill, soft rose and very double; Rycroft Surprise, salmon pink; and Madame Mougeot, deep red, make lovely beds, and do best when trained erect, so that the trusses may show well against plants of the ordinary zonal Pelargoniums. The single-flowered varieties are effective when seen at a certain distance, but as the petals so soon drop, the plants have a ragged look when observed at a short distance. I prefer to take cuttings at this season, putting them into store-pots, and potting them off in the spring. By doing this, the cuttings become firm at the base, and not so much wood is made in the summer as is the case with cuttings struck in February; moreover, the quantity of flowers produced is larger.

Sweet-scented Pelargoniums.—These species are deservedly coming to the fore, after having been neglected for many years. The species capitatum, Pretty Polly, Quercifolium, tomentosum, Prince of Orange, and Lady Scarborough are distinct in leaf and fragrance; and the varieties denticulatum majus, radula major, filiciforme, odoratum, and the Pheasant's-foot are of dwarf growth, with foliage resembling the fronds of Ferns, excellent for bouquet-work. Lady Plymouth and the varie-

gated Prince of Orange are pretty edging plants. All the species can be struck readily at this season in sandy loam, but the cuttings must be shorter than those of ordinary Pelargoniums, and the cutting-pots placed in the winter close to the light, and the soil kept rather moister.

Work in General.—The flower-beds must be kept free of decaying leaves, flowers, and of seed-vessels. Plants that have ceased to produce flowers may be removed altogether, and the soil raked and made clean and tidy. If the herbaceous perennials have been properly secured to stakes, the old flowering stem need not look unsightly, and that being so, they need not be removed before they have become thoroughly withered, as till that occurs they are of use to the plants.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, S.W.

Unseasonable growth of Cattleyas.—I have remarked this autumn that the Cattleyas have made more growth than will be good for the plants, and plants of *C. Trianaei*, *C. Warscewiczii*, and *C. labiata* are in some instances making late pseudo-bulbs, and as a continuance of fine weather suitable for maturing these is not probable, their presence must be, to some extent, a source of anxiety to the cultivator. In the case of valuable varieties of the first and last-named species, it will be advisable to remove the ower-sheaths, in order that the energy of the plant may be directed to the current season's growth. With the other species named this cannot be done, the flowering-stage having passed. Sometimes I have removed secondary growths soon after they had started, a course which compels the following season's growth to proceed from a back pseudo-bulb, or a second bud on the last one made, and although the result so far was satisfactory, it was a hazardous proceeding. The best course for the grower to take is to place the plants in a position calculated to induce them to develop these secondary growths, and if sheaths appear in these, to remove such as soon as practicable. *C. Dowiana*, *C. aurea*, and *C. Hardyana* have a like propensity to start growing again either before or just after flowering, which in the former case detracts from the quality of the flowers produced. Given favourable weather, these growths usually develop into small pseudo-bulbs, which, if thoroughly matured, carry on the life, but spoil the symmetry of the plants.

Dendrobiums are also similarly afflicted this season, only more so, the early-matured bulbs not only commencing to grow again, or, rather, to throw out new growths from the base, but also to develop flower-buds, which, however, instead of producing bloom, become adventitious growths, thus spoiling their chance of flowering at the proper season. The decrease of light and heat render it improbable that any secondary growth will reach full size or mature; and to retard the plants by keeping them dryer and cooler, when undeveloped growth is present, would serve no good purpose now. At this season, the only thing the grower can do therefore, is to aid development as much as possible, and hope for the best.

Oncidium varicosum.—The too abundant flowering proclivities of this species tends to shorten its life, and as the plants will shortly be in bloom, a note of warning may be of use to those who grow this lovely Orchid. That it is still abundant is shown by the large numbers imported, and as quantity determines price it is fairly cheap, but the price of a plant ought not to weigh with the cultivator, whose object should be to grow them well, and to keep them in health for as long a period of time as he can. The removal of the flower-spikes as soon as the flowers have expanded, is a point to be observed; another, is to withhold the direct applications of water so long as the young pseudo-bulbs remain plump, and as the plant should be grown in a very cool, moist, yet airy house, this state of things may continue for a long time before shrivelling occurs. The same will apply to *O. crispum*, *O. Marshallianum*, *O. pretextum*, *O. Forbesii*, and *O. Gardnerianum*.

Oncidium incurvum, a species now in bloom, is usually long lived when grown under the same conditions as *Odontoglossum crispum*. In the matter of repotting and top dressing, this plant usually needs attention owing to forwardness of growth almost before the flowers are passed, but being a plant of compact habit, there is no need for

frequent disturbance, provided the drainage is efficient; when, however, from insufficient pot space or other cause it becomes needful to repot it, the fibry roots should not be disturbed more than is absolutely necessary, large quantities of drainage material and a surfacing of good, lumpy Orchid-peat, and a little sphagnum-moss should be afforded. During the winter months, although the plants are then making growth, very little water should be applied.

Oncidium ornithorrhynchum is another useful autumn-flowering species that should be afforded treatment similar to the foregoing, excepting that the temperature may be slightly higher. A place on a shelf near the glass, in a house where *Miltonia vexillaria* grows, is a suitable position.

PLANTS UNDER GLASS.

By C. R. FIELDER.

Solanum capicastrum.—Where the practice of planting out during the summer is adopted, preparations should be made to pot these plants, and in order to prepare them for the operation, the plants should be cut round at a distance of 5 or 6 inches from the stem with a sharp spade. A week or ten days afterwards the plants may be lifted, and planted in 5-inch or 6-inch flower-pots, according to their size. After potting, they should be placed in a cool-house or pit. I have always found a house with a north aspect to suit them at first, keeping the roof shaded when sunshine reaches it until the plants are established, when shading may be discontinued. The syringe should be used freely among the plants while they are becoming established, and, in fact, every care taken during the first fortnight after potting to prevent any loss of foliage. If the points of the shoots are pinched back to the first flower, the berries are more fully exposed, and they gain in size.

Chrysanthemums.—If the flower-buds on a plant are in a forward condition, and showing colour, the plant should at once be placed under glass, and preparations made to house all later plants upon the first indication of cold weather. In housing these plants, afford as much space as possible between them in order to prevent any loss of the lower leaves; and for the present afford abundance of ventilation. Do not afford manures in large amounts at one time, little and often being a safer rule, as serious loss of roots and indifferent flowers follow the reverse practice.

Show and Fancy Pelargoniums.—When these plants have made an inch or two of new growth, repotting in accordance with instructions given in a previous calendar may be undertaken. For Fancy Pelargoniums a small quantity of peat may be added to the compost there recommended for Pelargoniums, and the plants should be grown in a rather warmer house than the show varieties.

Euphorbia pulcherrima.—It is not prudent to leave these plants in cold frames after this date, but rather to place them in a house, the temperature of which is not calculated to start them into growth. A position should be found for them near the glass, in a house where a night temperature of 55° is maintained. This will meet their requirements until the bracts are about to form, when the temperature may be increased to 60°.

Caladiums, Achimenes, Negelias, &c.—Water should not be too rapidly withheld from any plant which show signs of maturity, but the quantity reduced gradually till the foliage has died down, and then withheld altogether, and the pots stored away in a house where the temperature never falls below 55°.

THE KITCHEN GARDEN.

By H. MARSHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Cardoons.—These plants will still require a plentiful supply of moisture at the roots, clear water and liquid-manure being alternately afforded, making sure that the soil is thoroughly moistened to a good depth. Tying up the plants to blanch should be done on a dry day, and the performance of this job should not be long delayed. First bind each plant with haybands, after drawing the leaves straight, and follow this by earthing-up the stalks with fine mould.

Celery.—Let a slight earthing-up of the plants be performed weekly when the weather is dry, taking care not to let any soil fall into the hearts. This

is a better plan than affording a great quantity of soil at long intervals of time. The earliest Celery may now be finally earthed-up. The later crop should be encouraged to make free growth; and since cooler weather has set in, the plants will grow fast, needing in consequence regular and constant attention to affording water, &c.

Onions.—Let no time be lost in getting the bulbs harvested whilst the weather and the soil are dry. When quite dry, let the rougher, looser outer coat be rubbed off, and the leaves twisted off by hand. The white Spanish Onions, and other varieties which do not keep sound for any length of time, should be placed by themselves, apart from the late-keepers. Tripoli Onions sown in August may now be in need of thinning, if large bulbs are wished for; but for ordinary kitchen use, the thinning is better if left till the spring, when the spare plants may be transplanted or used in various ways. Run the hoe between the rows occasionally, and dust the beds with fresh soot.

Cauliflower Plants raised from seed sown a month ago, will be in need of pricking off into their winter quarters, eight or twelve being placed under a hand-light. Those who winter their Cauliflowers in cold frames should get these prepared betimes, by affording a good bed of soil, and making it moderately firm; washing the glass, but not covering the bed till sharp frosts occur. The plants may be set out at not less than 6 inches apart. The same holds good for those under hand-lights and cloches. Large plants should not be put out, but some may be potted and wintered in a Peach-house, if they can be afforded plenty of air, light, and water.

Capsicums.—The seed-pods should be gathered as they become fit, the ripening being completed under glass.

French Beans.—A good sowing may now be made, in 7-inch pots, of Ne plus Ultra, Osborne's Forcing, &c., using a loamy soil and spent Mushroom-bed manure well mixed together. Sow half-a-dozen seeds in a pot, or, if the seed is old, sow more, and thin out to that number those which vegetate. A cold frame will suit this sowing for the present. Good gatherings may be obtained from this sowing; but there is not much to be gained by attempting to grow French Beans under glass in the last two months of the year.

FRUITS UNDER GLASS.

By W. STRAUGHILL, Gardener to Lieut.-Col RALPH VIVIAN, Rood Ashton, Trowbridge.

Strawberries in Pots.—Unless in the first instance these were placed at distances from each other that will allow the plants to make free growth, more space had better be afforded them, as Strawberry plants now need all the sunlight possible. The plants ought now to have almost or quite filled their pots with roots, and if they appear less vigorous than is desirable, they may be given weak liquid-manure or soot-water once or twice a week. An examination of the roots is necessary before such feeding is practised, because unless there are active roots, feeding will be injurious. If good turfy loam was used with other ingredients at the time of potting, there should be no need for feeding in the autumn. The plants require to be examined occasionally, even during showery weather, for the rain does not always penetrate through the foliage and the soil to the drainage. Remove runners from the plants each week. If watered from a pond, the surface of the soil may become coated with a green vegetation, and this must be removed before becoming thick enough to hinder the aëration of the soil.

The Cucumber House.—Plants for midwinter-fruiting will require careful attention in stopping and regulating the shoots. If there is no need for immediate fruiting, continue to remove the flowers so as to reserve the energy of the plants for later bearing, but in any case reduce the number of the fruits as they set. Winter Cucumbers should be planted in small beds, and then afforded weekly or less frequent surfacings of new and sweet soil. By these means the growth is not excessive at the start, nor do the plants dwindle down to straw-like stems before the winter is half gone. It is all important that the roots be kept steadily moving in new composts, applied as suggested. Later batches now growing in small pots ought to be planted permanently as soon as possible. Bottom heat for winter fruiters is indispensable, and in gardens where insects troublesome to the

roots abound, the baking of the soil will do much good. For some time hence clear water only should be afforded.

Cucumbers in frames may, with careful ventilation, a steady bottom, and sufficient atmospheric warmth, continue in bearing for some time. But they must be regularly stopped, and the foliage thinly disposed over the bed. Check green-fly by fumigation or syringing with an insecticide.

Tomatos for Winter.—The forwarder plants are already setting their first flowers, and growing strongly. Like Cucumbers, these are more satisfactory when the roots are kept active with light top-dressings of fresh soil or bone-meal. Some care is needed daily in fertilising the opening flowers, either by sharply tapping the stems at mid-day, or by the use of a camel's hair-brush. Pot on successive plants, and fruit them in 10-inch pots. When potting, allow ample space for future top-dressings, and do not over-stimulate with fertilising manures, either natural or artificial. These are better given when the plants actually need help. Plants standing outdoors or in cold pits should be removed indoors at once, but not to a house where artificial heat is much used. As long as the weather continues mild, air should be admitted rather freely during the day, and with a little warmth from the pipes it may be afforded at night. Apply clear water only, except in cases where the pots are filled with roots. For winter bearing the plants are best trained near the glass, so that they will get all the light possible. Such plants should be kept to one stem, removing the secondary shoots as they appear. If white-fly is troublesome, fumigate often with XL All.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Fruit Gathering: Apples.—There are several early Apples which should be gathered at this date, as they will now keep in better condition when stored, than if allowed to remain longer on the tree. These varieties are Lord Grosvenor, Lord Suffield, Ecklinville Seedling, Potts' Seedling, Warner's King, Frogmore Prolific, Lady Sudeley, and Worcester Pearmain. To gather these Apples now would probably save the most of the fruit that would be blown off if high winds should occur. If the fruit-room is a cool one, some of the varieties named may be kept in a sound condition for a considerable length of time. The recent extreme heat has induced early ripening in Apples, and varieties which are fit in the generality of years in October are now ready for gathering, Ribston Pippin being a notable example. The season appears to have suited this variety, the fruits being larger than usual, notwithstanding the drought, and the crops on standards and bushes are very good.

Pears need closer attention than Apples, especially early and mid-season varieties, and all the fruits of Doyenné Boussoch, Beurré d'Amanlis, Louise Bonne of Jersey, Thompson's, Beurré Hardy, and other mid-season varieties, may now be gathered, taking the forwarder first, and the rest a few days later. Let only perfectly sound fruits be put into the fruit-room. If it be considered desirable, a few of the earliest fruits of Marie Louise, Pitmaston Duchess, Beurré Superfin, Duchesse d'Angoulême, and others of this class may be gathered. Late varieties are best left on the trees as long as possible, or at least until frosty nights are imminent. The ripening of any of the varieties first named may be hastened by placing them in wooden boxes and standing these on a shelf in a warm-house, or in a cupboard in the dwelling.

THE APIARY.

By EXPERT.

Heather Districts.—Our fortunate friends who are within reach of these favoured spots, should prepare their bees for the journey to the hills as directed below, extracting the Clover-honey from as many unsealed sections and shallow frames as possible before starting, that they may be re-filled without the bees having to build combs to receive the honey. A main feature in ensuring success on the heath is the protection of the surplus chambers from the cold nights, so often occurring in the autumn. Warm wrappings, therefore, are very desirable. For the rest—and modifying the directions to suit circumstances—proceed as follows:—1. Prefer hives without legs, they pack

more safely and economically in the cart or waggon. 2. Any time within a week of lifting, examine all the frames, removing those containing honey only, and replacing with brood from stocks to be left. 3. Fix all frames, so as to make them absolutely immovable. 4. Supers should, if possible, have outer cases similar to the hive body below. They can thus be firmly secured from sliding about. Surplus storeys, with the hive and floor-board, are all secured together by laths nailed up the four corners. 5. Cover the top with loosely-wrought scrim, secured by strips of wood nailed round the four sides, so that it is impossible for a bee to escape. The usual quilts may be replaced over this scrim, both before and after removal; but during the journey the scrim alone should form the covering. 6. At the moment of removal, close the doorway by a strip of wire-cloth, fastened first to a lath of wood, so that two short wire-nails serve to secure it. 7. Set the hives in the cart or waggon on 2 inches or more of straw or hay. Place wads of the same between the hives and the sides of the cart to prevent rocking, and drive as fast as you please when the roads are good and the springs easy. 8. Preferably travel at night or early in the morning. Locate your stocks on their new stands, and after all are set, and quilt-rooms are placed, go round with a feather dipped in carbolic acid with which to streak the wire-cloth a moment before removal. In this way there will be no rush of bees on the door being opened; after treatment will depend on the season. If honey be abundant, it may be necessary after eight or ten days to remove surplus honey, and give more storage room; if scarce, it may be good policy to give less room, leaving only one set of sections where there were two. As all supers and upper storeys may generally be removed before the bees are taken home, the latter is comparatively an easier process than taking away. The weather is cold, the combs are already secured, and the whole are less bulky than before. The same precautions as to ventilation should be observed, and a further opportunity is given on their return of making any desired change in the location of the hives, or of uniting any nuclei or weak stocks to the hives brought back.

Condemned Bees.—Where a good supply of frames of combs is on hand, these may be worked up into fine stocks if two or more are united, and fed up well by the beginning of October. Bees will unite readily just after driving, and it is only necessary to secure the best queen to head the stock. They should, if possible, be united and put into the hive the same evening on which they are driven; very strong lots will build out comb foundations if given in full sheets, but of course, ready-built combs are much preferable if they are to be had.

Feeding.—It was not thought that feeding to any extent would be required this autumn, but the stoppage of income for the last week or two has told heavily on stores in brood-chambers, and in districts where there is no Heather to rely on, immediate preparations should be made previous to the general feeding up towards the end of September. In preparing food, add one quart of water to every four pounds of sugar, boil for a minute, and after taking it off the fire stir in a dessert spoonful of vinegar and pinch of salt to each quart of food. We strongly advise that all syrup given in autumn be medicated, whether foul brood be known in the locality or not. Prevention is easier than cure, and the cost of medication is merely nominal. Feeding will not be required in such unusual quantities this year, yet many will no doubt use the "rapid" or box-feeder; indeed, we advise all with over half-a-dozen stocks to do so, in preference to pottering with small feeders; they will greatly assist in keeping down the tendency to rob, which is sure to develop when feeding is carelessly done. Besides, a good box-feeder holds about half-a-gallon of syrup, and seldom requires filling more than once to give all the food needed if set on the hive in the evening while the weather is warm. Care should be taken that the bees cannot reach the food from the outside, the feeder will be emptied in a few hours, and no excitement whatever caused among the bees. My own plan is to arrange the feeder while empty, and see that there is no access to it except for the bees of the stock being fed; I then pour in warm syrup, cover up, reduce the hive entrance to an inch in width, and leave it. The following morning I usually find the feeder empty, and the bees perfectly quiet.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, SEPT. 26 { Royal Horticultural Society's Committee, at Drill Hall Westminster.

WEDNESDAY, SEPT. 27 { National Chrysanthemum Society's Floral Committee at the Royal Aquarium.

SHOW.

THURSDAY, SEPT. 28 { Royal Horticultural Society's Show of British Fruits at the Crystal Palace (3 days).

SALES.

MONDAY NEXT, SEPT. 25, and the following Tuesday, Wednesday, Thursday, and Friday, Dutch Bulbs, at Protheroe & Morris' Rooms.

WEDNESDAY, SEPT. 27.—Sale of Stove and Greenhouse Plants, at the Castle Nursery, West Norwood, by order of Mr. G. H. James, by Protheroe & Morris.

FRIDAY, SEPT. 29.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period September 10 to September 16, 1899. Height above sea-level 24 feet.

1899.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.		At 1-foot deep.		At 2-foot deep.	
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	LOWEST TEMPERATURE ON GRAVE.
SEPTEMBER 10 TO SEPTEMBER 16.									
SUN. 10	W.N.W.	59.9	56.6	63.9	52.9	0.01	62.2	63.3	61.5
MON. 11	N.	58.9	50.1	65.8	40.5	...	59.5	62.5	61.5
TUES. 12	N.N.E.	59.2	56.5	68.2	53.9	...	60.5	61.8	61.2
WED. 13	E.S.E.	60.1	57.0	70.3	44.5	...	59.6	61.5	61.1
THU. 14	E.N.E.	59.1	54.6	66.9	57.5	...	61.6	61.2	60.9
FRI. 15	N.N.W.	58.5	51.8	67.1	42.8	0.19	59.9	61.5	60.7
SAT. 16	W.N.W.	58.9	53.5	68.9	54.0	0.04	60.8	61.1	60.6
MEANS...	...	58.5	54.3	67.3	49.4	0.24	60.6	61.8	61.1

Remarks.—The weather has been dull and cloudy, with a few showers, and strong winds from the north and east.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—55° F.

ACTUAL TEMPERATURES:—

LONDON.—September 20 (6 P.M.): MAX. 61°; MIN. 49°.

PROVINCES.—September 20 (6 P.M.): MAX. 57°; Cape Clear; MIN. 47°, Peterhead.

HORTICULTURISTS have not, we believe, up to the present, shown any special eagerness to display their products at the several meetings to be held in connection with the Paris exhibition of next year. We may take it as pretty certain that business motives and business motives alone, will actuate them whether they exhibit or refrain from so doing. Patriotism and zeal will, we fear, be kept entirely in the background, and the reasons are not difficult to discover.

In the first place, "business is business," and if our horticulturists do not see their way

to a profitable return for their expenditure and their trouble, it is not for others to blame them if they decline to incur the trouble and expense of exhibiting. Moreover, France is a protectionist country, and protection does not help in the promotion of international trade, but just the reverse.

Again, we know pretty well in which departments France excels us, and those in which we excel them; so that we have not much to learn in that particular.

In the second place, the very unsettled state of France, and especially of French politics, will operate most forcibly in keeping our exhibitors at home. When the elements of stability can be discerned, exhibitors will not be lacking; and this brings us to the proposal which was made in some quarters, that British exhibitors should "boycott" the Paris exhibition because, as we believe, seven officers of the French army, five, we ought to say, have pronounced what we believe to be an infamous judgment, and because some people have, as we also believe, been guilty of about the most frightful sins that human beings are capable of.

Supposing all this to be true, what has it to do with the horticultural department of the Paris Exhibition? Most of us would shun association in any way with men who, if all be true that is reported, have so far outraged the common feelings of humanity that they must be looked on as pariahs. But they are few in number, and we are not likely to come into contact with them; we do know those with whom we shall be associated, and we know them to be men like ourselves. It is silly to attempt to pass scorn on the millions of honest Frenchmen comprising, as we all know, some of the finest intellects and the noblest spirits that can adorn mankind, because some few have been base and others have been misled. What should we say if circumstances were reversed? From this point of view we greatly rejoice at the visit of the French scientists to Dover. Politics, generally speaking, are carried on in a way so totally different from scientific methods that it is quite clear that politics and science still occupy two different spheres. It ought not to be so, no doubt, and we may look forward to the time when even party politics will be controlled by scientific principles. Meanwhile, science is independent even of nationality. Science in the abstract is truth, and no nation can claim a monopoly of it.

Let us, therefore, earnestly welcome all seekers after truth, whatever be their nationality, and recognise them as brothers and fellow workers. This is high ground perhaps, but if we occupy the high ground we can the better see the plains beneath—see facts in their true proportions, and, indeed, see how childish and futile it must be to attempt to boycott a great nation because in its sun there are some motes.

We are happy to learn that since these lines were penned, the President of the Republic has seen fit to grant a pardon to Capt. DREYFUS, and thus, in a measure, assist in lessening the agitation at home and abroad that his trial has caused.

IN the current number of the "The Journal of the Essex Technical Laboratories," which first saw light as *Biology Notes*, some considerable amount of space is as usual devoted to horticultural matters. From the general notes we learn that the two annual senior scholarships in horticulture have been

gained by Miss ETHEL SQUIER and Mr. GEORGE PYMAN, and will be held at Swanley and the Royal Horticultural Society's Gardens, Chiswick, respectively. The number of successes (fourteen first, six second, and one third-class certificate) at the April Examination of the last-mentioned Society gained by Essex students is also given, and Mr. C. WRAAG, who obtained second place, has been offered a scholarship of £25 for two years as a result of it. The suggestion made on many occasions, and emphasised in *Nature* (July 27, p. 307), that a practical examination should be held in connection with, or, preferably, as a continuation of the Royal Horticultural Society's examination, is again brought forward in the same general notes, and the scoring of two hundred marks out of the three hundred obtainable at the written examination, is advanced as a suitable qualification for candidates who might be tested practically in the biology and operations of horticulture.

But we must point out that the object of the instruction given, and of the examinations held, is not at once to make students into practical men, but so to educate them that they may become so in the future. No scheme of education, no examination can take the place of experience, but both can facilitate the acquisition of experience, and enable the student to profit by it.

The Staff-Instructor in Horticulture, Mr. CHARLES WAKELY, contributes a seasonable article on Planting Fruit-trees. He points out that although much land is in itself suitable for such uses as the cultivation of fruit-trees, the exposure to high winds which it offers, reduces the chance of successful culture to a minimum. Abundance of gravel near the surface is another source of non-success in Essex, and defective drainage is noted as a third. After much good advice as to the preparation of the ground, into which the trees are often simply "stuck" rather than planted, and with regard to the treatment of the roots, the too general custom of buying "cheap" bundles of badly-formed trees, is pointed out, "and the plants shown in the end to be very dear."

The school garden furnishes material for several notes, and an eminently practical method, borrowed from a careful and successful grower of fruit-trees, is alluded to. The latter being to make a slight basin round the small trees, and then after these have been well watered, "the dry soil is returned over the moist surface."

A well-considered essay on "Profitable Apple Culture," comes from the pen of Mr. EDWARD MILLER, who gained the senior scholarship given by the County Council in 1897, and who is now in Kew Gardens. Previously his brother had planted and established a thriving fruit farm near Maldon, and some points in the experience of this successful student and horticulturist are well worth considering. Although a million pounds annually goes out of this country for Apples, choice English Apples well maintain their price. Last year, says Mr. MILLER, Cox's Orange Pippin fetched from fifteen shillings to twenty-one shillings per bushel in London, and the retail price of each Apple was twopence or threepence. Passing over the cultural details which are given for the benefit of fellow-students who are less familiar with the culture of this particular fruit-tree, Mr. MILLER strongly expresses himself on the subject of grading fruit, the necessity of which, and of careful packing, ought long since to have been learned by English growers from the foreigner. Choice Apples grown on cordons,

and sent to Covent Garden in boxes of a dozen, have realised from two to three shillings a box. The particular cordons, not in this case grown by Mr. MILLER, were set in rows about four feet apart, and with eighteen inches between the plants, and bore very heavily. The result, of course, being that care had to be taken to replace the trees as they wore themselves out.

The cost per acre of growing Apples as

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees will take place on Tuesday, September 26, in the Drill Hall, James Street, Westminster, from 1 to 5 P.M. At 3 o'clock a lecture on "Instructional Fruit Stations" will be given by Mr. E. LUCKHURST, F.R.H.S.

The Fruit Show of the Society.—The great show of British-grown fruit will take place at the Crystal Palace on Thursday, September 28, and the two following days. Entries should reach the Royal

in capital condition, the most effective of the plants in the beds being the fibrous-rooted Begonias, which are a picture of neatness, and full of bloom. *Lilium speciosum* in several large beds is now blooming freely, and many very pretty autumnal buds may be seen on the Rose-trees near to the Palm-house. The mauve flowers of the autumn Crocuses (*Colchicums*) are appearing in many spots among the grass. The greenhouse No. 4 is looking gay with the following plants in flower amongst others:—*Tibouchina* (*Pleroma*) *macrantha*, *Salvia*

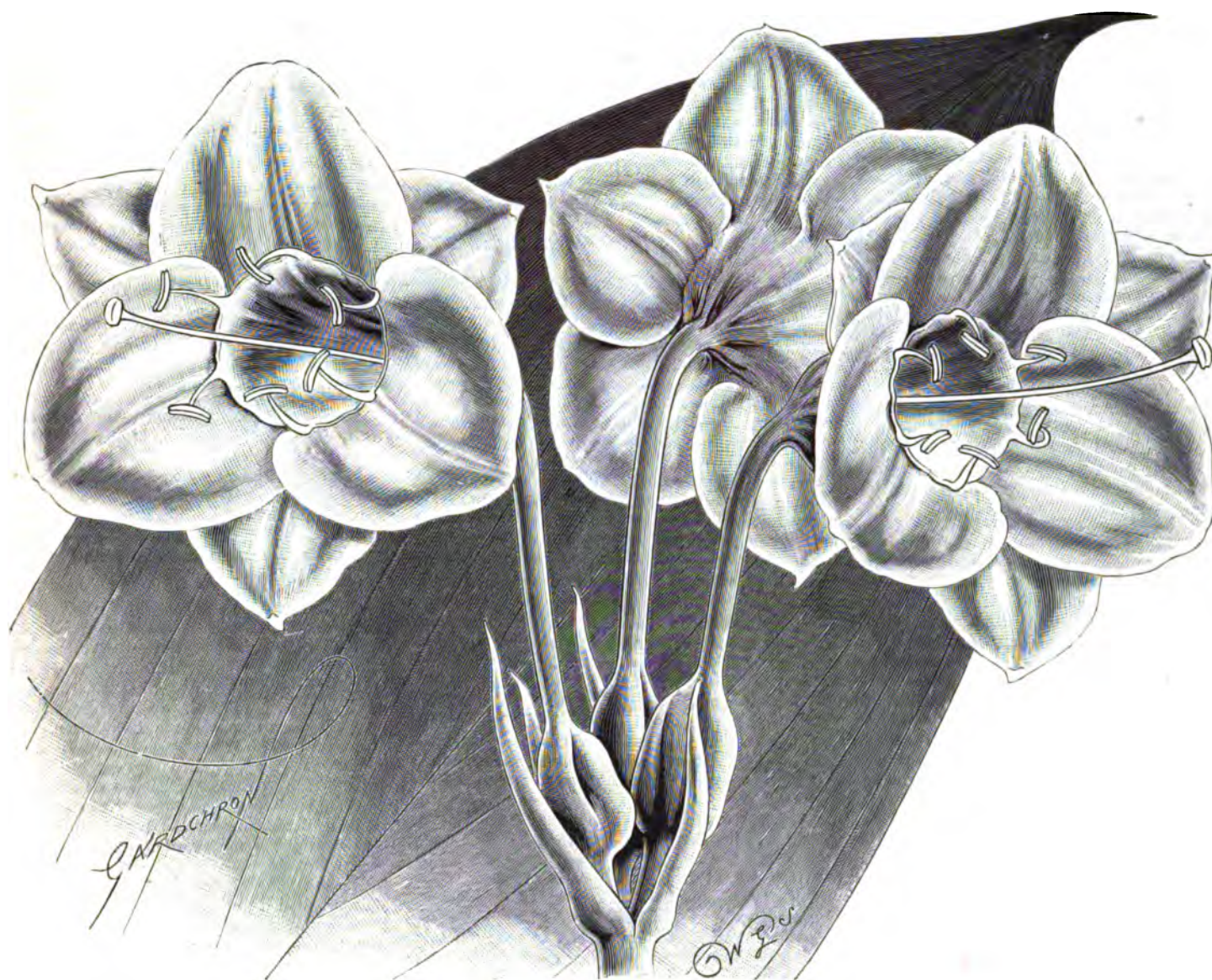


FIG. 84.—EUCHARIS X BURFORDIENSIS. (SEE P. 239.)

(Shown by Sir Trevor Lawrence, Bt., at a meeting of the Royal Horticultural Society on September 12.)

estimated in the paper might perhaps be quoted with advantage:—

	£	s.	d.
Rent of Land	5	0	0
Digging same at 6d. per rod	4	0	0
Hoeling five times during summer, say, at 10s.	2	10	0
Manuring (twenty loads of dung)	5	0	0
Wheeling same into plantation	2	0	0
Cost of pruning	8	0	0
Cost of insecticides and time spent in application	5	0	0
Cost of gathering and packing	10	0	0
Carting to rail, carriage, and commission of salesman	10	0	0
Total	£46	10	0

This sum is approximate to the cost of growing a crop which at the low figure of four shillings a bushel would realise eighty-seven pounds.

Horticultural Society's Office, 117, Victoria Street, S.W., not later than September 21. On each day of the show, after 10 A.M., Fellows of the Society, on producing their tickets, will be admitted to the Palace free. The President and Council desire special attention be paid to the notice found on p. 3 of the schedule, which will be strictly carried out, viz., "All fruit should bear its natural bloom; any polishing process disqualifies."

THE ROYAL GARDENS, KEW.—The appearance of the lawns is now much improved, and the summer bedding-plants also show the effect of the recent rains. The flower garden in front of the Palm-house, although the season is so far advanced, is

splendens, Celosias, Abutilons in variety, Begonia Knowlseyana and *B. semperflorens gigantea rosea*, *Physalis Francheti*, Balsams, a fine lot of *Cannas* in pots, *Primula obconica*, *Achimenes*, *Plumbago capensis* in blue and white flowering varieties, *Rhododendrons*, *Maurandya scandens* on rafter, *Datura fatuosa*, blooming well in pots of about 6 inches in diameter, and *Datura Knighti*. In the Begonia-house, *Solanum Seaforthianum* trained under one of the rafters is just a mass of lilac-coloured flowers, and several of the Begonias also are making a good show. *Curcuma Roscoeana* a few days ago was in flower in the stove (T range), and is worth noting by visitors, although an old plant. A figure of this Scitamineous plant with scarlet

flowers and bright orange bracts, may be seen in *Bot. Mag.*, t. 4667. There are naturally few Orchids in flower at the present time, but in the adjoining house is the Victoria regia, and this season of the year is the best to see the giant of Water-Lilies, for it is now flowering freely, and the leaves are a good size. The effect presented by the Nepenthes-house is exceedingly good, and the majority of the plants are carrying many well-developed pitchers.

"SAM STEVENS."—Many naturalists and horticulturists in the habit of frequenting STEVENS' Rooms in years gone by retain pleasant recollections of this gentleman, who died recently at an advanced age. In his garden at Beulah Hill, he had a Pear grafted on an Apple. He, as we believe, effected the graft himself.

THE VEGETARIAN FEDERAL UNION.—The members of the Federal Union met at the Mansion House Restaurant, Poultry, on Thursday evening, the 16th inst., in connection with the Vegetarian Congress held in London last week. The chair was taken by Mr. ARNOLD F. HILLS, of the Thames Ironworks Company. The Union, he explained, was an association of such vegetarian societies and individuals as might be willing to unite for the advancement of vegetarianism, that was, the encouragement of the use of the products of the vegetable kingdom, instead of the flesh of animals. The Union is intended to act as a connecting body for foreign societies, and also to do what it can to promote the spread of the cult throughout the country.

USEFUL GARDEN RECIPES.—To destroy moles, wasps, and rabbits: pour an ounce or so of disulphide of carbon down the holes, and plug them securely with a thick sod. Care must be taken that the liquid is kept away from fire and lights.

"THE FAIREST FLOWERS OF THE WEEK."—A correspondent writing to us on the 14th inst., employed the above expression in regard to a box of cut flowers he was sending. One of these was *Harpalum rigidum*, var. *Miss Mellish*, and as most of our readers are well acquainted with this variety, they will doubtless concede it to be a most valuable border plant. The rest of the flowers were varieties of Perennial Asters or Michaelmas Daisies, but these arrived in a state too withered to enable us to approximate their beauty, at any rate, from the specimens sent. The first of these was the well-known Harpur Crewe; the rest were White Queen, japonicus, Effie Lowe, versicolor, and cordifolium. Such, according to our correspondent, were "the fairest flowers of the week." He gathered them, he states, from a mixed border.

DR. S. P. BUDD.—The death is announced in his fifty-sixth year, after a prolonged illness, of Mr. SAMUEL PUNNETT BUDD, the well known Bath surgeon. He was the second surviving son of the late JOHN WREFFORD BUDD, M.D., of Plymouth, the eldest of a noted west country family of seven medical men, all eminent in their profession. The deceased came to Bath in 1870, and soon found himself with a large practice. He was also widely known as an amateur rose-grower and exhibitor, and a member of the National Rose Society. He was the winner of the Jubilee Challenge Trophy at the National Rose Society's northern show in 1892; and that of the metropolitan show of the same Society in 1894.

PRESENTATION TO A GARDENER.—Since the re-formation of the Beckenham Horticultural Society in 1892, Mr. MARK WEBSTER, gr. to E. J. PRESTON, Esq., at Kelsey Park, has contributed valuable assistance as a member of the Committee, and particularly as hon. librarian. Many of his friends, therefore, who are also interested in the Society, have taken the opportunity afforded by Mr. WEBSTER's approaching marriage, to make him a presentation of a pair of easy-chairs, in dark mahogany. In one of the chairs has been fixed a suitably-inscribed medal of

the Society. This has been placed on pivots, and reverse and obverse can therefore be seen. We had occasion, some time ago, to comment favourably upon the practical and useful educational work the Beckenham Society is doing.

ANOTHER OPEN SPACE.—Islington would appear to be the most highly favoured district in the metropolis in the matter of open spaces. There are now open six extensive gardens in the parish: one is Barnsbury Square, the others Thornhill Square, Canonbury Square, Edward Square, Duncan Terrace, Islington Green; and now the largest of all is about to be opened at the Caledonian Road end of Market Road. This is a long and broad thoroughfare on the south side of the great Cattle Market, just above the gloomy-looking prison of Pentonville. At the other end of Market Road—where it joins York Road—is a fine new children's playground, which has been laid out in conjunction with the new open space. Formerly the two were almost waste ground, though used for all sorts of odd businesses, and owned by the City Corporation, who parted with it at a high figure to the Islington folks. The laying out has been done by the parish surveyor, and the garden will be open to inspection in a few days.

FRUIT, ETC., FROM THE WEST INDIES.—Some time since we drew attention to the proposals of the Government for helping the more than half-ruined producers of the West Indies, to send fruits and other products of the islands to a ready market here. To-day we note that some Glasgow people, after mature consideration, are about to solicit subscriptions from the public, in order to float the Jamaica Produce and Transport Association (Ltd.). The capital asked for is to be laid out in building four steamships, wharfage at Jamaica, a hotel, and to provide funds to enable producers to take advantage of easy loans, in growing, harvesting, and forwarding fruit and other productions for which the islands are celebrated. We cannot but wish any well-considered scheme all success.

CHARGES FOR WATER FOR GARDEN PURPOSES.—Some of our readers residing in those parts of London supplied by the New River Water Company, will be grateful for the following note on that Company's charges for water, supplied for garden purposes during the winter. We are indebted to Messrs. NOKE & NOKE, 67, Caledonian Road, King's Cross, for the information afforded: "As the season is approaching when the application of water to the garden is unnecessary, will you allow us to point out to your numerous readers that they can save one-half of the amount paid the New River Company for water for gardens, by giving notice that they will cease to use water for this purpose after 29th inst. By giving this notice, consumers will not have to pay for water for gardens until they again require to use it for that purpose—that is, until after March 25 next. This means to each householder a clear saving of one-half the sum charged by the New River Company, which charges for water for garden purposes the whole year round, although water is only used for that purpose for four or five months out of the twelve."

VINTAGE PROSPECTS IN FRANCE.—In a note from Sir WALTER GILBEY from the Château Loundenne, Medoc, dated September 13, states the *Agricultural Gazette* of September 19, he refers as follows to the vintage prospects:—"The vintage will commence in the Medoc next Monday, the 18th inst. I have regularly seen the vineyards for forty years at this season, and to all appearance the Vines never looked more promising. The Grapes on the early 'Malbec' Vines are in some cases shrivelled; rain is badly wanted during the next few days to increase the yield and improve the quality of the wine. With the many thousands of acres of vineyards in this claret district, the importance of rain falling quickly is very great, as is proved by

the fact that each acre of Vines in bountiful harvest produces nearly five hogsheads, or 236 gallons, of Grape-juice."

GENTLEMEN GARDENERS.—As showing the kind of statements which press writers sometimes afford newspaper readers, we commend the following, taken from the *Daily Mail* of a recent date. Were the statements but only half true, we fear the ranks of British gardeners would be greatly more crowded than is even the case at the present time. We should suppose that if the annual incomes quoted were divided by ten, they would be much nearer the mark:—"There never was a time when really clever and scientific gardeners were in such request as now, for it is a notable fact greatly to their credit that the modern self-made rich men, of whom there are such numbers, as a class show the greatest enthusiasm in the matter of their gardens and greenhouses. Indeed, one of our greatest authorities on the subject has said that where there was one splendidly appointed garden fifty years ago there are a hundred now. And there are hundreds of rich men who desire to shine in this way who are prepared to pay, and do pay, very handsome salaries and premiums to their head gardeners. The writer was lately interviewing a millionaire north-country baronet noted for his gardens, and he exclaimed, 'Why do not more professional men and gentlemen of small means make trained and scientific gardeners of their sons? They cannot realise what a number of comfortable berths there are in the calling, and that scores of head gardeners make from £600 to £1000 a-year, and have everything free besides.'"

SHIRLEY MUTUAL IMPROVEMENT ASSOCIATION.—The monthly meeting of above Society was held at the Parish Room, Shirley, Southampton, on Monday, 18th inst., there being a good attendance of the members, presided over by Mr. B. LADHAMS in the absence of the President. Mr. A. DEAN, London, gave an interesting lecture, entitled "Horticultural Exhibitions: their Uses and Lessons."

HAMPSTEAD GREEN.—The Tree and Open Spaces Committee of the Hampstead Vestry have issued a report stating that they have carefully considered a letter from Sir HENRY HARBEN, the chairman, intimating that upon his recommendation a lady had bought for £7,500, the Hampstead Green property recently put up to auction for the sole purpose of enabling the vestry to make up their minds what they will do with regard to the green or paddock in front of the houses standing on the property, and that if the offers were sufficient she would dedicate the paddock to the public in order that it might be preserved as an open space for ever. In the opinion of the committee the opportunity now afforded by the generous and public-spirited action of the lady of maintaining the present picturesque and sylvan approach to Hampstead from London should not be lost, and they recommend that the necessary steps be taken for the acquisition of the Green and the dedication thereof to the public. The lady referred to, who wishes to remain anonymous, has said that she will herself make a contribution to the acquisition of the Green.

YORKSHIRE NATURALISTS' UNION.—We have particulars of the 147th meeting of this Association to be held on the 25th, 26th, and 27th inst. at Sutton, near Askern. A fungus foray will be made from that place over Campsall, Burghwallis, and Ouston Woods. Another meeting will take place on the 28th inst., at Barnsley, for the investigation of Worsborough reservoir, Stainborough, Broom Royd, Friarfall, and other woods in the neighbourhood. The Hon. Sec. of the Naturalists' Union is Mr. W. DENISON ROEBUCK, F.L.S., 259, Hyde Park Road, Leeds, but all communications with regard to the scientific business of the Mycological Committee should be addressed to Mr. C. CROSSLAND, F.L.S., Halifax, the Committee's Secretary.

HOME CORRESPONDENCE.

FIGS IN KENT.—Am I correct in thinking the Figs herewith sent to be Brown Turkey? [Yes. Ed.] They are gathered from large standard trees, which must be very old. Some of the first fruits weighed half a pound, and the flavour has been first-rate, owing, no doubt, to the very hot, dry season. When allowed to hang on the tree until fully ripe, Figs get the sweetness without which, to my taste, they are not worth eating. If it would interest readers of the *Gardeners' Chronicle*, I should be pleased to furnish particulars of the size, cropping powers, &c., of the two trees from which the enclosed fruits were gathered. *Thomas Bowie, Elmwood Gardens, St. Peter's, Kent.* [Please do. The largest of the fruits sent was a little over 5 oz. Ed.]

RUBUS ROSÆFOLIUS.—Last autumn a small plant was sent to me by a lady, who got it from France under the name *Fraisier Framboisier*, and it was said to be a hybrid between a Strawberry and a Raspberry. I do not know whether such a hybrid has ever been verified, but the characters of

H. nudiflorum, I distributed it to friends under that name provisionally, telling them if anyone disputed the name to ask the reasons, and to let me know. In this case, as in all others, I should have preferred to compare the plant with the types in Kew Herbarium, but I live too far from Kew to do this myself, and though I formerly used to get my specimens verified from this source by a local botanist on payment of a small fee for each plant, the regulations at Kew now forbid this. But even with this help garden forms are often difficult to identify, especially in the case of North American Composites, many of which hybridise readily when flowering together. Asa Gray says "*H. nudiflorum* (see *Nth. Am. Fl.*, vol. i., page 349) hybridises with *H. autumnale*," so we may very likely be discussing a hybrid. But apart from this chance, *H. autumnale* is very variable in stature and form if not in colour, and already figures in English nursery catalogues under several names, both authorised and spurious. We have *H. grandiflorum* and *H. pumilum*, authorised varietal names; and *H. superbum*, a spurious name, for which the authorised *H. altissimum*, Link., would be more appropriate. For this variegated plant, perhaps

ROYAL HORTICULTURAL SOCIETY'S COMMITTEES.—The subject to which Mr. Long refers at page 230, was thoroughly thrashed out in the gardening papers sometime since, and the ultimate conclusion was that having more than one central Certificate-granting body by the Royal Horticultural Society for the dealing with flowers, fruits, and vegetables, Orchids, Daffodils, &c., would be impracticable. Things rejected by the old and experienced central body because not good enough for an award, would probably if placed before a local committee, receive an award, simply because this latter body did not possess the knowledge as to what similar products may be in existence, that the central body would possess. Of course, any local society may, if it chooses, establish its own committees, and make awards of certificates, &c., but then, how comparatively worthless would they be. The Drill Hall committee largely include members from all parts of the kingdom, but how difficult it is for the distant ones to attend the meetings! Only constant attendance will keep members up-to-date, with either committee. *A. D.*

PROTECTING PEACH-TREES WHEN IN BLOOM.—Mr. Markham re-opens a subject which has received considerable discussion in horticultural journals from time to time. It is also a subject upon which cultivators agree to differ, as these pages amply testify. I have about sixty Peach and Nectarine-trees here which are not covered at any time, and which never fail to produce good crops. This year I had to thin heavily, removing quite two-thirds of the young fruits; the trees were also practically free from blister. I have studied the behaviour of these trees during the flowering season for several years, in order to find out whether protection is absolutely necessary or not, and to arrive at this knowledge I removed an unopened bud which had been frozen black, and pulled it to pieces. I found that although the petals were destroyed the stamens and style had not been injured, as the anthers had burst without seeing the light, and pollen had been distributed over the stigma. With the view to finding out if fertilisation had taken place under these conditions, I marked several other buds which had not opened, and which were similarly frozen, by tying raffia round the stem, and removing all other buds near them. These have developed into perfect fruits, each containing what appears to be a perfect seed. This, I take it, shows that the petals, though frozen black, had afforded protection to the anthers and stigmas. This probably explains why Mr. Markham's unexpanded blooms proved best. In the case of Peaches and Nectarines, the flowers open successively; but in Apricots, which, from the reports of the fruit crops recently, have suffered most, the flowers are open altogether. In such a case it is imperative that the blooms be protected, for once they are frozen, the case is hopeless. Moreover, the Apricot seems more susceptible to a few hours' sunshine than either the Peach or the Nectarine, and may often be found carrying expanded blooms before the Peach and Nectarine flowers have burst the protecting scales. Returning to Peaches and Nectarines, I am of opinion that much may be done to save or secure crops by removing the bearing wood soon after the fruit is gathered, thereby strengthening the next season's wood, and securing free access of air and sunshine to promote ripening; also by levelling the borders in which the trees are planted so far as is possible, in order that they may not be hastened into flower too early. The additional heat absorbed by an inclined border early in the year is of sufficient importance to be noted, and this heat must be instrumental in bringing the trees into flower earlier than they would do on the level. Anyway, the plan proves to be excellent in practice. I have seen numbers of trees, which have been covered with protecting-material bearing indifferent crops, and suffering badly from blister; whilst others on the same wall without protection, have borne excellent fruits in quantity, and have been free from blister. Both soil and situation have to be considered in exposing, and apparently risking so important a crop as Peaches and Nectarines to the elements, and it is well to experiment with a single tree by planting it on the level, in a well-drained soil, noting the amount of frost registered at the flowering season, and the behaviour of the tree from year to year. In most cases I think it will be found that protection is needless, and Peaches plentiful. *Geo. B. Mallett, Isleworth.*

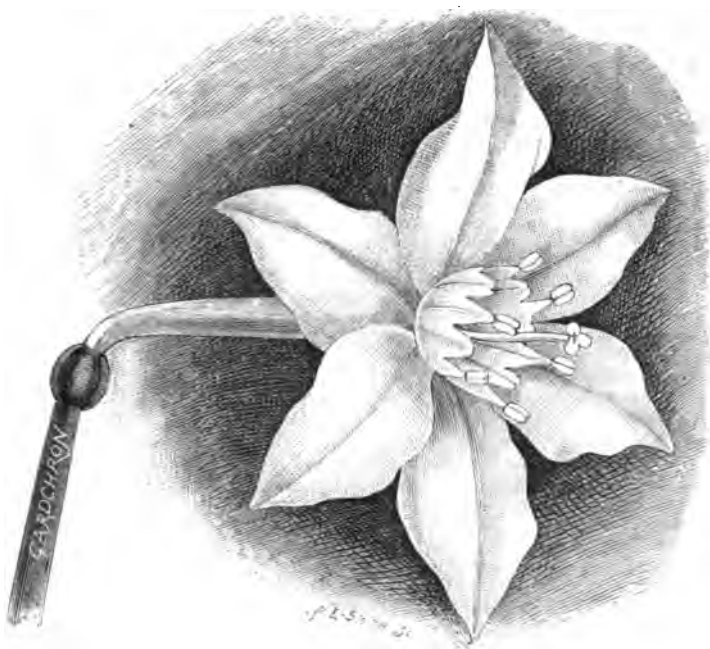


FIG. 85.—EUCHARIS BAKERIANA. (SEE P. 239.)

this plant were so unlike those of either reputed parent, that I sent it to be named on good authority, and find it is *Rubus roesfolius* (Smith), a native of tropical Asia, ascending a few thousand feet into the Sikkim Himalayas; but though it lived out through last winter, and is offered as hardy in some catalogues, I do not expect to keep it out-of-doors in a hard winter. The flowers are the size of large Strawberry-flowers, uniform, pure white, and ornamental. The leaves are dark green, and very thorny at the back. The habit is elegant and prostrate, with a tendency to run underground. See *Bot. Mag.*, t. 1783, where a double form is figured; also *Loddiges' Cabinet*, t. 158, for the single form. *C. Wolley Dod, Edge Hall.*

HELENIUM NUDIFLORUM?—Mr. Arnott, on p. 222, calls upon me to settle the correct name of the plant generally known in nurseries as *H. grandicephalum striatum*. When I first got it five or six years ago from Ware's nursery, objecting as I do to unauthorised quasi-botanical names, I looked through the descriptions of *Helenium* in Asa Gray's *Flora of North America* to see if I could not find a better name. The only species there described as having rays striped with brown-purple is *H. nudiflorum*; and as the characters of this plant with striped flowers seemed in other respects to answer sufficiently well to those of

H. autumnale var. *striatum* would be a safe name, even though not authorised. *H. nudiflorum*, according to Asa Gray, ought to have sterile ray flowers; but these striped flowers appear to have the ray-flowers perfect. But whatever its name, the plant makes a very pleasing variety amongst the forests of tall North American yellow Composites which nearly fill our borders in September. *C. Wolley Dod, Edge Hall, Malpas.*

NE PLUS ULTRA RUNNER BEAN.—This fine Scarlet Runner, and the various selections made from it, A1, Prizewinner, Best-of-All, and Hill's Prize, with some others, is now being universally grown in gardens, not only because the pods are so long, straight, and handsome, but because such abundant crops are produced. Very recently, a correspondent in the West of England, wrote complaining that judges at a local show had disqualified a handsome dish of *Ne plus Ultra* because they were too long. That was an odd objection to Beans 10 inches in length. What would these sapient persons have said to the wonderful sample of Best-of-All, shown by Messrs. Sutton & Sons at Shrewsbury, 13 inches long. Of course, such long Beans are not required, and habitually the pods are gathered for table shorter, and for exhibition when 10 inches long. A very even green sample of such pods now constitute a common dish at shows. *A.*

THE CAPE GOOSEBERRY IN THE OPEN AIR.—I have pleasure in sending you a sample of Cape Gooseberries, *Physalis pubescens*, grown and ripened in the open air in my garden at "Oaklands," Marchwood, near Southampton. These were gathered to-day (September 18), the fruit having gone on ripening during the recent cold weather, and even to-day the plants are bearing flowers and fruit at the same time. The fruit-bearing plants are from seed sown in February last in heat, and planted out on April 15, after which sharp frosts occurred for a week, which cut down to the ground Cape Gooseberries, Tomatos, and Potatos. The Cape Gooseberries, as well as the others, came up again, and formed sturdier plants than those put out early in May. Strange to say, that though the plant belongs to tropical (Barbadoes) and sub-tropical zones, it has thriven this year decidedly better with me in the open air than under glass. I have had a fair supply of, to me, delicious fruit this year, and I hope next to have a much better one, if I can protect the roots from too much frost. *J. A. R.*, September 18. [Exceedingly nice-flavoured, full-grown fruits. Ed.]

GRAPES, CLIMATE, AND ATMOSPHERE AT ALLOA, N.B.—I may say that I know the town of Alloa fairly well. In it there are nine breweries, one distillery, one manufactory of chemicals, two brickmaking-works, two potteries, one copper-work, five engineering-works, two iron-foundries, one woollen manufactory, the Alloa Coal Co.'s coal-mine, and four yarn manufactories; yet from out of the midst of this busy commercial town came the Grapes that won 2nd in the champion class, and 1st in that for four bunches of Grapes at the last Shrewsbury Show. Surely your correspondent of last week cannot maintain that the atmosphere of Alloa is as good as he would have us believe it is. *A. K.*

THE ROSARY.

MARÉCHAL NIEL ROSE.

Has any reader of the *Gardeners' Chronicle* ever tried Maréchal Niel worked on Rose *Devoniensis* as a panacea for canker and loss of vigour after a few years cultivation under glass? If not, a market grower would recommend a trial being made, as with me the Rose has never yet shown a tendency to canker, but rather, as years go on, increase in vigour. There is much to recommend the use of *Devoniensis* as a stock, it being vigorous, with thick bark, and tenacious of life; the flowers, though good, are not so valuable as those of M. Niel, and it is not so profuse or regular a bloomer indoors. I have tried M. Niel on almost every kind of Rose, Manetti, de la Grifferae, Sweet Briar (which is a good one), Dog-Roses of the hedge-rows, and the less prickly one which grows in damp ground; Dundee Rambler, Hybrid Perpetual, Lamarque, Réve d'Or, Cellini Forestier, and Gloire de Dijon, with interesting results; but the old Tea-Rose *Devoniensis* takes the palm for producing the weightiest blooms. I do not mean from *Devoniensis* on its own roots, but when worked on the seedling Briar or prepared Briar-stocks, which when established make robust growths, 10 to 12 feet long. From stocks from cuttings, excepting in the case of Gloire de Dijon, they do not reach that degree of vigour quickly, but the union with the Briar gives it forthwith.

The method of procedure is by budding and inarching; by the former, inserting the bud in the robust growths, which this variety produces liberally, from 3 to 6 inches apart, awaiting results. A man could quickly insert a few hundred, and no matter if the buds are from weak wood, on this stock the shoots develop very weighty blooms. Of course, the branches operated upon must be kept in an upward, or at least, an oblique position, or the buds will start into growth directly, as many have so done to a length of 4 to 6 feet since May. The whole of the stems can be done at one time (even now it is not too late—I put on ninety buds on September 9), or a few at a time, as the growth develops. If it is desired to have several varieties on a plant, choose Catherine Mermet, Madame Thérèse Levet, Lambard, Perle, &c., which will be attractive the whole summer. A branch treated in this

manner trained horizontally, has given many fine blooms, M. Niel having grown very freely, and the branch is now about 17 feet long, and I am still adding other buds alternately with M. Niel.

Those that start are shortened back, so as to carry from six to ten flowers, never all of them being wished for. If the shoot be bent to a horizontal position, each bud will start. After flowering, prune hard back to the main stem if a M. Niel, and other growth will follow for another year, a method generally followed with this variety. If the sap is not on the move, the application of a few pots of water to the roots will soon set up activity. If the worked buds remain dormant till the spring, the blooms are of the finest quality. I could say more about inarching M. Niel on *Devoniensis*, Gloire de Dijon, Réve d'Or, A. K. Richardson, and others, at some future time. [Please do so. Ed.] M. Niel worked on A. K. Richardson, bloomed freely a second time this year.

Perhaps "Growler" will ask "why all this trouble when Roses can be bought so cheaply?" Canker comes to M. Niel in many kinds of soil, and if we cannot cure it, we may try to prevent it by using a stock which is not liable to it. *J. K., Wimborne.*

AMERICAN NOTES.

THE AMERICAN ROSE SOCIETY.

A MEETING of the newly-formed Rose Society was held at Detroit during the large Convention, with the President, W. C. Barry, of the firm of Elwanger & Barry, Rochester, N. J., in the chair. The first exhibition of the Society will be held in New York next year, and the schedule will be ready in a few weeks. This show will, of course, be for varieties grown under glass, and great things are expected of the society. Its opportunities are large, and all depends upon the course of procedure that the leaders there follow out. It is really surprising how small the list of Roses in regular cultivation is—half-a-dozen at the most; Mr. Hill says three. If the American Rose Society will do for us what the English society has done on your side of the water, we shall be more than jubilant.

NEW SCALES OF POINTS FOR CHRYSANTHEMUMS.

The Chrysanthemum Society has adopted new scales of points for judging, which now read as follows:—

SCALE A.—Scale of points for bush-plants and standards, single specimen, or any number up to six, in an exhibition where the class under consideration does not form the chief feature in the exhibition-hall:—

Equality of size and form of plant	...	...	40 points.
Excellence of bloom	...	...	35 "
Foliage	...	...	25 "

Total ... 100 points.

SCALE B.—Scale of points for bush-plants; exhibits of more than six, or for any number of specimen-plants in an exhibition, where the class under consideration forms the chief feature in the exhibition-hall:—

Equality of size and form of plant	...	...	35 points.
Excellence of bloom	...	...	40 "
Foliage	...	...	25 "

Total ... 100 points.

SCALE C.—Scale of points for plants grown to single stem and one bloom. A height of not over 3 feet is recommended for plants in this class, and pots not over 6 inches in diameter:—

Compact and sturdy growth	...	...	35 points.
Excellence of bloom	...	...	40 "
Foliage	...	...	25 "

Total ... 100 points.

SCALE D.—Scale for points for specimen blooms:—

Colour	...	...	25 points.
Form	...	...	25 "
Fullness	...	...	15 "
Stem and foliage	...	...	10 "
Substance	...	...	10 "
Size	...	...	15 "

Total ... 100 points.

The changes in the latter scale were the addition of foliage to stem, and the substitution of substance for petalage.

DISCOUNTING THE ELEMENTS.

The Florists' Hall Association continues to flourish and do good work, but owing to a lack of interest the recently-circulated scheme for fire insurance on green-houses has been thrown over. The Hall Association now carries an aggregate of 11,309,865 square feet of glass, and has paid in the year just past 5,800 dollars in claims. The way a hailstorm goes and comes is "one of those things that no feller can understand," and each year there are surprises all round, but the most surprised man is he who did not insure because a hailstorm "never comes my way." There are some such individuals in both England and America, for human nature is very much the same the world over. *Our own Correspondent.*

Obituary.

WILLIAM THOMSON.—Many of the older readers of the *Gardeners' Chronicle* will be grieved to learn of the death of Mr. William Thomson, which took place at Teignmouth on Saturday, September 16, in the seventy-fifth year of his age, he having been born July 19, 1825, a day mentioned in *White's Natural History of Selborne* as being hotter than any day in the previous 100 years. From 1846 to 1851, he was curator of the Museum of Human and Comparative Anatomy, and of *Materia Medica*, King's College, London, where he was also lecturer on the "Use of the Microscope in Botanical and Zoological Investigations." In 1852-53, he was superintendent of the Natural History department of the Crystal Palace at Sydenham. This department consisted of several sections: that of the geographical distribution of plants and animals, being under the direction of Prof. Edward Forbes; that of geology, under Prof. Anstead; that of Paleontology, under Prof. Owen; and that of ethnology, under Dr. R. Gordon Latham. In addition to these varied collections, he originated a museum of raw products in connection with arts, science, and manufactures, which was subsequently carried on by Dr. David Price.

From 1856 to 1894, Mr. Thomson was secretary to the City of London Club. In the earlier part of that time there was a good deal of competition in the London Clubs in dinner-giving, which induced him to pay attention to floral decoration for the table, for which his club got considerable repute. He contributed many articles on that subject to this journal and the *Garden*. He was often in request as a judge at metropolitan and suburban flower shows in those years. In 1885, he wrote a series of articles upon "House, Area, and Window Gardening," which were published in *Cassell's Popular Gardening*. Besides his varied work in connection with horticulture, Mr. Thomson in 1856, published a book on the art of ornamental hairwork, the only one probably existing in the English language. At the suggestion of Professor Ed. Forbes, he described the researches which he had made on the lingual teeth of the British land and fresh-water Mollusca, a subject which had not then been taken up in this country. This paper was read at the meeting of the British Association in Edinburgh in 1850, and was in February, 1851, reprinted in the *Annals of Natural History*. The deceased gentleman had for several years lived in retirement at Teignmouth.

ALFRED HENDERSON.—American horticultural periodicals contain notices of the death of A. Henderson, eldest son of the late Peter Henderson, at his summer home, Spring Lake, New Jersey, U.S.A., on September 5, aged forty-seven years. After completing his education he underwent a thorough training under his father at the nursery in Jersey City and the seed-stores in New York, then Henderson & Fleming. In 1871 the firm of P. Henderson & Co. was established by his father, he and Mr. W. H. Carson being the associate partners. In 1876 Carson withdrew, Jas. Reid becoming the third member of the firm. The latter died in 1887, and Charles, the younger son of P. Henderson, was then admitted to the partnership. Upon the death of their father, in 1890, the business was incorporated, an interest being given to some old employés in charge of departments. The business capacity of the deceased was enormous, and he greatly extended and consolidated the business founded by his father.

PLANT PORTRAITS.

NERINE FOTHERGILLI AND N. EXCELLENS VAR. ROSEA.—The first is synonymous with *N. curvifolia* and *Amaryllis curvifolia*, Jacq., or A. Fothergillii, Andr. Introduced from the Cape in 1788. The second is stated by Mr. J. G. Baker to be a hybrid of *N. flexuosa* and *N. humilis* major. Known also as *N. flexuosa excellens*. Introduced to commerce in 1883. Coloured plate. *Illustrirte Garten Zeitung*, August-September, 1899.

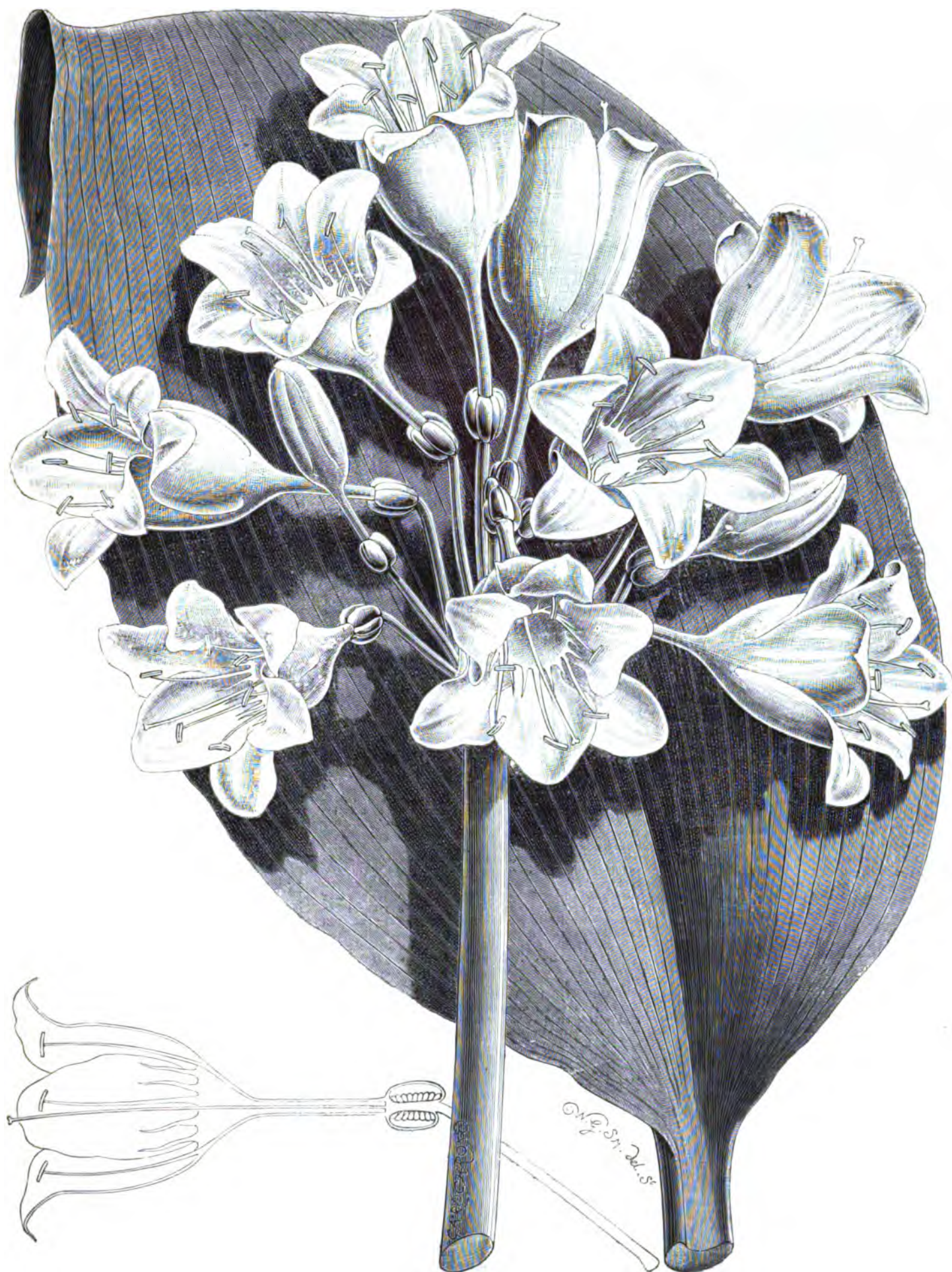


FIG. 86.—URCEOCHARIS CLIBRANI. (SEE P. 239.)

THE BRITISH ASSOCIATION.

(DOVER, THURSDAY, SEPTEMBER 14.)

SIR GEORGE KING, K.C.I.E., LL.D., M.B., F.R.S., President of the "K" or Botanical Section, gave as his address a Sketch of the History of Indian Botany, of which we append the more interesting passages.

The earliest references in literature to Indian plants are, of course, those which occur in the Sanskrit classics. These are, however, for the most part vague and obscure. The interest which these references have, great as it may be, is not scientific, and they may therefore be omitted from consideration on the present occasion. The Portuguese, who were the first Europeans to appear in India as conquerors and settlers, did practically nothing in the way of describing the plants of their Eastern possessions. And the first contribution to the knowledge of the Botany of what is now British India was made by the Dutch in the shape of the "Hortus Malabaricus," which was undertaken at the instance of Van Rheede, Governor of the territory of Malabar, which during the latter half of the seventeenth century had become a possession of Holland. This book, which is in twelve folio volumes and is illustrated by 794 plates, was published at Amsterdam between the years 1686 and 1703, under the editorship of the distinguished botanist Commelyn. The "Hortus Malabaricus" was based on specimens collected by Brahmans, on drawings of many of the species made by Mathæus, a Carmelite missionary at Cochin, and on descriptions originally drawn up in the vernacular language of Malabar, which were afterwards translated into Portuguese by Corneio, a Portuguese official at Cochin, and from that language finally done into Latin by Van Dons. The whole of these operations were carried on under the general superintendence of Casarius, a missionary in Cochin. Of this most interesting work the plates are the best part; in fact, some of these are so good that there is no difficulty in identifying them with the species which they are intended to represent. The next important contribution to the botanical literature of Tropical Asia deals rather with the plants of Dutch than of British India. It was the work of George Everhard Rumph (a native of Hanover), a physician and merchant, who for some time was Dutch Consul at Amboina. The materials for this book were collected mainly by Rumph himself, and the Latin descriptions and the drawings (of which there are over one thousand) were his own work. The book was printed in 1690, but it remained unpublished during the author's lifetime. Rumph died at Amboina in 1706, and his manuscript, after lying for thirty years in the hands of the Dutch East India Company, was rescued from oblivion by Professor John Burman, of Amsterdam (commonly known as the elder Burman), and was published under the title of "Herbarium Amboinense," in seven folio volumes, between the years 1741 and 1755. The illustrations of this work cover over a thousand species, but they are printed on 696 plates. The works of Plukenet, published in London between 1696 and 1705, in quarto, contain figures of a number of Indian plants which, although small in size, are generally good portraits, and therefore deserve mention in an enumeration of botanical books connected with British India. An account of the plants of Ceylon, under the name "Thesaurus Zeylanicus," was published in 1737 by John Burman (the elder Burman), and in this work many of the plants which are common to that island and to Peninsular India are described. Burman's book was founded on the collections of Paul Hermann, who spent seven years (from 1670 to 1677) exploring the flora of Ceylon at the expense of the Dutch East India Company. The nomenclature of the five books already mentioned is all uni-nominal.

Hermann's Cingalese collection fell, however, sixty years after the publication of Burman's account of it, into the hands of Linneus, and that great systematist published in 1747 an account of such of the species as were adequately represented by specimens, under the title "Flora Zeylanica." This Hermann Herbarium, consisting of 600 species, may still be consulted at the British Museum, by the trustees of which institution it was acquired, along with many of the other treasures possessed by Sir Joseph Banks. Linneus's "Flora Zeylanica" was followed in 1768 by the "Flora Indica" of Nicholas Burman (the younger Burman)—an inferior production, in which about 1,500 species are described. The herbarium on which this "Flora Indica" was founded now forms part of the great Herbarium Delessert at Geneva.

THE "UNITED BROTHERHOOD."

The pioneer John Gerard Koenig was a native of the Baltic province of Courland. He was a correspondent of Linneus, whose pupil he had formerly been. Koenig went out to the Danish Settlement at Tranquebar (160 miles south of Madras) in 1768, and at once began the study of botany with all the fervour of an enthusiasm which he succeeded in imparting to various correspondents who were then settled near him in Southern India. These friends formed themselves into a society under the name of "The United Brothers," the chief object of their union being the promotion of botanical study. Three of these brothers, viz., Heyne, Klein, and Rottler, were missionaries located near Tranquebar. Gradually the circle widened, and before the century closed, the enthusiasm for botanical research had spread to the younger Presidency of

Bengal, and the number of workers had increased to about twelve, among whom may be mentioned Fleming, Hunter, Anderson, Berry, John, Roxburgh, Buchanan (afterwards Buchanan-Hamilton), and Sir William Jones, so well known as an Oriental scholar. Rottler was the only member of the band who himself published in Europe descriptions of any of the new species of his own collecting, and these appeared in the "Nova Acta Acad. Nat. Curiosorum" of Berlin. A little later Sonnerat and other botanists of the French Settlement at Pondicherry sent large collections of plants to Paris, and these were followed at a considerably later date by the collections of Leschenault. These French collections were described chiefly by Lamarck and Poiret. Hitherto botanical work in India had been more or less desultory, and it was not until the establishment in 1787 of the Botanic Garden at Calcutta that a recognised centre of botanical activity was established in British India. Robert Kyd, the founder of that Garden, was more of a gardener than a botanist. He was, however, a man of much energy and shrewdness. Kyd, as a Lieutenant-Colonel of the Company's engineers, and as Secretary to the Military Board at Calcutta, occupied a position of considerable influence, and his suggestion evidently fell on no unwilling ears; for the Government of Bengal, with the promptitude to accept and to act on good advice in scientific and semi-scientific matters which has characterised them from the day of Kyd until now, lost no time in taking steps to find a site for the proposed garden. Colonel Kyd's official proposal was dated June 1, 1786, and, in a despatch dated August 2, the Calcutta Government recommended Kyd's proposal to the Court of Directors in London. Posts were slow and infrequent in those days, and the Calcutta Government were impatient. They did not wait for a reply from Leadenhall Street, but in the following July they boldly secured the site recommended by Colonel Kyd. This site covered an area of 300 acres, and the whole of it, with the exception of thirty acres which were subsequently given up to Bishop Middleton for an English College, still continues under cultivation as a Botanic Garden. Kyd died in 1793, and in the same year his place as Superintendent of the Garden was taken by Dr. William Roxburgh, a young botanical enthusiast, and one of Koenig's "United Brotherhood."

DR. W. ROXBURGH AND OTHERS.

In 1776 Roxburgh accepted an appointment in the Company's Medical Establishment, and was posted at Madras, where he very soon made the acquaintance of Koenig. Roxburgh was shortly afterwards transferred to a remote district, a good deal to the north of Madras, then named the Northern Circars. The station of Samulcoota, which formed Roxburgh's headquarters during his sojourn in the Circars, stands on the edge of a hilly region possessing a very interesting flora, and this flora he explored with the greatest ardour; and as part of the result of his labours an account of some of the most interesting of its plants was published in London, at the East India Company's expense, in three large folio volumes under the title "The Plants of the Coast of Coromandel." This was Roxburgh's earliest publication on a large scale. The first part of this book appeared in 1795, and the last not until 1819, i.e., five years after the author's death. The increased facilities afforded to Roxburgh after his transfer to a comparatively well-equipped institution like that at Calcutta induced him at once to begin the preparation of descriptions of all the plants indigenous to British India which he could procure specimens. And so diligently did he work that, when he was finally driven from India by ill-health in 1813, he left complete and ready for publication, the manuscripts of his "Flora Indica" and of his "Hortus Bengalensis" (the latter being an enumeration of the plants in cultivation in the Calcutta Garden). He also left admirable coloured drawings (mostly of natural size) of 2,533 species of plants indigenous to India. Seldom have twenty years yielded so rich a botanical harvest! Dr. Roxburgh was thus the first botanist who attempted to draw up a systematic account of the plants of India, and his book, which is on the Linnean system, is the basis of all subsequent works on Indian Botany; and until the publication of Sir Joseph Hooker's monumental "Flora of British India" it remained the only single book through which a knowledge of Indian plants could be acquired. Roxburgh was immediately succeeded in the Calcutta Garden by Dr. Buchanan-Hamilton, a man of many accomplishments, who had travelled from Nepal in the North to Ava and Mysore in the South, accumulating materials for a Gazetteer of the Honourable Company's possessions. Dr. Buchanan was a zoologist as well as a botanist. He had published a valuable account of Mysore, Canara, and Malabar, and had collected materials for a work on the Fishes of India, besides having accumulated a large herbarium, part of which may now be consulted at the University of Edinburgh. Prior to his death Buchanan-Hamilton had begun to write a learned commentary on Van Rheede's "Hortus Malabaricus." Many of his Nepalese collections were described in 1825 (a few years before his own death), by Don in his "Prodromus Floræ Nepalensis."

NATHANIEL WALLICH AND ROBERT WRIGHT.

Buchanan-Hamilton remained only one year at Calcutta, and in 1815 he was succeeded by Nathaniel Wallich, a native of Copenhagen, who, prior to his appointment to the Calcutta Garden, had been attached to the Danish settlement at Serampore, twenty miles higher up the Hooghly. Wallich remained Superintendent of the Calcutta Garden for thirty years. In 1846 he went to England, and in 1864 he died. During his tenure of office in the Calcutta Garden, Wallich organised collecting expeditions to the then little-known regions of Kamaon and Nepal (in the Himalaya), to Oudh, Rohilcund, Sylhet, Tenasserim, Penang, and Singapore. He undertook in fact a botanical survey of a large part of the

Company's possessions in India. The vast materials thus collected under his own immediate direction, and the various contributions made by others, were taken to London by him in 1828. With these were subsequently incorporated the collections of Russell, Klein, Heyne, Rottler, Buchanan-Hamilton, Roxburgh, and Wight. And by the help of a band of distinguished European botanists, among whom may be named De Candolle, Kunth, Lindley, Meisner, Nees von Esenbeck, Von Martius, and Benthams (the latter in a very special manner), this vast mass of material was classified and named specifically. A catalogue of the collection was prepared by Wallich himself (largely aided by Benthams), and sets of the named specimens were distributed to the leading Botanical institutions in Europe, every example of each species bearing the same number.

During much of the time that Wallich was labouring in Northern India, Robert Wight, a botanist of remarkable sagacity and of boundless energy, was labouring in Southern India, chiefly in parts of the Peninsula different from those in which Koenig and his band had worked. Wight was never liberally supported by the Government of Madras, and it was mostly by his own efforts and from his own resources that his collections were made, and that his botanical works were published. The chief of the latter is his "Icones Plantarum." This book consists of figures with descriptions of more than two thousand Indian species.

Besides this *magnus opus*, Wight published his "Spicilegium Nilghirense" in two vols. quarto, with 200 coloured plates. And between 1840 and 1850 he issued in two vols. quarto, with 200 plates, another book named "Illustrations of Indian Botany," the object of which was to give figures and fuller descriptions of some of the chief species described in a systematic book of the highest botanical merit, which he prepared conjointly with Dr. J. Walker-Arnot, Professor of Botany in the University of Glasgow, and which was published under the title "Prodromus Floræ Peninsulæ Indicæ." The "Prodromus" was the first attempt at a Flora of any part of India in which the natural system of classification was followed. Owing chiefly to the death of Dr. Walker-Arnot, this work was never completed, and this splendid fragment of a Flora of Peninsular India ends with the natural order Dipsacaceæ.

WILLIAM GRIFFITH

The next great Indian botanist, whose labours demand our attention, is William Griffith. Born in 1810, sixteen years after Wight, and twenty-four years later than Wallich, Griffith died before either. But the labours even of such devotees to science as were these two are quite eclipsed by those of this most remarkable man. Griffith's botanical career in India was begun in Tenasserim. From thence he made botanical expeditions to the Assam valley, exploring the Mishmi, Khasia, and Naga ranges. From the latter he passed by a route never since traversed by a botanist, through the Hookung valley down the Irrawadi to Rangoon. Having been appointed, soon after his arrival in Rangoon, surgeon to the Embassy to Bhutan, he explored part of that country and also part of the neighbouring one of Sikkim. At the conclusion of this exploration he was transferred to the opposite extremity of the northern frontier, and was posted to the army of the Indus. After the subjugation of Cabul, he penetrated to Khorasan. Subsequently he visited the portion of the Himalaya of which Simla is now the best-known spot. He then made a run down the Nerbudda valley in Central India, and finally appeared in Malacca as civil surgeon of that settlement. At the latter place he soon died, of an abscess of the liver brought on by the hardships he had undergone on his various travels, which were made under conditions most inimical to health, in countries then absolutely unvisited by Europeans. No botanist ever made such extensive explorations, nor himself collected so many species (9,000) as Griffith did during the brief thirteen years of his Indian career; none ever made so many field notes or wrote so many descriptions of plants from living specimens. His botanical predecessors and contemporaries were men of ability and of devotion. Griffith was a man of genius. He did not confine himself to the study of flowering plants, nor to the study of them from the point of view of their place in any system of classification. He also studied their morphology. The difficult problems in the latter naturally had most attraction for him, and we find him publishing, in the "Linnean Transactions," the results of his researches on the ovule in Santalum, Loranthus, Viscum, and Cycas. Griffith was also a cryptogamist. He collected, studied, and wrote much on Mosses, Liverworts, Mariliaceæ, and Lycopoda, and he made hundreds of drawings to illustrate his microscopic observations. Wherever he travelled he made sketches of the most striking features in the scenery. His habit of making notes was inveterate; and his itinerary diaries are full of information not only on the botany, but also on the zoology, physical geography, geology, meteorology, archaeology, and agriculture of the countries through which he passed. His manuscripts and drawings, although left in rather a chaotic state, were published after his death under the editorship of Dr. McClelland, at the expense of the enlightened and ever-liberal East India Company. They occupy six volumes in octavo, four in quarto, and one (a "Monograph of Palms") in folio.

WILLIAM JACK, AND VICTOR JACQUEMONT.

Another botanist of much fame, who died prematurely in 1822, after an Indian career of only nine years, was William Jack. In 1814-15 Jack accompanied Ochterlony's army to the Nepal teral. He was transferred in 1818 to the Company's settlement in Sumatra under Sir Stamford Raffles, and during the four years of his residence in Sumatra he contributed to botanical literature descriptions of many new genera and species which were published in his "Malayan Miscellanies."

His collections, unfortunately, were for the most part lost by an accident, but those which were saved are now in the Herbarium Delessert in Geneva.

Somewhat similar to Griffith in temperament and versatility was the brilliant Victor Jacquemont, a French botanist who, at the instance of the Paris Natural History Museum, travelled in India for three years from 1829 to 1832. During this period Jacquemont collected largely in the Gangetic plain. He then entered the North-West Himalaya at Mussoorie, explored Gharwal and Sirmur, ascended the Sutlej to Kanawar and Piti (at that time unexplored), visited Cashmir, and returning to the plains, crossed northern Rajputana to Malwa and the Deccan. He finally reached Bombay with the intention of returning to France. But at Bombay he succumbed to disease of the liver, brought on by hard work and exposure.

THOMAS THOMSON.

The roll of eminent botanists who worked in India during the first half of the century closes with the name of Thomas Thomson, who collected plants extensively between 1842 and 1847 in Rohilkund and the Punjab, and again still more extensively during a Government mission to the North-West Himalaya and Tibet which was continued from 1847 to 1849. During this period Dr. Thomson explored Simla, Kanawar, Piti, Cashmir, Ladak, and part of the Karakoram. His collections, which were large and important, were transmitted to the Botanic Garden at Calcutta, and thence in part to Kew. They formed no insignificant part of the materials on which the "Flora Indica" and "Flora of British India" were founded. Dr. Thomson also published an account of his travels—an admirable book, though now jostled out of memory by the quantities of subsequently issued books of Himalayan travel and adventure.

WORK COMMENCED IN THE N.-W. PROVINCE.

About the year 1830 a second centre of botanical enterprise was established at Beharunpore, in the North-West Provinces. A large old garden near that important town, which had been originally founded by some Mohammedan nobles of the Delhi Court, was taken over by the Honourable Company, and was gradually put upon a scientific basis by Dr. George Govan, who was appointed its first superintendent. Dr. Govan was in 1823 succeeded by Dr. J. Forbes Royle, and he in 1832 by Dr. Hugh Falconer. Dr. Royle made collections in the Jumna-Gangetic plain, in the Lower Gharwal Himalaya, and in Cashmir. He was distinguished in the field of Economic rather than in that of Systematic Botany, his chief contribution to the latter having been a folio volume entitled "Illustrations of the Botany of the Himalaya Mountains." His valuable labours as an Economic Botanist will be noticed later on. Hugh Falconer was an accomplished paleontologist who devoted but little of his splendid talents to botany. His great contribution to paleontology, the value of which it is almost impossible to over-estimate, consisted of his exploration and classification of the tertiary fossils of the Sewalik range. Falconer was transferred to the Calcutta Garden in 1842.

WESTERN INDIA.

During the first half of the century, a considerable amount of excellent botanic work was done in Western India by Graham, Law, Nimmo, Gibson, Stocks, and Dalzell, the results of whose labours culminated in the preparation by Graham of a "List of the Plants of Bombay," which was not, however, published until 1839 (after his death), in the publication by Stocks of various papers on the Botany of Scinde, and in the publication by Dalzell in 1861 of his "Flora of Bombay." It is impossible in a brief review like the present to mention the names of all the workers who, in various parts of the gradually extending Indian Empire, added to our knowledge of its botanical wealth. It must suffice to mention the names of a few of the chief, such as Hardwicke, Madden, Munro, Edgeworth, Lance and Vicary, who collected and observed in Northern India; Jenkins, Masters, Mack, Simons and Oldham, who all collected extensively in Assam; Hofmeister, who accompanied Prince Waldemar of Prussia, and whose collections form the fine basis of the fine work by Klotzsch and Garcke (Reis. Pr. Wald.); Norris, Prince, Lobb and Cuming, whose labours were in Penang and Malacca; and last, but not least, Strachey and Winterbottom, whose large and valuable collections, amounting to about 2,000 species, were made during 1848 to 1850 in the higher ranges of the Kamaon and Gharwal Himalaya, and in the adjacent parts of Tibet. I cannot conclude this brief account of the botanical labours of our first period without mentioning one more book, and that is the "Hortus Calcuttensis" of Voigt. Under the form of a list, this excellent work, published in 1845, contains a great deal of information about the plants growing near Calcutta, either wild or in fields and gardens. It is strong in vernacular names and vegetable economics.

SIR JOSEPH HOOKER.

The second period of our history begins with the arrival in India in 1848 of Sir (then Dr.) Joseph Hooker. This distinguished botanist came out in the suite of Lord Dalhousie, who had been appointed Governor-General of India. The province to the exploration of which Sir Joseph directed his chief attention was that of Sikkim in the Eastern Himalaya, the higher and inner ranges of which had never previously been visited by a botanist, for Griffith's explorations had been confined to the lower and outer spurs. The results of Sir Joseph's labours in Sikkim were enormous. Towards the end of his exploration of Sikkim he was joined by Dr. Thomas Thomson, and the two friends subsequently explored the Khasia Hills (one of the richest collecting grounds in the world), and also to some extent the districts of Sylhet, Cachar,

and Chittagong. Dr. Thomson subsequently amalgamated the collections made by himself in the Western Himalaya with those made in Sikkim by Sir Joseph individually, and by them both conjointly in Eastern India; and a distribution of the duplicates after the fashion of the Wallichian issue, and second only to it in importance, was subsequently made from Kew. The number of species thus issued amounted to from 6,000 to 7,000, and the individuals were much more numerous than those of the Wallichian collection. The immediate literary results of Sir Joseph Hooker's visit to Sikkim were, (1), his superbly illustrated monograph of the new and magnificent species of *Rhododendron* which he had discovered; (2), a similar splendid volume illustrated by plates founded on drawings of certain other prominent plants of the Eastern Himalayas which had been made for Mr. Cathcart, a member of the Civil Service of India; and (3), his classic "Himalayan Journal"—a book which remains until this day the richest repository of information concerning the botany, geography, and anthropology of the Eastern Himalaya. A remoter result was the appearance in 1855 of the first volume of a "Flora Indica," projected by himself and his friend Dr. Thomson. The first half of this volume is occupied by a masterly introductory essay on Indian botany, of which it is hardly possible to overrate the importance. This remarkable essay contains by far the most important contribution to the Physico-Geographical Botany of India that has ever been made, and it abounds in sagacious observations on the limitation of species and on hybridisation, besides containing much information on the history of Indian botanical collections and collectors. The taxonomic part of the book was cast in a large mould, and the descriptions were written in Latin. Unfortunately the condition of Dr. Thomson's health and the pressure of Sir Joseph's official duties at Kew made it impossible that the book should be continued on the magnificent scale on which it had been conceived. After a period of about twelve years Sir Joseph, however, returned to the task of preparing, with the aid of other botanists, a flora of the Indian Empire, conceived on a smaller scale and written in the English language. His proposals for this work were accepted and officially sanctioned by the Duke of Argyll while he was Secretary of State for India. The first part of this great work was published in 1872 and the last in 1897. In the execution of this great undertaking Sir Joseph had the assistance of Mr. C. B. Clarke, who elaborated various Natural Orders; of Mr. J. G. Baker, who worked out Leguminosae and Scitamineae; and of Sir W. Thistleton Dyer, Messrs. A. W. Bennett, Anderson, Edgeworth, Hiern, Lawson, Maxwell Masters, Stapf and Gamble. The greater proportion, however, of the book is Sir Joseph's own work, and a noble monument it forms of his devotion and genius.

MR. C. B. CLARKE.

Since the date of Sir Joseph Hooker's visit to India, by far the most important botanical work done in India has been that of Mr. C. B. Clarke. Rather than attempt to give any appreciation of my own of Mr. Clarke's labours (which would be more or less of an impertinence), I may be allowed to quote from the preface to the concluding volume of the "Flora of British India," "Sir Joseph Hooker's estimate of them. Referring to all the collections received at Kew since the preparation of the Flora was begun, Sir Joseph writes, 'The first in importance amongst them are Mr. C. B. Clarke's, whether for their extent, the knowledge and judgment with which the specimens were selected, ticketed, and preserved, and for the valuable observations which accompany them.' Mr. Clarke has published numerous papers on Indian botanical subjects in the journals of the Linnean and other societies. He has issued as independent books monographs of Indian Compositae and Cyrtandraceae, the former in octavo, the latter in folio, and illustrated by many plates; and he is now engaged on his *opus maximum*, viz., a monograph of the Cyperaceae, not only of India, but of the whole world; and to the completion and publication of this every systematic botanist is looking forward with eager anxiety.

DR. THOMAS ANDERSON.

During this second half of the century, Dr. Thomas Anderson, who was for ten years superintendent of the Calcutta Garden, collected much; and he had just entered on what promised to be a brilliant career of Botanical authorship when his life was cut short by disease of the liver. Dr. Anderson was also the earliest Conservator of Forests in Bengal. Sulpiz Kurz, for many years Curator of the Calcutta Herbarium, also collected largely in Burma, and besides many excellent papers which he contributed to the "Journal of the Asiatic Society of Bengal," he prepared for Government an excellent manual entitled the "Forest Flora of Burma." This was published in two volumes in 1877. General Sir Henry Collett, who commanded a brigade during the last Burmese war, also made most interesting collections in that country, the novelties of which were described by himself in collaboration with Mr. W. Botting Hemsley, of the Kew Herbarium, in the Linnean Society's "Journal" some years ago. Sir Henry Collett also collected much in the Khasia and Naga hills, and in the portion of the North-Western Himalaya of which Simla is the capital, and on these latter collections, together with the materials in Kew Herbarium, Sir Henry is now elaborating a local Flora of Simla.

REPRESENTATIVES OF THE FOREST DEPARTMENT.

Five officers of the Indian Forest Department, viz., Dr. Lindsay Stewart, Colonel Beddome, Sir D. Brandis, and Messrs. Talbot and Gamble, have within the past thirty years made important contributions to the Systematic Botany of India. Dr. Stewart collected largely, and published in 1869 his "Punjab Plants," a book which gives a very imperfect impression of his acquirements as a botanist. Sir Dietrich

Brandis issued in 1874 his admirably accurate "Forest Flora of the North-West Provinces of India," illustrated by seventy excellent plates. Between the years 1869 and 1873, Colonel Beddome issued his "Flora Sylvatica of the Madras Presidency," illustrated by numerous plates. Colonel Beddome is the only Indian Botanist of note, except Griffith, Mr. C. B. Clarke, and Mr. C. W. Hope, who has written much on Indian Ferns. His two works the "Ferns of Southern India," and the "Ferns of British India," published the former in 1863 and the latter between 1865 and 1870, practically give a systematic account, together with excellent figures, of the whole Fern Flora of India. The fourth Forest officer who has published contributions to Systematic Botany is Mr. W. A. Talbot, whose "List of the Trees, Shrubs, and Woody Climbers of the Bombay Presidency" gives evidence of much careful research. And the fifth is Mr. J. S. Gamble, who, besides amassing at his own expense probably the largest private collection of plants ever owned in India, has published a systematic account of the Indian Bambusaceae, a tribe of grasses which, from the peculiarity of many of the species in the matter of flowering, had so long been the bane of the Indian agrostologist. Mr. Gamble has also published a Manual of Indian Timbers. A Forest officer who was ever ready to help in botanical work, but who never himself published, was Mr. Gustav Mann, for many years Conservator of Forests in Assam, but now lost to India by his premature retirement.

MADRAS AND BOMBAY PRESIDENCIES.

In the Madras Presidency botanical work has been carried on during this second half of the century by Noton, Perrottet, Metz, Hohenacher, Schmidt (on the Nilgiris), Bidie, and Lawson. By the efforts of the latter two a second public Herbarium was established in Madras (the first having been broken up many years ago), and in this second Madras Herbarium are to be found many of the collections of Wight, besides those of the other Madras botanists just named.

In the Bombay Presidency the only public Herbarium is at Poona. This is of recent origin, and owes its existence to the devotion of four men, viz., Dr. Theodore Cooke (late Principal of the College of Science at Poona), Mr. Marshall Woodrow (until recently Superintendent of the Garden at Guneskind and Lecturer in Botany in the Poona College), the late Mr. Ranade (a native gentleman), and Dr. Lisboa (a medical practitioner in the Deccan)—all four enthusiastic botanists. The amount of Government support given to the Herbarium at Poona has hitherto been very inadequate. It is to be hoped that greater liberality may be extended to it now that a stranger to the Bombay Presidency has just been appointed to its charge in the person of Mr. George Gamble, hitherto employed in the Cinchona Department of Bengal.

CRYPTOGAMIC AND ECONOMIC BOTANY.

In this Address I have hitherto made little reference to Cryptogamic and Economic Botany. As regards Cryptogamic botany there is little to relate. Except Griffith, no Indian botanist of the earlier of the two periods into which I have divided my sketch ever did any serious work amongst non-vascular Cryptogams.

Economic Botany has, on the other hand, by no means been neglected. It was chiefly on economic grounds that the establishment of a Botanic Garden at Calcutta was pressed upon the Court of Directors of the East India Company. And almost every one of the workers whose labours I have alluded to has incidentally devoted some attention to the economic aspect of botany.

Tea cultivation is one of the enterprises in the introduction and development of which botanists took a very leading part. The advisability of introducing the industry was first pressed on the attention of the East India Company by Dr. Govan (of Beharunpore), and in this he was seconded by Sir Joseph Banks as President of the Royal Society. Royle in 1827, and Falconer slightly later, again urged it as regards the North-West Himalaya. In 1826 David Scott demonstrated to rather unwilling eyes in Calcutta the fact that real Tea grows wild in Assam. In 1835 Wallich, Griffith, and McClelland were deputed by Government to visit Assam, to report on the indigenous Tea. In the year 1838 the first consignment of Indian-grown Tea was offered for sale in London. The consignment consisted of twelve chests containing 20 lb. each. This first sample of 240 lb. was favourably reported upon. Last year the exports of Tea from India to all countries reached 157 millions of pounds, besides 120 millions of pounds exported from Ceylon!

THE INTRODUCTION OF CINCHONA.

The introduction of Cinchona into India originated purely with the Government botanists. As everybody knows quinine, and to a less extent the other alkaloids present in Cinchona bark, are practically the only remedies for the commonest, and in some of its forms one of the most fatal, of all Indian diseases, viz., malarious fever. The sources of supply of the Cinchona barks in their native countries in South America were known to be gradually failing, and the price of quinine had for long been increasing. The advisability of growing Cinchona in the mountains of British India was therefore pressed upon Government by Dr. Royle in 1835, and he repeated his suggestions in 1847, 1853, and 1856. Dr. Falconer, in his capacity of Superintendent of the Botanic Garden, Calcutta, made a similar suggestion in 1852; and his successors at Calcutta, Dr. T. Thomson and Dr. T. Anderson, in turn advocated the proposal. In 1858 Government at last took action, and as a result of the labours of Sir Clements Markham and Sir W. J. Hooker, of Kew, the medicinal Cinchonas were finally, in the period between 1861 and 1865, successfully introduced into British India—on the Nilgiris under Mr. Melvor, and on the Sikkim-Himalaya under Dr. .

Anderson. The manufacture of quinine had hitherto been practically a trade secret. And when the Indian Government had succeeded in providing the raw material from which a cheap quinine might be made for distribution amongst its fever-stricken subjects, the knowledge of the means of extracting this quinine was wanting. Philanthropic platitudes were freely bandied about as to the immensity of the boon which cheap quinine would be to a fever-stricken population numbering so many millions. But there was a singular absence of any practical help in the shape of proposals, or even hints, as to how quinine was to be extracted from the rapidly-increasing stock of crown and yellow bark. The officers in charge of the Cinchona plantations in India had therefore to do their best to solve the problem for themselves. And it was ultimately solved by Mr. C. H. Wood, at one time Government Quinologist in Sikkim, who suggested, and Mr. J. A. Gamble, Deputy-Superintendent of the plantation there, who carried into practice a method of extraction by the use, as solvents of the Cinchona alkaloids, of a mixture of fusel-oil and petroleum.

THE FOREST DEPARTMENT AND ITS WORK.

In conclusion, I wish to make a few remarks on the third great economic enterprise connected with Botany in India, viz., the Forest Department. The necessity for taking some steps to preserve a continuity of supply of timber, Bamboos, and other products from the jungles which had for generations been exploited in the most reckless fashion, was first recognised by the Government of Bombay, who in 1807 appointed commissioners to fix the boundaries of and to guard the forests in the Presidency. This scheme was abandoned in 1822, but was resumed in a modified form during 1839-40. Seven years later a regular forest service was established in Bombay, and Dr. Gibson was its first head. Dr. Gibson in turn was succeeded by Mr. Dalzell—and both were botanists. In the Madras Presidency the first man to recognise the necessity of perpetuating the supply of Teak for ship-building was Mr. Connolly, collector of Malabar, who in 1843 established a Teak plantation at Nulumbur, which has been carried on, and annually added to, down to the present time. In 1847 Dr. Cleghorn (a botanist) was appointed to report on the conservation of the forests of Mysore (which contain the well-known sandal-wood), and the following year Lieutenant Michael (still with us as General Michael, a hale and hearty veteran) was appointed to organise and conserve the public forests in Coimbatore and Cochin. The crowning merit of General Michael's administration was the establishment, for the first time in India, of a system of protection against the fires which annually used to work such havoc. In 1860 the British Association, at their Edinburgh Meeting, appointed a Committee to consider and report upon the probable effects, from an economic and physical point of view, of the destruction of tropical forests. This Committee's Report was submitted to the Association at the meeting at Ipswich in 1861. The weighty evidence collected in this Report so impressed the Court of Directors of the East India Company that, within a few years, regular forest establishments were sanctioned for Madras and British Burma, the two main sources of the supply of Teak.

In 1856 Mr. (now Sir Dietrich) Brandis was appointed to the care of the forests of the latter province. These forests had been the object of spasmodic efforts in conservancy for many years previously. In 1827 Dr. Wallich reported on the Teak forests, and five years later a small conservancy establishment was organised, officered by natives. This, however, was kept up for only three or four years. In 1837 and 1838 Dr. Helfer reported on these forests, and an English conservator was appointed. In 1842 and 1847 Codes of Forest Laws were drawn up, but do not appear to have been enforced to any extent. In 1853 Dr. McClelland was appointed superintendent, but he continued to hold the office for only a short time. A few years after Sir Dietrich Brandis's assumption of the charge of the Burmese Forests, he was appointed Inspector-General of all the Government Forests in British India; and it is to him that we owe for the most part the organisation of the Indian Forest Department as it now exists. That organisation includes two Schools of Forestry (in both of which botany is taught), one in connection with Cooper's Hill and the other at Dehra Dun in Upper India.

Botany is taught at Cooper's Hill, and (according to the Calendar of the College) it forms one of the "special auxiliary subjects" for the Forest student. I do not wish to say a single word in depreciation of the botanical teaching at this College, which is probably excellent of its sort.

SOCIETIES.

THE ROYAL HORTICULTURAL OF IRELAND.

SEPTEMBER 12.—The council members of the above, held their usual monthly meeting on the above date, at their offices Dawson Street. There was a large attendance of members, and the chair was occupied by Surgeon-General Beaumont. The minutes of the last meeting were read and duly signed. A detailed report of the recent autumn show was then submitted by the secretary (W. H. HILLYARD, Esq.), and was adopted: they sanctioned the payment of £105, the cost of defraying the expenses of their last show; and the list of judges for the forthcoming winter show to be held in The Royal Dublin Society's grounds, Balls Bridge, were nominated. A. O'Neill.

MOFFAT AND UPPER ANNANDALE.

SEPTEMBER 15.—The annual show was held at Moffat, the well-known south of Scotland Spa, on the above date. The weather was, unfortunately, of a most unpropitious character, and the attendance was in consequence seriously affected.

There was an extremely good show in the horticultural department, especially of flowers. Herbaceous perennial plants were exceptionally fine in both gardeners' and cottagers' classes; and in the former the Dahlias, both Cactus and Show, were of excellent quality. Taking the dry season into consideration, the show of vegetables was quite up to former years.

The principal winners in the gardeners' classes were Mr. EWEN CAMERON, Ericstane (who, *inter alia*, took the 1st prize for greenhouse plants); Mr. WILLIAM MURRAY, Ardenholm (who was 2nd); and Mr. JOHN HAMILTON, Haywood.

Messrs. KENNEDY & Co., Dumfries, had on exhibition a table of Dahlias; and Messrs. PALMER & SON and Messrs. T. SMITH & SON, Stranraer, had stands of their Roses. R. J. A.

NATIONAL DAHLIA.

SEPTEMBER 19.—The National Chrysanthemum Society having ceased to hold their annual September show of Dahlias and early-flowering Chrysanthemums at the Royal Aquarium, Westminster, the National Dahlia Society and the Aquarium Company together arranged to hold a show of Dahlias at this place on Tuesday and Wednesday last. It was thought that such an exhibition would enable growers to exhibit seedlings and varieties that were not quite in condition upon the date of the Society's Exhibition at the Crystal Palace. The show proved very successful. Eight classes only were scheduled, but there were entries in all of them, and in some the competition was unusually large. The quality of the flowers generally was very high, and a fairly good number of seedlings were certificated. Non-competitive exhibits were very numerous, and altogether the show was as good or better than those held in the Aquarium for some years past, when Dahlias, Gladioli, and Chrysanthemums have been exhibited.

There is just now some disposition amongst the Dahlia exhibitors to find a better method of staging the blooms. Some complain (and not without cause) that the methods at present adopted in respect to the Cactus and Pompon, and even Single flowers, are as flat and formal as in the case of the show varieties, which are shown on boards. Exhibitors are wiring the Pompoms and Cactus flowers so artificially and in such symmetrical figures as triangles, &c., that a change in some direction will be welcomed. But there is such a thing as going from bad to worse, and an exhibit which professed to illustrate how show blooms might be more rationally displayed was a proof of this. A board of the usual type was used, and the cups elevated several inches on stout wire. The blooms were then placed in the cups, and a shoot from the Dahlia plant was inserted in the board where the cups should have been. The result was to bring the blooms to a higher level, but still almost as flat as before; and moreover the cups were displayed equally with the flowers, and the effect was disastrous.

SHOW DAHLIAS.

The largest class for flowers of the show section was for twenty-four blooms, and Mr. J. WALKER, Thame, Oxon, followed up his previous successes at the Crystal Palace and elsewhere by taking 1st position. Some of the prettiest and best blooms were of the varieties Goldsmith, Duke of Fife, Harry Keith, Buffalo, John Hickling, Rev. J. Gooday, Mrs. David Saunders, Victor, and Eclipse. Mr. CHAS. TURNER, Slough, was 2nd; and Mr. GEO. HUMPHRIES, Kington Langley, 3rd.

The 1st prize for a collection of twelve blooms (amateurs) was won by THOS. HOBBS, Esq., Easton House, St. Mark's Road, Bristol. His varieties were Mrs. Gladstone, Duchess of York, Harrison Weir, Eldorado, Jas. Cocker, Florence Tranter, Warrior, Muriel Hobbs, T. S. Saltmarsh, Victor, The Reverend, and Prince of Denmark. 2nd, T. W. FELLOWES, Esq.; and 3rd, Mr. R. BURROUGHS, St. Neot's, Hunts.

"CACTUS" VARIETIES.

The largest collection called for by the schedule was twelve varieties, and six blooms of each. There were seven exhibits, and the best of these came from Mr. JAS. STREDWICK, Silverhall Park, St. Leonard's. This exhibit was a very fine one, and the varieties were almost all of them new. The following, for instance, Major Tuppenney, Uncle Tom, Major Weston, all described on p. 232, *Gardeners' Chronicle*, September 16. Mrs. Sanders, pure soft yellow, with grand form; Eclipse, also yellow, but much paler in tint; Maurice T. Walsh (certificated on same day), Mrs. Saunders, also yellow, large flower, good petal; Magnificent, a large, full flower of orange and mauve shades, &c. Messrs. KEYNES, WILLIAMS & Co., Salisbury, showed well for 2nd place; and Messrs. J. BURRELL & Co., Cambridge, were 3rd.

The best collection of nine varieties (amateurs), to be shown in bunches of three blooms each, was from Mr. Robt. Keeble, gr. to F. W. SHARP, Esq., Waltham St. Lawrence, Twyford. This exhibit was a very pretty one, and the varieties were Starfish, Harry Stredwick, Britannia, Chas. Woodbridge,

Stella, Mary Service, Keynes' White, Viscountess Sherbrook, and J. F. HUDSON; the latter variety has flowers with petals that incurve much towards centre. 2nd, F. W. FELLOWES, Esq., Putteridge Grange, Luton, Beds; none of the varieties in this stand were named, and the Society would do well to enforce disqualification in such cases. W. E. REEVE, Esq., Lyndhurst, Maybury Road, Woking, was 3rd, and there were several other collections.

POMPON FLOWERS.

The best exhibit of a collection of twelve varieties was from Mr. F. W. SEALE. The varieties, Sunny Daybreak, Ganymede, Spitfire (scarlet), Douglas, Phoebe, Snowflake, Demon, Emily Hopper (yellow), Nerissa, very beautiful mauve-pink; Hypatia, Ernest Harper, and Nellie Broomhead were all capital, making a collection of very neat, and well set up blooms. Mr. CHAS. TURNER was a close 2nd; and Mr. GEO. HUMPHRIES was 3rd.

The 1st prize for six varieties (amateurs) was awarded to Mr. J. F. HUDSON, Gunnersbury House Gardens, Acton, Secretary to the Society. Mr. HUDSON staged very small, neat blooms of Eve, E. F. Junker, Douglas, Phoebe, Orpheus (a grand yellow), and Nerissa; 2nd, Mr. W. C. PAGRAM, The Whim Gardens, Weybridge; 3rd, Mr. R. BURROUGHS, St. Neot's, Hunts.

SINGLE VARIETIES.

The only exhibit of twelve varieties of single Dahlias in bunches was shown by Mr. F. W. SEALE, Vine Nurseries, Sevenoaks. Some of the varieties were capital; others lacked form. Duchess of Marlborough, deep maroon; Yellow Perfection, Beauty's Eye, mauve; Miss Glasscock, white, petals edged mauve; Paragon Improved, Alice Seale, and The Geisha were the best.

The 1st prize for six varieties (amateurs) was won by Mr. J. F. HUDSON, his varieties being Galleima, white, each petal edged yellow; Donna Casilda Jeannette, white, petals edged scarlet; Noemi Tighe, yellow, with red around disc; Phyllis, white or mauve, splashed with crimson; and Jack Sheppard, yellow, splashed red. 2nd, EDW. MAWLEY, Esq., Rosebank, Berkhamstead. Beauty's Eye and Victoria were very pretty in this stand.

NON-COMPETITIVE EXHIBITS.

MESSRS. DOBBIE & Co., Rothsay, N.B., had a large exhibit of cut Dahlias. There was a vast number of blooms put up in huge close bunches, but only Cactus and Pompon varieties were represented (Gold Medal).

MESSRS. THOS. S. WARE, LTD., Hale Farm Nurseries, Tottenham, contributed a great number of cut Dahlias, too closely staged, and their display also was confined to the same two sections (Silver-gilt Medal).

MR. JOHN GREEN, Dereham, Norfolk, displayed many of his novelties in Dahlias, including the showy Red Rover.

MESSRS. H. CANNELL & SONS, Swanley, Kent, put up a fine lot of Cactus Dahlias, relieved with cut sprays of Aster ericoides (Silver-gilt Medal). Also a group of Canas in flower in pots (Silver Medal).

MESSRS. JNO. PEED & SONS, Roupell Park Nurseries, Norwood, London, exhibited cut Dahlias, perennial Asters, &c. Also a group of the new white-flowering perennial Aster, Mrs. W. Peters (Silver Medal).

THE DEVON CHRYSANTHEMUM NURSERY, Teignmouth, showed about six dozen blooms of Cactus varieties, including a number of promising seedlings, which, however, were not put up for certificate on this occasion (Bronze Medal).

MR. F. W. SEALE showed cut flowers of Show and Cactus varieties (Silver Medal).

MESSRS. CARTER, P. OR & Co., 52 and 53, London Wall, E.C., made an exhibit of cut Dahlias.

MR. J. T. WEST, Tower Hill, Brentwood, Essex, also showed a fine lot of Pompon, Cactus, and Show Dahlias, most of them very good.

MESSRS. JNO. LAING & SONS, Forest Hill Nurseries, London, S.E., decorated one of the large fountains with Ivies, Palms, Bamboos, early-flowering Chrysanthemums, Eucynurus, &c., and the effect was unusually good (Gold Medal).

MESSRS. J. BURRELL & Co. made a large exhibit of cut spikes of Gladioli in extensive variety, and were awarded a Silver Medal.

Awards.

First-class Certificates were awarded to the following varieties:—

Empress (fancy), Maurice T. Walsh (Cactus), Edie Oblein (single), all described on p. 231, *Gardeners' Chronicle*, Sept. 16, in the Royal Horticultural Society's awards.

Geo. Hobbs (show), a dark crimson or maroon-coloured flower, of good exhibition form. From Mr. T. HOBBS, Bristol.

Madame Medora Henson (Cactus), bright crimson flower, with purple shading; good Cactus form. From Messrs. T. S. WARE, LTD., Tottenham.

Mrs. Carter Page (Cactus), a large, showy crimson variety. From Messrs. KEYNES, WILLIAMS, & Co.

Hilda (single), a white flower, flushed with flesh colour, each petal having yellow margin along three parts of their length from base; very beautiful form. From Miss GIRDLESTONE.

Claribel (single), a flower with yellow centre, petals tipped reddish-rose. From Mr. ED. MAWLEY.

Sylph (Cactus), bright orange-red; petals fluted and incurved. From Mr. G. BURRELL.

Vera, a neat little soft yellow Pompon. From Mr. CHAS. TURNER, Slough.

ENQUIRY.

THE Rev. Canon Ellacombe would be much obliged if any of our readers would kindly inform him if *Aster sericeus* and *Campanula Soldanelliflora* (single or double-flowered), are in cultivation. He has grown the plants, but has not seen them for many years.

ANSWERS TO CORRESPONDENTS.

AQUATICS FOR A SMALL BASIN IN A CONSERVATORY.—TEMPERATURE OF THE AIR 80°, MAXIMUM: *R. H. R.* East Indian Lotus, *Nelumbium roseum*; white Japanese Lotus, *N. album grandiflorum*; striped Japanese Lotus, *N. album striatum*; and Egyptian Lotus, *N. speciosum*. *Nymphaea zanzibariensis*, *N. z. azurea* and *N. z. superba*; *N. dentata*, very free and easily grown; *Lymncharis Humboldtii* and *Salvinia brasiliensis*, a pretty little floating plant, with leaves, almost heart shaped covered with numerous short hairs.

BOOKS: THE RENOVATION OF AN OLD GARDEN: *R. H. R.* A good practical work, by a man who knew his business thoroughly, is *How to Lay-out a Garden*, by Ed. Kemp, published by Messrs. Bradbury, Agnew & Co., Ltd., 11, Bouverie Street, E.C. *Landscape Gardening as applied to Home Decoration*, by Samuel Maynard (published by Chapman & Hall, Ltd., London), would furnish much useful information. *B. J. Beckton: Dictionnaire Iconographique des Orchidées.* This serial work is printed in the French language, and the cost is 60frs. a year. Address, M. A. Goossens, Rue Quinoux, Schaerbeek, Bruxelles.

CELANOTHUS PROPAGATION: *W. P. B.* The surest means is by layering two and three-year-old shoots in the early summer in stiffish loamy soil. Cuttings of matured current season's shoots, taken with a heel, will strike in sandy loam under a hand-glass or in cold frame. This is the best month to insert cuttings. The position of the cutting-bed should be on the north side of a wall, as that does away with the need of shading.

CORRECTION: The name of the newly appointed curator of the Botanic station in Antigua is Mr. W. Norman Sands, and not Mr. W. N. Norman, as printed in last week's issue, p. 228.

FLOWER SHOW DISPUTE: *X.* The exhibitor who showed fourteen pots where the competition was "for the best two pots of Ferns," was obviously wrong, and the judges were right in disqualifying the exhibitor.

FRUITS, A SELECTION OF: *G. F. Grindley.* *Pears.* Doyenné d'Été (July); Jargonelle (August); Williams' Bon Chrétien, and Beurré Superfin (September); Louise Bonne of Jersey, Beurré Hardy (October); Marie Louise, Thompson's (November or earlier); Doyenné du Comice, and Pitmaston Duchess (December); Winter Nelis (January); Bergamotte d'Espèren (February and March); Easter Beurré (March or April).

Apples (Culinary).—For August, September, and October, Lord Grosvenor, Yorkshire Beauty, and Bismarck; November, December, and January, Ecklinville Seedling, Newton Wonder, Blenheim Orange. For continuation until May, Bramley's Seedling, Dumelow's Seedling, and Sandringham.

Apples (dessert).—Irish Peach (July), Devonshire Quarrenden (August and September), Ribston Pippin and Mother, October and November; Cox's Orange Pippin and Scarlet Nonpareil (December and January), Old Nonpareil, Allen's Everlasting and Sturmer Pippin, from February to May.

Plums (dessert).—Coe's Golden Drop, Transparent Gage, Jefferson, Guthrie's Late Green, Kirke's, and Reine Claude de Bayay. *Culinary.*—Victoria, Belle de Septembre, Prince Englebert, Diamond, Belle de Louvain, and Pond's Seedling.

Gooseberries (dessert varieties).—Bright Venus, Yellow Champagne, Whitesmith, Whinham's Industry, Red Warrington, Green Gascoigne, Ironmonger, Early Red Hairy, and Scotch Nutmeg. Reds, for jam-making, Warrington and Whinham's Industry.

Red Currants.—Red Dutch and Comet. *White.*—White Dutch and White Versailles. *Black.*—Lee's Prolific.

Cherries.—Early Red Bigarreau (middle to end of June), May Duke, Black Tartarian (July),

Early Red Guigne (June), Bigarreau Napoleon (very late), and Governor Wood.

Melons.—Eastnor Castle, Hero of Lookinge, Earl's Favourite, and Royal Favourite.

Peaches and Nectarines for early House.—Alexander, Waterloo, Hale's Early Peaches, and Early Rivers, and Cardinal Nectarine. Succession-house—Royal George, Noblesse, Grosse Mignonne and Barrington Peaches, and Stanwick Elruge, Victoria, and Rivers' Orange Nectarines. For south wall out-of-doors—Alexander, Royal George, Noblesse, Belle Beaune, Dr. Hogg, and Barrington Peaches; and Elruge, Hardwicke Seedling, Pitmaston Orange and Violet Hâtive Nectarines. (Others next week.)

FRUIT BUSHES ON GRASS LAND: *C. D.* We would advise the stations for the bushes to be taken out not less than 4 feet in diameter, trenching the soil 2 to 3 spits deep, turning the turf to the bottom, and then waiting a few weeks before proceeding to plant. When planting, if a small quantity of garden soil and rotten manure could be afforded each bush, food for the plants would be provided till such time as the turf rotted. This is not essential, but doing it would tend to early growth and re-establishment.

GARDENING JOURNALS: *B. T. Ten*, or thereabouts. Apply to a bookseller or newsagent for the titles and addresses.

GARDEN LABOUR: *Arbor.* We think that no one man could manage the garden satisfactorily without the assistance of a strong lad. It is not so much the extent of the garden as the adjuncts thereto which would demand so much of the gardener's time and attention. The wages are fair for the kind of place.

GARDEN PEAS: *E. P. F.* The gentleman you allude to, read a paper on Garden Peas at a meeting of the Royal Horticultural Society, but we are unaware that he had published a book on the same subject. You should communicate with him under the address, Messrs. Hurst & Son, 151, Houndsditch, London, E.C.

GRAPES: *H. C.* The Grape you describe as a sport from Golden Champion have very good flavour, but the berries are over-ripe, and should have been sent earlier.

GRAPES FOSTER'S SEEDLING: *A. W. T.* This is a thin-skinned variety of Sweetwater, readily decaying if the air is moist or ventilation deficient. The bunch sent shows natural decay following perfect ripening. If you have many bunches still left, cut them with a few inches of the shoots, sticking these into bottles filled with water, and place them in a cool, dry room. Under favourable conditions, the skin of this variety thickens and shrivels, and the fruit keeps a long time.

IRIS (MOOREA) ROBINSONIANA: *W. B. S.* Grow in sandy, rich soil, in a sunny, well-drained position, protecting the plants with a frame or handlight during the winter and early spring. In your part of the country this precaution might not be necessary. The plants resent root-disturbance.

LARVÆ: *A. B. C.* The grubs you send are the larvæ of the Vine-weevil, *Otiorhynchus picipies*. These feed on the underside of the roots. The injury to the stems of the Rhododendrons you mention is probably done by the perfect beetle. This is about half-an-inch long, dark brown; it comes out at night and hides away in the day. During the winter the roots should be examined, and some soot or other dressing used to check the larvæ. To catch the beetles, spread cloths beneath the shrubs in the day, and at night shake the bushes; the beetles will drop on to the cloths at the slightest alarm, even the light of the lantern will make them drop. They can be killed in boiling water. It would be useful to syringe the stems with water, to which a very small quantity of paraffin has been added.—*J. Warren.* Your insect is one of the Ichneumonidae of the genus *Ophion*. These are parasitic on other insects, and are beneficial. *C. W.*

MR. LUNT'S GRAPES AT SHREWSBURY: *Chas. Peebles and others.* The exact weights of the several bunches of Grapes exhibited by Mr. Lunt in the great Grape-class at Shrewsbury have been supplied us by the exhibitor himself. Two bunches of each variety were shown. They are as follows:—Cooper's Black, 4 lb. each; Muscat

of Alexandria, 4 lb. 4 oz. and 4 lb.; Muscat Hamburg, 4 lb. and 2½ lb.; Mrs. Pince, 4 lb. and 3½ lb.; Alnwick Seedling, 6 lb. each; and Black Hamburg, 3 lb. and 3½ lb.

NAMES OF FRUITS: We are most desirous to oblige our correspondents as far as we can, but we must request that they will observe the rule that not more than six varieties be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. They should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.—*Japonica, Berke.* 1, Hawthornden; 2, Nelson's Codlin; 3, Ribston Pippin; 4, Nanny.—*R. J. B. Taunton.* 1, Dymock Red; 2, not in character: unrecognisable; 3, Mank's Codlin; 4, Reinette Grise; 5, Greenup's Pippin; the Plum was smashed.—*T. D., Hull.* Lemon Pippin.—*F. R.* 1, Emperor Alexander; 2, Alfriston; 3, Yorkshire Greening; 4, Winter Russet; 5, Crimson Quoining; 6, Yellow Ingestre.—*A. K.* 1, Lord Suffield; 2, English Codlin; 3, Norfolk Stone Pippin; 4, Jolly Beggar; 5, Gloria Mundi.—*F. R.* White Astrachan.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*G. W.* 1, *Panicum crus-galli*; 2, *Setaria viridis*; 3, *Calyptegia sepium*.—*B. B.* *Viburnum Opulus* (Snowball tree).—*J. R.* 1, *Abelia rupestris*; 2, *Solanum jasminoides*; 3, *Mesembryanthemum multiflorum*; 4, *Eccremocarpus scaber*; 5, *Impatiens noli-me-tangere*.—*A. S.* Impossible to name specimen sent from leaves only, without further information.—*G. W., Ventnor.* *Agapanthus umbellatus*.—*F. J.* 1, *Veronica Andersoni variegata*; 2, *Linum usitatissimum*; 3, *Corydalis lutea*; 4, *Teucrium Polium*; 5, *Diplacus glutinosus*.—*J. T. S.* The frond sent appears to be of a singular form of *Scolopendrium vulgare*, but we cannot say for certain without fertile frond or some particulars of origin.—*D. E.* 1, *Polygonum cuspidatum*; 2, *Cassia corymbosa*.—*C. A. B.* 1, *Adiantum Edgeworthi*; 2, *Plumbago Larpenæ* of gardens; 3, *Geranium pratense*; 4, *Asperula odorata* (Woodruffe); 5, *Nipholobolus lingua*; 6, *Lophospermum scandens*, does well out-of-doors in summer.—*W. W.* *Cymbidium giganteum*—a very good variety.—*G. P.* 1, *Chrysocoma comma-aurea* (Goldy-locks); 2, *Aster floribundus*.—*H. R.* *Cattleya Warscewiczii* (gigas), we have seen several malformations this season of the kind seen in your specimen.—*C. Jones.* *Salvia Horminum*.—*P. Penge.* We do not undertake to name varieties of *Coleus*. The rest of the specimens are insufficient. No. 3 is a species of *Potentilla*.

ORIGIN OF APPLES, PEARS, AND OTHER FRUITS: *S. J.* We know of no one work affording the information you require.

PLUM WITH MAGGOT: *T. W. O.* The maggot in your fruit is that of the Plum-moth, *Opadisa funebrana*, and nearly related to the Codlin-moth. The eggs are deposited by the female moth during June and July upon the fruits. In a few days these become hatched, and they soon eat their way into the fruits, and leave no prominent indication that this has been done. In the winter you had better treat the bark of the trees with caustic potash and soda, and during June and July spray the trees with some insecticide that will render the trees distasteful to the female moth. When a maggoty fruit has been cooked, it has no really injurious effect upon the consumer.

PRIVET AND COMMON LAUREL: *E. W.* Privet cuttings may be put in during November; those of Laurel in October.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S SHOW: *Addenda.* Messrs. T. Methven & Sons, Leith Walk Nurseries, contributed a large table of decorative plants very tastefully arranged, Lilies being employed in great profusion. Messrs. Dicksons & Co., Waterloo Place, also showed a quantity of flowers, e.g., *Violas*, with decorative pot plants. *R. P. B.*

COMMUNICATIONS RECEIVED.—*C. W. H.*—*A. N.*—*G. T.*—*H. H. D'Ombra.*—*A. H.*—*T. F. Duthie.*—*A. D.*—*Rev. G. Henslow.*—*C. A. C.*—*H. R.*—*F. B.*—*J. J. & Co.*—*Belmont Nurseries.*—*P. W. F.*—*A. G. T.*—*W. L. Moor.*—*U.S.A.*—*R. L. C.*—*W. R.*—*A. C.*—*P. B.*

MARKETS.

COVENT GARDEN, SEPTEMBER 21.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms	8 0-4 0	Maidenhair Fern, per doz. bunches	4 0-6 0
Asparagus "Fern," bunch	2 0-2 6	Odonoglossums, per dozen	8 6-5 6
Carnations, per doz. blooms	2 6-3 6	Marguerites, p. doz. bunches	8 0-4 0
Cattleyas, per dozen	15 0-18 0	Mignonette, dozen bunches	4 0-6 0
Eucharis, per dozen	4 0-6 0	Palargoniums, doz. bunches	4 0-6 0
Gardenias, per doz.	2 6-3 6	Roses indoor, per dozen	2 0-6 0
Gladiolus The Bride, dozen bunches	5 0-6 0	— Red, per doz.	8 0-5 0
— Brecheyensis, dozen spikes	2 0-4 0	— Tea, white, per dozen	2 0-3 0
Lilium Harrisii, per dozen blooms	4 0-5 0	— Yellow, Perles, per doz.	2 6-3 3
Lilium longiflorum, per doz. xii	4 0-6 0	— Safrano, per doz.	2 0-2 0
— lancifolium album, per dozen	1 6-3 0	Smilax, per bunch	8 0-4 6
— lancifolium rubrum, per doz.	2 0-4 0	Tuberose, per doz. blooms	0 8-0 9

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 6 —	Marrows, in pads or pott.	2 0-2 6
Beans, English, Dwarf, per sieve	5 0 —	Mint, per dozen bunches	2 0-8 0
— Scarlet Runners, per bush.	3 0-4 0	Mushrooms, house, per lb.	0 8-1 0
Beetroots, new, doz.	0 6-0 9	— Outdoor, per lb.	0 2-0 3
— in bush	2 0 —	Onions, Dutch, bags	4 0-4 6
Brussels Sprouts, sv.	2 6-3 0	— Onions, picklers, in bags	2 6-3 0
Cabbage, tally	4 0-8 0	— Oporto and Valencia, cases	5 0-5 6
— dozen	1 0-1 9	— new, bunches	8 0-4 0
Carrots, new English, doz. bun.	1 0-2 6	Parley, per dozen bunches	1 0-3 0
— good, cwt. bags, washed	8 0-4 0	— per sieve	1 0 —
Caulliflowers, dozen	1 6-4 0	Potatoes, Hebrons, Snowdrops, &c.	55 0-60 0-80 0
— crate	8 0 —	Radishes, round, breakfast, per dozen bunches	1 6-2 0
Celery, new, per bundle	1 0-1 6	Salad, small, punnets, per dozen	1 8 —
Cress, per dozen punnets	1 6 —	Shallots, per sieve	3 0 —
Cucumbers, doz.	1 6-3 0	— per cwt.	14 0 —
— ridgeln pots	2 0 —	Spinach, New Zealand, per peck	1 0 —
Endive, new French, per dozen	1 6 —	— sieves	2 0 —
Garlic, new, per lb.	0 2 —	Tomatoes, new English, per lb.	0 3-0 3 1/2
— per cwt.	14 0 —	— Channel Islands, p. lb.	0 2-0 2 1/2
Horseradish, English, bundle	2 6 —	— French, crate, 30 lb.	4 0 —
— foreign, per bundle	1 0-1 3	Turnips, dozen	2 6 —
Leeks, new, per doz. bunches	1 6-2 0	— cwt. bags	3 0-3 6
Lettuce, French, Cabbage, dozen	1 0-1 3	Watercress, p. doz. bunches	0 4-0 6
Lettuce, Cos, doz.	2 0-2 6		
Marrows, Veg., doz.	1 0-2 0		
— tally	5 0-6 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per bushel:		Lemons, Naples, per case of 420	20 0-24 0
— Kings	4 0-6 0	— Palermo, case of 360	12 0-15 0
— Ribstons	6 0-8 0	Lyches, Chinese, packet, 1 lb.	1 8 —
— Blenheim	5 0-6 0	Melons, in cases 24 or 36	7 6-10 6
— Nova Scotia Gravensteins, per barrel	12 6 —	— each, English	0 9-2 6
— Keswick, bush	2 0-8 0	— For. ign. each	1 0-2 6
— Manx, bush	8 0 —	Nectarines, A., doz.	10 0-12 0
— Suffolk, bush	3 0-4 0	— B., per doz.	2 0-4 0
— Worcester Pearmain	6 0-9 0	Oranges, Australian, case of 160 or 200	14 0-16 0
— Various Cookers, per bushel	1 6-3 0	— Jamaica, case	15 0 —
Bananas, per bunch	10 0-15 0	Peaches, A., doz.	8 0-12 0
Blackberries, 12 lb.	1 6-2 0	— B., per dozen	4 0-6 0
— Sieve of 24 lb.	3 0-4 0	Pears, Californian, cases	5 0-7 6
Cobnuts, per lb.	0 6-0 7	— Duches, cases	2 0-8 0
Filberts, per lb.	0 4-0 5	— Duches, 93	12 0 —
Figs, per dozen	1 0-2 0	— Louise Bonne 108	14 0 —
— Italian, in boxes	2 0 —	— Hazel, bushel	8 0-5 0
Grapes, English, Hamburgh, lb.	0 6-1 0	— Williams, bush	10 0-16 0
— Alicante, per lb.	0 9-1 0	Pines, each	8 0-12 0
— Gros Colmar, lb.	0 9-1 6	— Pines, English, Bush, sieve	2 6-3 6
— Muscats, A., per lb.	1 0-3 6	— — Pond's Seed-lings, sieve	7 0-9 0
— — B., per lb.	0 9-1 0	— — Victoria	6 0 —
— Belgian, per lb.	0 7-1 0	Damsons, per sieve	8 6-4 6
— Channel Islands	0 4-0 8	Walnuts, shelled, p. peck	6 6 —
— Lisbon, Black, boxes	10 0 —		
— — White, boxes	7 0-10 0		
— Alмира, bla.	11 6-15 0		

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantums, p. doz.	5 0-7 0	Ficus elastica, each	1 6-7 6
ArborVita, var., doz.	6 0-36 0	Foliage plants, var., each	1 0-5 0
Aspidistras, p. doz.	18 0-36 0	Fuchsias, per dozen	4 0-6 0
— specimen, each	5 0-10 6	Heliotropes, p. doz.	6 0-8 0
Crotons, per doz.	18 0-30 0	Heliconias, each	15 0-105 0
Dracenas, var., doz.	12 0-30 0	Lilium Harrisii, doz.	18 0-34 0
— viridis, per doz.	9 0-18 0	Lycopodiums, doz.	8 0-4 0
Ericas, var., per doz.	18 0-36 0	Marguerite Daisy, per dozen	6 0-9 0
Eunonymus, various, per dozen	6 0-18 0	Myrtles, per dozen	6 0-9 0
Evergreens, var., per dozen	4 0-18 0	Palma, various, ea.	1 0-15 0
Ferns, in variety, per dozen	4 0-18 0	— specimens, each	21 0-63 0
— small, per 100	4 0-6 0	Palargoniums, scarlet, per dozen	4 0-6 0

POTATOS.

Hebrons, Puritans, Snowdrop, Up-to-Date, &c., 70s. to 85s. Blacklands, 60s. to 65s. John Bath, 33 & 34, Wellington St., W.C. REMARKS.—Grapes are plentiful, and prices generally low except for very fine fruit. The Walnuts quoted above are imported ones; home-grown fruits, which are a good crop, are not yet in the market. The Nova Scotian barrels are now coming.

SEEDS.

LONDON: September 20.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that the recent welcome rains are bringing to hand a few sowing orders for Trifolium, the stocks of which are now getting into narrow compass. Winter Tares continue in short supply, and realise full prices; but Giant Seed Rye is now obtainable on reduced terms. There is no quotable change this week in either Peas or Haricots. Canary-seed, despite its momentarily quiet sale, keeps remarkably firm in value; in Hempseed, however, the tendency is downwards. More money is asked for Linseed and Clover seeds all round are very strongly held.

FRUIT AND VEGETABLES.

GLASGOW: September 20.—The following are the averages of the prices recorded since our last report:—Fruit: Apples, Dutch, 4s. per bushel, and 6d. to 8s. per small hamper, and 9s. 6d. to 14s. per two-mud cask; English, 7s. to 18s. per cwt.; do., American Colvilles, 15s. to 18s. per barrel; Kings, 90s. to 25s. do.; Pears, French Duchesse, 3s. 6d. to 8s. per case; 48s. 2s. 3d. to 3s. do.; do., Bon Louise and Duchesse, loose, 7s. to 8s. do.; do., Dutch, 2s. per half-bushel; 1s. 6d. to 2s. per sieve-basket; Plums, Irish, 9s. 6d. per cwt.; Damsons, 20s. do. (but falling); Lemons, Palermo, selected, sound, 14s. to 17s. per case; do., Messina, 15s. to 18s. do.; do., Naples, sound, 25s. to 32s. do.; Valentinas, yellow, 24s. 6d. to 7s. do.; 36s. 6d. to 7s. do.; 48s. 6s. to 7s. do.; bronze, 24s. 7s. to 3s. do.; 86s. 6s. 6d. to 7s. do.; Grapes, English, 1s. 2d. per lb.; do., Almeida, 11s. to 18s. per barrel; Bananas, extra, 12s. to 13s. per bunch; do., No. 1's, 10s. to 11s. do.; No. 2's, 9s. to 10s. do.; Tomatos, English, 8d. to 9d. per lb.; do., Scotch, 4d. to 7d. do.; Mushrooms, 10d. to 1s. 6d. do. Vegetables: Onions, Valencia, 4s. 3s. 3d. to 4s. per case; do., 5s. 4s. 6d. to 5s. 6d. per bag; Carrots, Dutch, 3s. per bag; Beetroots, 2s. 6d. do.; Turnips, 7d. to 9d. per dozen bunches; Carrots, 6d. to 9d. do.; Parsley, 6d. to 8d. do.; Cucumbers, 1s. to 1s. 9d. per dozen; Cauliflowers, 1s. to 2s. 4d. do.; Cabbages, 9d. to 1s. 8d. do.

BULBS, PLANTS AND FLOWERS: September 20.—The following are among the prices of the past week:—Hyacinths, 2s. per dozen; ordinary bulbs, 1s. do.; miniature (small), 3d. per dozen, and 1s. 6d. to 3s. per 100; Scillas, 9d. to 1s. doz.; Narcissus, 3d. to 1s. 6d. doz.; Daffodils, 2s. do.; Ixias, 4d. to 9d. doz.; Iris, various, 3d. to 1s. doz.; Fritillarias, 9d. doz.; Snowdrops, 1s. to 2s. doz.; Arum dracunculoides, 6d. to 1s. doz.; Lillium candidum, 6d. to 1s. doz.; Crown Imperials, 6d. to 1s. doz.; Lillium Narissus, 6d. to 1s. doz.; Jonquills, 6d. to 1s. doz.; Lillium Harrisii, 2s. to 3s. 6d. per dozen blooms; L. lancifolium, 9d. to 1s. 6d. doz.; Orchids, 1s. to 8s. doz.; Carnations, 2d. to 1s. per bunch; Roses, white, 6d. to 2s. 6d. per dozen; do., red, 1s. 2d. doz.; do., boxes, 2s. to 4s.; Sofrano, 1s. 6d. per dozen; Asters, 1s. to 2s. per dozen bunches; Sweet Peas, 1s. to 4s. doz.; Maidenhair Fern, 3s. to 6s. doz.; Gardenias, 1s. 6d. per dozen; Marguerites, 2s. doz.; boxes of mixed flowers, 6d. to 4s. per box; Asparagus Ferns, 6d. to 2s. 6d. per bunch; Chrysanthemums, 6s. to 12s. per dozen bunches.

LIVERPOOL: September 20.—Wholesale Vegetable Market.—Potatoes, per cwt.: Early Regents, 1s. 7d. to 2s.; Main Crop, 2s. 6d. to 3s. 9d.; Kidneys, 2s. 6d. to 3s. 3d.; Bruce, 1s. 9d. to 2s. 8d.; Turnips, 6d. to 8d. per doz. bunches; do., Swedes, 1s. 8d. to 1s. 6d. per cwt.; Carrots, 6d. to 8d. per dozen bunches; Parsley, 6d. to 8d. per dozen bunches; Onions, English, 6s. per cwt.; do., foreign, 5s. to 6s. doz.; Cucumbers, 1s. to 3s. per dozen; Cauliflowers, 1s. to 2s. 3d. doz.; Cabbages, 10d. to 1s. 9d. per dozen; Celery, 10d. to 1s. 10d. per dozen. St. John's.—Potatoes, 10d. to 1s. 2d. per peck; Grapes, English, 1s. 6d. to 3s. per lb.; do., foreign, 4d. to 8d. doz.; Pines, English, 4s. to 6s. each; Damsons, 3d. per lb.; Cobnuts, 10d. doz.; Cucumbers, 8d. to 4d. each; Mushrooms, 1s. per pound and basket. Birkenhead.—Potatoes, 8d. to 10d. per peck; Damsons, 3d. per lb.; Cucumbers, 2d. to 4d. each; Filberts, 8d. per lb.; Grapes, English, 1s. 6d. to 3s. 6d. doz.; do., foreign, 6d. to 8d. doz.; Mushrooms, 8d. to 1s. doz.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending September 16, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	37 7	25 4	- 0 8
Barley	26 10	27 1	+ 0 8
Oats	16 10	15 2	- 1 8



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportionate number of hours.]

Duration.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				No. of Rainy Days since January 1, 1899.		Percentage of possible Duration for the Week.	
	Above (+) or below (-) the Mean for the week ending September 16.	Above 45° for the Week.	Below 45° for the Week.	Above 45°, difference from Mean since January 1, 1899.	Below 45°, difference from Mean since January 1, 1899.	More (+) or less (-) than Mean for the Week.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.
00 aver	71	0	+ 352	- 7	8 +	152	29.8	25 80
1 1 +	85	0	+ 218	+ 19	1 +	139	21.8	25 82
2 1 +	95	0	+ 357	- 93	2 -	122	15.7	31 23
3 0 aver	104	0	+ 410	- 196	3 -	109	18.9	42 44
4 2 +	108	0	+ 438	- 141	4 -	108	17.1	32 41
5 1 +	119	0	+ 537	- 188	4 -	93	14.7	49 48
6 0 aver	78	0	+ 368	- 49	0 aver	149	31.6	28 33
7 1 +	104	0	+ 424	- 146	1 -	133	22.9	24 89
8 4 +	127	0	+ 576	- 121	6 -	118	24.8	35 48
9 3 +	103	0	+ 335	- 72	2 -	156	24.8	14 84
10 3 +	116	0	+ 460	- 54	5 -	130	28.1	18 39
* 3 +	145	0	+ 758	- 67	6 -	111	17.1	48 55

The districts indicated by number in the first column are the following:—

- 0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London. Principal Graining, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending September 16, is furnished from the Meteorological Office:—

"The weather remained fine over the greater part of England until towards the close of the week, but elsewhere the conditions were dull and unsettled, with frequent falls of rain.

"The temperature was again above the mean in most districts, but just equal to it in 'Scotland, N. and W.,' and 'England, E.' The highest of the daily maxima were recorded during the middle part of the period, and ranged from 75° in the 'Midland Counties' and 'England, S.W.,' to 66° in 'England, N.W.' The lowest of the minima were recorded on the 11th over England, and on the 15th in most parts of Ireland and Scotland; they varied from 32° in 'Scotland, W.' (at Glenelg), and from 36° in 'Scotland, N.,' to 49° in 'Ireland, N.,' and to 52° in the 'Channel Islands.'

"The rainfall greatly exceeded the mean in 'Scotland, N.,' and slightly in 'Scotland, E.,' while in 'Scotland, W.,' it just equalled the normal. In Ireland and England the fall was again deficient.

"The bright sunshine was less than the normal in almost all districts. The percentage of the possible duration ranged from 48 in the 'Channel Islands,' and 42 in 'England, E.,' to 25 and 28 in the Scotch districts, and to between 14 and 18 in Ireland."



THE Gardeners' Chronicle

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TOMATOS AS A FIELD CROP.

THE cultivation of out-door Tomatos has increased greatly in certain districts; and in others, which are apparently equally suitable for the purpose, not at all. We were lately in a district in the extreme south of England, and were surprised to find how few there are among the growers for local markets who have adopted this system of cultivation upon an adequate scale. Most of the Tomatos upon sale are brought long distances, or even imported; the few "home-grown" samples in the fruiterer's shops are grown under glass, and such cultivation is necessarily more expensive.

Some of the market-growers affirmed that Tomatos would not succeed out-of-doors in their districts, but we saw the Fig ripening its fruits upon a standard tree close by; the Myrtle was wreathed in white blossoms, and many other such plants testified to the mildness of the local climate.

A day or two later we were in Worcester-shire, in the heart of the market-gardening district of that county, and had the opportunity to see acres of Tomato plants bearing fine crops of ripe and ripening fruits. They were planted in rows across a field, nearly three feet between each row, and the plants less than two feet distant from each other; but some growers plant much more thickly than this, and recommend the practice. Each plant has a single stem only, and is supported by a wooden stake; but the most favoured varieties do not grow very tall, and are sturdy, and commence to fruit early.

Among the largest growers in the Evesham district are Mr. Masters and Messrs. White & Tillson, the latter firm, though only two years or so old, having at once made the cultivation of Tomatos an important feature in their market gardening.

It should be stated here, that anyone commencing the cultivation of Tomatos as a field crop should provide himself with several light span-roofed, moderately-heated houses. These will be necessary for the raising of young plants in the spring, and in most seasons they will be needed in the autumn to perfectly ripen late fruits that are gathered when beginning to colour.

Undoubtedly, the most popular varieties at present are Early Evesham and Early Ruby. The first-named variety is a sure cropper in a favourable season; the habit of the plant is perfect, the fruit being produced very close to the ground, and the growth this season is so sturdy that the nodes are scarcely two inches apart. Its disadvantages are in the fruits, these being, from our point of view, too flat in shape, and they are corrugated.

Early Ruby, which is almost as good a cropper, and is of good habit, has better-shaped and smooth fruits. Samples of this variety could be gathered which would equal in quality and appearance the best house-grown specimens. Indeed, when the fruits are permitted to ripen

upon the plants, those grown out-of-doors have rather finer flavour. But there were many other varieties in the fields, most of them more or less upon trial, and it was evident that some of those which give excellent results indoors are certainly unfit for profitable cultivation outside. Either the plants had made too much growth, and were therefore more troublesome, or they were poor croppers; or, as in many cases, they were very susceptible to fungous diseases.

The two locally popular sorts were quite free from "spot" in most of the fields, yet thinner skinned sorts next to them showed disease upon almost every plant. But even the two varieties mentioned above will crack, take "spot," and "sleepy" disease if they be planted in unsuitable situations, or the season be specially unfavourable. The qualities necessary in a Tomato for out-of-doors culture are a dwarf habit of growth, freedom to bloom and fruit, comparative hardiness, and a prominent tendency to early fruiting. This last-named quality is naturally a most important one, our summers being not too long for such a crop.

In such seasons as have prevailed for the past few years, each plant upon an average may be expected to produce five, six, and sometimes seven pounds of fruit, and if the produce fetch in the wholesale market not less than twopence per pound, the crop is a lucrative one. Prices are frequently much better than this, but occasionally they are not so good.

The following notes are taken from a communication sent us, since the foregoing was in type, by Mr. H. W. Ward, a well-known contributor to these pages, who describes the system of cultivation practised by some of the more successful Tomato-growers in Essex:—

"The unusually fine summer and early autumn weather we have experienced during the last three years has been most favourable to the production and ripening of Tomatos planted out-of-doors. Therefore, growers have extended their plantations of this much-valued vegetable-fruit each season.

"Some growers allow a space of 2 feet between the rows of plants in planting, and 1 foot from plant to plant in the rows, while others allow 2½ feet between the rows and 1 foot between the plants in the rows, the plants in both cases yielding satisfactory crops of fruit. Dwarf, sturdily-grown plants should be used for planting out-of-doors towards the end of May or first week in June, according as the situation is early or late. Ground which slopes to the south or west is favourable to the growth of Tomatos; so also is level land which is sheltered from north and east winds. Land which produces good crops of Potatoes will prove admirably adapted to the growth of Tomatos. The plants are, as a rule, trained to horizontal wires, fixed to a series of stout sticks stuck into the rows of plants at short intervals, the top wire being about 3 feet from the ground. Soft Tomato-strings a little more than 3 feet long are in due time secured loosely one to each plant close to the ground, and then twisted pretty tightly round the individual wires, afterwards twisting the plants carefully round the strings as they require support. The side-growths are kept persistently pinched during the whole period of the plant's growth, so as to direct all the energies of the plants into the thickening of one individual stem, the production of large trusses of strong flowers, and the setting, swelling, and ripening of heavy crops of good fruit.

"When visiting a friend, who is a capital grower of Tomatos (indoors and out), in June last, he plantations of Tomatos in the open, struck me at first sight as being those of the Old Ashleaf Kidney Potato; the plants being dwarf, and furnished from the ground with small, finely-cut foliage, and strong trusses of flowers. The plants

were struck from cuttings; and in consequence of young roots appearing on the surface of the soil, my friend had some of the latter drawn up to the stems on either side, with satisfactory results. From these plants he has made large gatherings of fruits of good quality, which will be continued well into October should the weather continue sufficiently fine to ripen the fruits now swelling.

"The foliage, as a rule, remains fresh and green until cut down by frost. Where the clusters of fruit are partly hidden from the sun's rays by the leaves, sufficient of the latter should be removed to enable the sun to reach the fruit."

The following particulars are reported in a contemporary respecting an experiment made this season by Mr. Julian, Shaldon, near Teignmouth:—

"A piece of meadow-land of about 2 acres was selected that faces south-east, and forms the surface of the cliff overlooking the mouth of the river. Early in the year this piece of maiden-soil was lightly ploughed. Some 14,000 plants—raised in a small greenhouse and a few cold frames—were put in, the varieties being Sutton's Earliest-of-All and Carter's Outdoor. The plants were set out at distances of 2 feet apart, with 2 feet 6 inches between the rows. They were subjected to no special treatment, excepting that side-shoots were taken off. The plants were allowed to remain without any support being given whatever, and rested on the soil. The months following were in every respect favourable to the growth of the fruit, and the average yield was about 8 lb. of fruit per plant. Five tons of fruit were ruined by a fungus disease. [This may not have occurred had the fruits not been allowed to rest upon the soil. Ed.] The first gathering was made the second week in August, and from that date hundredweights have been picked daily, for all of which there has been a demand, either locally or in the London and Midland markets, special boxes having been made in which to pack the fruit. Had the crop escaped the disease, the total weight of fruit would have been nearly 80 tons, and there is a market for every one of them. The results go far to prove that Tomatos can be grown like weeds in and around Teignmouth."

One reason why many fail is, that they do not make the most of a short growing season by obtaining fair-sized plants, well hardened, early in spring, and plant out in the open the earliest possible moment it is safe. If they could be protected when planted for a short time, as Marrows sometimes are, the extra week gained would be of great value. At Evesham the plants are removed to the field from three-inch pots, but if five-inch were used they would be better. Then "early land," as the growers term it, is selected for the crop. Land that lies well to the sun, is sheltered to some extent from the coldest winds, and that is not heavy and cold. Such land will give a better return should the season be less warm than the one now at its close, and if the ground chosen be a newly broken-up piece of old turf, the chances of success will be greater.

What is needed of raisers of new Tomatos is that they will endeavour to obtain varieties specially suitable for cultivation out-of-doors, of strong habit, free fruiterers, and as little tender as possible; if this be done, we feel sure that there is a future for Tomatos as a field crop.

ORCHID NOTES AND GLEANINGS.

ROSSLYN, STAMFORD HILL.

IN the quaint, old-fashioned garden around the residence of H. T. Pitt, Esq., there is evidence that its successive owners were always lovers of the garden. In one part is a gigantic *Catalpa bignonioides*, which must have been one of the earliest of

its kind in England. In the centre of the garden is a quaint ornamental sunk portion, and all around there is evidence of changes in the methods of treating the garden, until the property passed into Mr. Pitt's hands, when *Orobanchids* were made the leading feature. *Odontoglossums*, *Cattleyas*, *Lælias*, and showy hybrid *Orchids*, were favourites; but the collection contains many pretty and rare species of the class usually spoken of as botanical, and some of the species generally considered difficult of cultivation, grow successfully here, especially since they have been in the charge of Mr. Thurgood, who has been for some time head gardener at Rosalyn. Among the plants in grand health were noted a goodly number of the leafy section of *Zygopetalum*, known in gardens as *Bolles*, *Pescatoreas*, and *Batemannias*, a few of which were in flower or bud. In the same warm moist house, *Miltonia Phalænopsis* grows with unusual vigour, and flowers freely; also a large number of *Miltonia Roezli* and *M. vexillaria*, one fine plant of *M. v. Leopoldi* sending up four stout flower-spikes. On the other side of the house was a pretty arrangement of *Orchids*, mingled with *Anthurium Andreanum* in variety. Suspended overhead were *Nepenthes*, and some singular looking *Bulbophyllums*, *Cirrhopetalums*, and the smaller-growing *Angræcums*, the curious and pretty *A. Scottianum* being in bloom, also *Dendrobium revolutum*, and a few other uncommon species.

Another division of the range had on one side a selection of the larger *Selenipediums*, and on the other hybrid *Cypripediums*, both sections having a fair show of bloom. The end division had a good display of *Odontoglossum grande*, including the unique *O. grande Pittianum*, with wholly bright yellow flowers of two shades, and without the usual brown markings. Here also in bloom were some *Oncidium Forbesii*, *O. incurvum*, *O. tigrinum*, *O. prætextum*, *Masdevallia Bella*, *Phaphia cristata*, *Cypripedium Charlesworthi*, *Sophranitis grandiflora*, and among the *Cymbidiums* a fine plant of the *Armanvillieri*'s variety of *Cymbidium x eburneo-Lowianum*, with fine stout spikes in the course of formation.

THE ODONTOGLOSSUMS

are the greatest favourites, and the collection includes some very fine spotted forms of *O. crispum*, a magnificent set of varieties of *O. Wilckeanum*, *O. x W. Pittianum* being the best known; and some grand *O. x excellens*, and other hybrids. All were thriving well, and a few plants were in flower.

In the next intermediate range was a good show of *Calanthe veratrifolia*, a fine old white-flowered *Orchid* now seldom seen well grown; some nice spikes of *Vanda suavis*, *Miltonia Clowesii*, *M. candida*, *Cattleya granulosa*, and other showy kinds. At the end of the house were three very remarkable and handsome plants in flower, viz., a form of *Cattleya x Hardyana*, flowering for the first time, with a noble inflorescence of three very large flowers, the cream-white sepals closely veined with rosy-lilac, the broad flat petals of a bright purplish-rose, and the very large and spreading labellum of a dark purplish ruby-red, the base and centre of the lip veined with bright yellow, running into the side lobes. It is distinct, because the side lobes of the lip are of a bright purple, and the sepals and petals do not reflex as in the ordinary *C. x Hardyana*. The next was *Cattleya x Maroni* (*velutina x aurea*), with handsome Indian-yellow tinted flowers with a slight bronzy veining, and a distinct crimson veining and marbling on the lip. The third species, *Oncidium Retemeyerianum*, though "botanical," was no less attractive. It has thick, coriaceous leaves like *O. Cavendishianum*, and a long, branching spike of flowers, each nearly 1 inch across. The sepals and petals are white at the base, and cinnamon-brown on the outer portion; the singularly-formed labellum, bright-yellow at the base, the centre bearing some dark-purple lobes; the front, shining chocolate-brown.

The houses in the kitchen-garden contained in one division of the first range, a very fine show of flowers on the many plants of *Dendrobium Phalænopsis Schroderianum*, which thrive here so well; the

back shelf having a profusion of white and orange-flowered *Dendrobium formosum*. In the next division, was a goodly number of the different species of *Phalænopsis* doing remarkably well, suspended over a bed of *Eucharis*, &c.; and in the end division was a newly-started bed of *Vanda teres*, with a fine lot of *Dendrobium Johnsoniæ*, *D. atrovioleaceum*, and others, suspended under the roof. Then followed a house of imported *Odontoglossum*, another of varieties of *Cypripedium* insignis, and the large span-roofed range, containing the larger *Cattleyas*, *Lælias*, &c.; at the entrance a very handsome form of *Lælio-Cattleya x elegans*, and a few others were in bloom. J. O'B.

FOREIGN CORRESPONDENCE.

CATTELEYA LAWRENCEANA.

Of the tolerably extensive collection of *Cattleyas* which I have cultivated for many years, *C. Lawrenceana* is one that I like the most. The species is a native of British Guiana, and more especially of Roraima that mighty mountain and landmark standing between the states of Venezuela, Brazil, and British Guiana. It is highly interesting to read the description of this district and its inhabitants, by M. Appun, who was sent by the British Government on a journey of discovery, and who visited Roraima in the course of his journeyings. It is there that *C. Lawrenceana* is found, and so far as I know of nowhere else, although in all probability, its habitat is not so circumscribed as this. The transportation of plants through the colony to Roraima is a matter of extraordinary difficulty, and impediments of all kinds are met with, and as will be readily understood, the species in question is rarely exported. Moreover, the Government of the Colony forbids the exportation of native species of *Orchids*, therefore few plants reach Europe as compared with the often immense importations of other species of *Cattleya*. The species is the more valued, irrespective of its beauty, for its freedom to bloom, and the season at which it blooms. In fact, *C. Lawrenceana* fills a gap in the *Cattleya* season between the period of *C. Trianaei* and that of *C. Mendeli* and *C. Mossii*.

The plant is of easy culture, but it must not be subjected to the ordinary rules of cultivation without certain matters receiving attention. An essential factor is a temperate, very light glasshouse, and it must be stood near the glass, and the plant must be often sprinkled or syringed, so that the leaves and pseudo-bulbs do not suffer from dryness. The compost must be kept in a moderately moist state constantly—not wet at one time and dry at another.

When growth begins, the plant should be carefully watched, and no water permitted to remain in the same, otherwise it is greatly to be feared that decay will occur. The growths should be cleared of water in the evening, as moisture during the night is very injurious to the young growth, as is also a high temperature. When the growth is complete, the compost should be maintained in a drier condition, only as much water being afforded as will avert shrivelling of the pseudo-bulbs and leaves; and with this intent these may be dipped in a vessel of water, but the compost should not be wetted. This operation should take place in sunny weather.

Beyond these small details, cultivation is simple. The plant, having made its growth, should be afforded rather more air, in order to mature completely. The blooms appear in the month of April, and on well-established plants these come in bunches of three to six, which, as a result of their arrangement and rich colouring, have a particularly pretty effect. These have a resemblance to those of *C. Skinneri* and *C. Bowringiana*, to which species *C. Lawrenceana* may be nearly related, although it is undoubtedly a veritable, distinct species, and not regarded merely as a variety of a type. My experience of the plant is that it grows better in a pot

than in a basket. It is found in its native habitat of mossy rocks, in open forests, and on the banks of streams. The roots extend horizontally, and, like the crown of the plant, they are not exposed to the air. It serves no purpose to use much peat as compost; on the contrary, the layer of soil should not be more than 1 inch thick, which should overlay a pot filled with crocks; sphagnum-moss cannot be recommended, only clean-washed peat-fibre. Several varieties have been imported, which exceed the type in beauty of form, size of the flowers, and in rich and dark tints. I cultivate a variety under the name of *C. Lawrenceana* var. *splendens*, which has larger flowers, the sepals broader than the type, and of a richer tint, the lip a fine dark purple-carmine. The finest form, however, that I have observed, excepting that superb variety which M. Jules Hye, of Ghent, possesses, under the name of *C. L. superba Hyeana*, of which the entire bloom is of the richest dark carmine, is *C. L. superba*, whose beauty consists mainly in the magnificent large lip of the richest and most gratifying shade of carmine. In beauty this variety is excelled, in my opinion, only by the unequalled *C. L. superba splendens*, whose beauty, unfortunately, is concentrated only on a few blooms, and which is a plant that is rarely seen in flower. The best time to repot *C. Lawrenceana* is when growth commences and new roots appear, and repotting is only needed when the peat has become actually decayed and sour, i.e., every alternate year. The root-mass must not be afforded water before the roots have well developed, the pseudo-bulbs and foliage only being refreshed by immersion in water, or by syringing. Otto Froebel, Zurich.

A NEW PACKING-MATERIAL FOR FRUITS.

AN interesting experiment has just taken place in the matter of packing fruits in the colony of Victoria for shipment to England.

As is pretty generally known, Apples and Pears are now brought from the Cape of Good Hope and from the Australian colonies in boxes holding a bushel, which are stored on board ship in cool chambers. These chambers, or refrigerators, have been provided by the steamship companies at a considerable outlay of money. The fruits are merely wrapped in tissue, and placed in the boxes.

Under this system, Apples have for the most part come very successfully; but Pears have been less satisfactory. Occasionally, there have been Pears from the Antipodes that have reached this country in a sound condition, but numerous consignments have proved to be of little value, and the commission-agent is never able to speak of such fruits or to gauge their value until they have been unpacked. The freight per bushel from Victoria to London for Apples or Pears so packed and stored on board ship in cool chambers is 3s. 9d.

Such are the circumstances of the present system, and the amount of freight paid for passage.

And now for the experiment, for intelligence of which we are indebted to Mr. J. B. Thomas, a well-known fruit salesman in Covent Garden, to whom the fruits which have been the subjects of experiment were addressed.

Instead of packing the Apples wrapped in tissue only, in the case of several bushels that have recently arrived in London by the s.s. *Wakood*, a quantity of asbestos or a preparation of this substance has been used. The fruits were wrapped in tissue as formerly, and afterwards embedded in the asbestos, each fruit being perfectly surrounded by this substance. Upon unpacking the case, the asbestos appeared to be caked, but it was easily broken up, and then appeared almost like flour. We should suppose, therefore, that the fruits would be airtight under such conditions, and this will account for the fact that as we saw them they were perfectly sound, and in excellent condition, although five months had elapsed since they were packed in the boxes. The Apples were grown by Mr. J. R.

Warren, Mount Alexander Orchard, Harcourt, and Mr. J. M. Ely, Rosehill Gardens, Harcourt, both large Victorian fruit growers. They were packed and brought to this country under the direction of Mr. Geo. Pontin, Church House, Yapton, Sussex. The Apples were gathered and packed previous to

"hold" of the ship, and the freight per bushel-case will be 6d. instead of 3s. 9d.; but as the packing material will displace a quantity of the fruits in each package, it may be well for present purposes to describe the future freight of the fruit as 1s. per bushel.

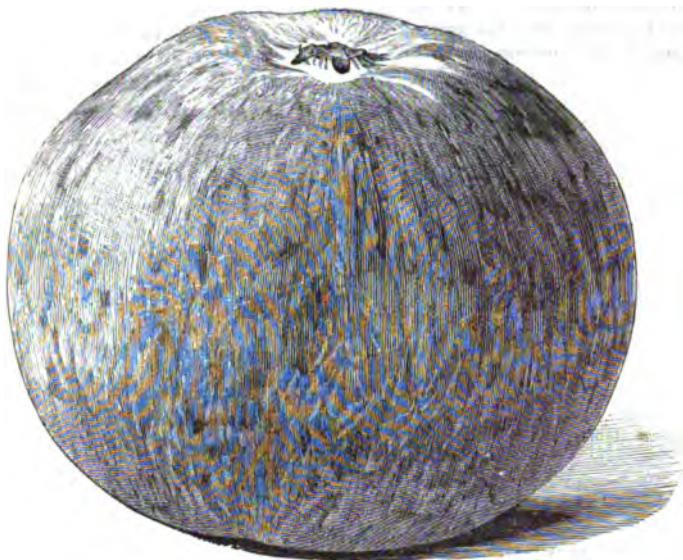


FIG. 87.—APPLE THOMAS ANDREW KNIGHT

May 5 last, but owing to some objection, we believe, on the part of the s.s. companies, there was a delay of two months or more before shipment, and even then they travelled by the Cape route. The companies, naturally perhaps, object to the intro-

It must be remembered also that the asbestos is a valuable material in England, and it will be sold here to as much advantage as will the Apples. The result will be that the asbestos and fruit would be brought to England for less money than is now paid

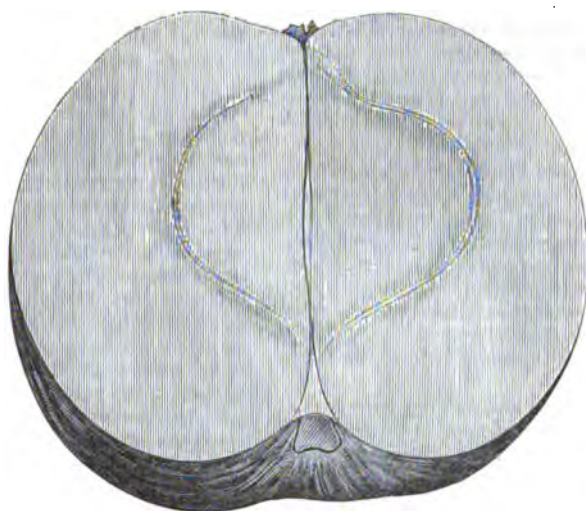


FIG. 88.—SECTION OF APPLE THOMAS ANDREW KNIGHT.
(SHOWING THE CORE.)

duction of a new system of packing fruits that may render unnecessary the cool chambers that have cost so much money to provide. But such objections will, no doubt, be overcome, and if a syndicate be formed, as is now proposed, the system will be given a conclusive trial. The new system, should it answer to expectations, will possess several advantages. The fruit may then be stored in the

for the fruits alone. The Apples will travel as well or better, and it is thought they may be preserved after arrival here for weeks if necessary, providing that the cases be not opened in the meantime. And beyond the other considerations, it is hoped also that Victorian Pears by this system may be placed on the English market without much risk of loss by decay.

THREE NEW APPLES.

ON the occasion of the Royal Horticultural Society's meeting on September 12, the following varieties of Apples were distinguished by the Fruit and Vegetable Committee by Awards of Merit:—

THOMAS ANDREW KNIGHT.

This handsome and splendid variety has been raised by Mr. Charles Ross, Welford Park Gardens, Newbury, Berks, from a cross between Peasgood's Nonsuch and Cox's Orange Pippin. The fruits are exactly the form of Cox's, and have the rich flesh and flavour of that excellent variety; but they are more than double its size, very handsome, and well-coloured (see fig. 87). It is the best dessert Apple that has been raised for many years. As may be noticed on reference to fig. 88, the fruits have remarkably little core, which is a great advantage.

BEN'S RED.

This Apple was shown by Messrs. Geo. Bunyard & Co., Maidstone, and is the result of a cross between Red Quarrenden and Farleigh Beauty. It is of large size, solid, and very red in colour, and not unlike Mère de Ménage, but it ripens earlier than that variety (see fig. 89, p. 261). It will doubtless make a capital Apple for culinary purposes.

VENUS' PIPPIN.

This Apple was shown by Mr. W. J. Godfrey Exmouth Nurseries, Devonshire, who has informed us that the variety has been known to him for thirty years past, and it appears from information obtained in the district that almost a century ago "Plunderitz" (a local name) was a popular West-country Apple. But be that as it may, the variety is new to commerce to-day, and it will be welcomed by all who enjoy a juicy, soft-fleshed, peculiarly refreshing Apple.

Our illustration (fig. 90, p. 261) represents a small fruit, but Mr. Godfrey states that he has had them weighing from 12 ozs. to 14 ozs. each. On parts of the tree exposed to the sun the fruits become very slightly flushed with crimson. The stalk is about 1 inch long, set in a cavity of considerable size, one side of which is russety. The eye is moderately open, and set in a deep, small basin. It would make an excellent sauce Apple; and as a dessert fruit, the flesh is so soft that it is unusually easy of mastication. The tree is a prolific bearer, and seldom fails to carry a crop.

BOOK NOTICE.

THE STRAWBERRY MANUAL. By Laxton Bros., Bedford.

In the publication of the *Strawberry Manual* Messrs. Laxton Bros. have performed a useful service, for with all the abundance of horticultural literature the Strawberry has not received its full share of attention. The fruit is a general favourite, and its cultivation has extended greatly within the past quarter of a century; as a consequence there is a constant demand for information both from amateur and professional growers. In our own paper valuable articles have appeared from the pens of the most successful cultivators of this fruit; but a condensed and practical review of the principal points connected with Strawberry growing was urgently needed. All this has been satisfactorily supplied in the work now before us. The name of Laxton has been so long associated with the improvement of this popular fruit, both father and sons having laboured during a period of about forty years in the cross-breeding and raising of new varieties, that it is especially appropriate that such a manual should emanate from them.

The book comprises 139 pages (crown octavo) of information dealing with the origin and history, hybridisation, crossing, and seedling-raising, cultivation in private gardens, and for market. Forcing, also, has a chapter devoted to it, in which a *résumé* is given of the facts concerning which it is needful

to be informed. An interesting and instructive chapter is devoted to manures, and other portions of the work deal with Strawberry enemies, experiments with Strawberries, and descriptive notes on some of the principal varieties in cultivation, together with select lists of varieties suitable for different purposes and various soils.

The "manual" is clearly printed on good paper, and is bound in cloth, constituting a really cheap and useful shilling book; but we should have liked to see a few more illustrations to brighten the pages, though readers of technical works of this character are more concerned with the "matter," and this is of a character that should give general satisfaction. Some small errors have escaped notice, but they are not of a serious nature. For instance, on p. 28, "the end of the nineteenth century" evidently refers to the eighteenth century. On p. 102, "Lord Roseberry" is a misprint for Lord Rosebery; and there are a few other oversights of minor importance which do not affect the value of the book. With regard to the species of *Fragaria*, it has only been attempted to deal with that part of the subject in a popular manner; but it is worthy of a fuller exposition. A condensed work somewhat in the way of the admirable *Histoire Naturelle des Fraisières*, by M. Duchesne, brought up to date, would be acceptable to many.

NITROGENOUS MANURES.

(Continued from p. 228.)

NITROGEN FOR PARTICULAR CROPS.—The influence of the kind of crop in determining the possible profits from the use of the materials applied affects more particularly the constituent nitrogen. For example, the liberal application of materials containing nitrogen to crops which possess a low market value may result in a maximum production, that is, as large an increase in yield as it is possible to obtain; yet because the nitrogen is so expensive, the value of the increased yield may not be equal to the cost of the nitrogen applied.

On the other hand, its application to crops of a high market value, though not causing so large a proportionate gain in crop, may result in a larger profit, because the cost of the nitrogen, though considerable, is relatively a small item when compared with the increased value of the crop obtained from its use.

The adjustment of the fertiliser to the kind of crop is not a matter of indifference. In the one class of crops, only a small application can be afforded, while in the other case even an excessive application may be profitably made, if by the excess a maximum crop is obtained.

MOST SOLUBLE FORMS OF NITROGEN.

In the next place, the form of nitrogen used is very important, particularly in the culture of early market-garden crops, or such as are improved in quality, and thus increased in value by virtue of quickness of growth. Market-garden crops, as Turnips, Beets, Lettuce, Tomatos, and others, in order to be highly profitable, must be grown and harvested early. At this season the natural soil agencies are not active in the change of soil-nitrogen into available forms; and the plants must, therefore, be supplied artificially with the active forms of nitrogen, if a rapid and continuous growth is to be maintained. Their edible quality is dependent to a marked degree upon this rapidity of development; hence a supply of plant-food in reasonable excess of ordinary demands is essential, in order that unfavourable conditions of season may in part, at least, be overcome.

Nitrogen exists in commercial products in a form that is immediately available, namely nitrates; yet the fact that a nitrate is extremely liable to loss for the reasons already given, makes it desirable to determine—first, whether this most available form is in actual practice of greater or less service than those other forms which are rapidly changed into this active form, but which before their change

are not liable to be lost from the soil. For example, the nitrogen in nitrate of soda is immediately available to the plant: if it is applied before or at the time of seeding in such quantity as to meet the entire demands of the crop, an opportunity is afforded for loss previous to the time that the plant has thrown out its roots and is able to gather it from the soil, and also during its early growth, when it is unable to gather it rapidly. Sulphate of ammonia or dried blood are forms which change very rapidly into the nitrate form, but which previous to that change are readily held by the soil.

In the use of any of these forms of nitrogen, therefore, the conditions which prevail between the time they are applied and the time that they can be used by the plants, would determine their relative usefulness. *J. J. Willis, Harpenden.*

(To be continued.)

NURSERY NOTES.

BUCCLEUCH NURSERIES, HAWICK, N.B.

MR. JNO. FORBES' establishment is situated 800 feet above sea level, and hardy florists' flowers succeed admirably. When visiting the place in the early part of September, Antirrhinums were very showy. For producing the best effect in beds, the excellent variety White Bedder, which grows 1 foot high, and Yellow Bedder and Crimson Bedder, a few inches taller, but showy and effective, are very valuable.

Begonias are extensively bedded out, and if they do not give such a wealth of flowers as under greenhouse treatment, they are a welcome change to the Pelargoniums. Under glass there were the best and newest of the tuberous-rooted section. A few of the best doubles are Albert Crousse, deep salmon-red; Apricot, salmon-apricot; Bernard Cowan, scarlet; Chieftain, beautiful pale rose, shaded salmon; Madame de Didier, yellow; Mrs. A. Forbes, pale salmon; Olga, pure white; and Satin Rose, a deep rosy-scarlet. Of the singles, Aurora, deep scarlet; Alexander, bright rose; Candida, pure white; Conquerant, cerise-scarlet; Favourite, golden-bronze; Iris, bronzy-yellow; and Model, pink, suffused buff; are among the best.

Carnations, especially the border varieties, have been very showy on a steep slope of the nursery, where they succeed to perfection. Not the slightest trace of disease in any form was to be found among the many varieties which are here grown. A few among the many worthy of note are:—Artemis, scarlet, flaked lavender; Foxhunter, crimson-scarlet self; Professor Gerta, steel-blue with scarlet; Queen of Holland, terra-cotta; Brochlin, yellow, with purple edge; Corunna, golden-yellow; John Forbes, rich canary-yellow, edged with rosy-scarlet; Primrose League, yellow, edged and splashed with red; Waterwitch, bluish-white; and Scarlet Gem. Yule Tide is grown under glass in quantity, to meet the demand for such a splendid winter-flowering variety.

Hollyhocks were gorgeous, and anyone who can grow them to the same perfection as they are done here is fortunate. Year after year the plants enjoy entire freedom from disease. There is great advantage in growing Hollyhocks in this district, that is, the scarcity of the wild Mallow. When living in the south, it was impossible for me to keep the plants clean for any length of time (seedlings or otherwise), owing to their becoming contaminated with disease from the wild Mallow, which grew in abundance in the district. Varieties are too numerous to mention, but a few good ones are alba superba, pure white; Archibald Forbes, bluish, suffused pink; David Henderson, light rosy-crimson; Gem of Yellows; Grace Darling, rosy-salmon; Lord Decies, dark crimson; Octoroon, pure purple; and Robert Ryle, carmine-red.

Herbaceous Lobelias are grown in many varieties, and I think the variety Firefly is the most brilliant of them all.

Montbretias are delightful when arranged with their own sword-like foliage. I think, from the profusion of the flower-spikes here, they prefer a damp situation.

Pansies find a congenial home in very stony soil, and grown as they are, quite in the open, they delight in their position. Violas are finer here than I ever have seen them; they have been quite smothered with their neat, and in many cases, sweet-scented flowers all the summer, and promise to maintain the display through the autumn. Varieties are so numerous and good that it is needless to enumerate any of them.

The show of Pentstemons is worth going a long way to see, and it is interesting to examine the varied shapes and markings of the different varieties. A great many are grown in pots and forwarded in greenhouse temperature, so as to lengthen the flowering season as much as possible. They make fine, showy pot-plants for conservatory decoration. Among the finest varieties are Miss Dawson, rich rose with white throat; Mrs. William Cruden, brilliant scarlet, pure white throat; William Bain, rosy-scarlet, white throat, margined crimson; Jean Mace, scarlet, white throat, marbled crimson; President Carnot, scarlet, white throat; Lord Ravensworth, rosy-purple, large white throat; and Scorpion, clear violet, with purple blotch in the throat.

Proceeding along the main walk, we found it bordered on the one side with herbaceous perennials, and on the other by Phloxes, which are mostly of the newer dwarf type. Among the scores of varieties to be seen here, there are some to suit the tastes of all both in height of plant and colour of flower. Pot-culture is called to the grower's help also for extending the flowering season of the Phloxes, and well they repay any such attention given them. A few varieties may be mentioned as exceptionally good, namely—Bouquetist, orange-scarlet, purple centre; Fedora, rose, slightly suffused pink; Crepuscule, silvery-white, with dark centre, and white edges; John Forbes, pink, dark crimson eye; Lord Raleigh, dark violet, purple centre; Le Mahdi, violet-blue, suffused bronze; Le Siècle, salmon-rose, lilac, white centre; Liberté, orange-salmon, carmine centre; M. C. Carpentier, pure white; Suffrage, lilac-mauve, rose centre; and William Robinson, rosy-salmon, violet centre.

East Lothian Stocks are among the leading plants at this nursery, and a piece of ground planted with several hundreds of these beautiful sweet-scented plants in full flower was a feature. They are not grown here as in most gardens. In the spring the plants are put into 6-inch or 7-inch pots, and plunged in the open ground, watered occasionally during the summer, and on the approach of frost they are taken up, and placed in a light, airy house, where they prolong the display for a considerable time. So far as I could see, there would be about 20 per cent. of singles. They are represented by seven varieties, purple, crimson, scarlet, rose, and white, and white and crimson wallflower-leaved. I have always thought most of the white and crimson varieties grow with more freedom than the others. Where East Lothian stocks stand over the winter outside, they make a fine show in the months of May and June following.

Another very useful and ornamental plant is the Dunrobin Bedding Fuchsia, which grows about one foot high, and flowers with the greatest freedom, making a fine hardy plant for the flower garden as a front row to a shrubbery.

Of hardy Chrysanthemums there is the usual selection, but a variety I noticed much earlier in flower than any other was named Golden Shower. It is in colour a golden-yellow, and grows 18 inches high. There is also a quantity of Chrysanthemums in pots, which are grown for the supply of cut flowers. Dahlias were in bloom, but Delphiniums were all past. Of herbaceous plants in general, their names and qualities are legion, and the borders are very gay from early summer till late in

the autumn. *Gypsophila paniculata*, and *Statice* in their many varieties are fine plants, and *Pyrethrum* are represented in their best varieties.

MISCELLANEOUS FEATURES.

The glasshouses are principally used for propagating purposes; but the large centre conservatory

a pale shade of green, with good wiry stems and small pinnules. It is only from well-established plants that good fronds can be obtained, but after they attain to a useful size, the same plants will continue to supply good material for a considerable length of time. I have known the same plant to afford a good supply for several years

a less number of plants when given plenty of room than is the case where they are crowded together. Liquid-manure may be used when the plants start to make new fronds, but after they are well developed it should be discontinued.

The most difficult months in which to have good fronds of Maidenhair are those of February and March. To ensure good material for this period, plants that have been rested during the summer should be started in the autumn; if they have not been entirely dried off, they should have all the old fronds removed. If the plants are too dense damping-off may give trouble. Old fronds will sometimes cause this, or it may be caused through letting the plants get too dry at the roots. When allowed to get too dry, the under-fronds shrivel up, and as soon as moisture settles on them, decay and damping-off are the result.

In growing Maidenhair for furnishing fronds for cutting, it may be necessary to afford some slight shade during the summer, but the more the plants can be exposed, the better; and if water be carefully afforded, it will only be during the very bright, hot weather that any shading need be used.

Adiantum elegans, the fronds of which are larger than *A. cuneatum*, is now being grown to some extent; it also lasts longer in the winter. Plants of this variety which have been rested during the early part of the winter will start into new growth, and come in much earlier than the old favourite. *A. Hemslley*.



FIG. 89.—APPLE BEN'S RED.
(SEE P. 259.)

contains some large specimen Camellias, which, I have no doubt, Mr. Forbes would gladly part with, as they take up a good deal of valuable space; but there is not much demand for hard-wooded plants of this description.

At present, there are several new glasshouses in course of erection; some for holding the hardier class of plants, and others for stove plants. *R. T. S.*

without being repotted. When necessary to increase the stock, division may be recommended in preference to seedlings, as the latter produce a number of small fronds with short stalks (or stipes).

In growing on a stock for cutting from, they should be potted in a good loamy compost, pressed fairly firm, and good drainage should be afforded.



FIG. 90.—APPLE VENUS' PIPPIN.
(SEE P. 259.)

MARKET FERNS.

FERNS SUITABLE FOR CUTTING.

ADIANTUM CUNEATUM.—Although not so popular as formerly, there is still a demand for good Maidenhair Fern, especially during the winter months. To meet with the approval of florists, it must be of

When starting with young plants, they may be grown on in a good heat, and treated liberally; it is only after the pots get well filled with roots, and the plants have been well exposed to light and air, that they make desirable hard wiry fronds. They should be grown on an open stage, giving them plenty of room, so that the air may pass freely among them. More good fronds may be cut from

HOME CORRESPONDENCE.

COLCHICUM AUTUMNALE.—At the present time (September 23) this plant affords a welcome touch of colour in the herbaceous borders, and the plants are flowering more abundantly this year than usual. Planted in fair-sized clumps in the front row—as we have it here—there is plenty of green foliage near to it; it is also well separated from the yellow-flowered *Helianthus* and allied genera, which give the prevailing tone of colour to the herbaceous garden at this season, otherwise the two colours would be inharmonious if near together. The variety *C. a. maximum* is much superior to the type, and to *C. Parkinsoni*, but all are welcome at this season of floral scarcity. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

MARÉCHAL NIEL ROSE.—Referring to remarks on the above Rose, by "J. K., Wimborne," I have two trees that I budded many years ago on a *Rosa Banksia* stock; they are growing in a cold house, and have never shown any sign of canker. It appears that *Rose Devonensis*, or any other stock will do that yields a good flow of sap. I do not know if fruit-trees obey the same law, but clearly the stock in every case should yield sap as fast as worked Rose or fruit requires it. *F. V. Hadlow, Buxted, Sussex.*

PEACH PRINCESS OF WALES.—I am sending for your inspection a photograph of a Peach-tree of this variety, growing on a south wall in the gardens, which was taken in August, 1898, when the tree was carrying 274 fruits of large size. The fruits were over at the date of the Fruit Show at the Crystal Palace last year, or I should have exhibited some of them. This year the same tree is carrying over 100 fine fruits. Peach Princess of Wales succeeds here, and is one of the best late varieties we have. [The photograph was, unfortunately, too small for our purpose. Ed.] *T. H. Slade, The Gardens, Poltimore, Exeter.*

GENTLEMEN GARDENERS.—The *Daily Mail* is noted for its surprises, but I never had a greater shock than when I read the note with the above heading. After an experience of over a quarter of a century amongst many of the leading gardeners, I have never heard of the "scores of places" where such handsome remuneration is given. No one knows better than the Editor of the *Gardeners' Chronicle* how the market is already overcrowded with these so-called "scientifics." Where the supply falls short is in sound, practical men, who have done their seven years at the bottom before attempting to mount the ladder. Perhaps your enlightened contemporary may be induced to name one only of the twenty he refers to, as I should like to know him. *D. McDonald.*

ALLIUM ROSEUM.—During the parching month of August last, this plant was conspicuous in the herbaceous borders by reason of its fresh appearance among so many other plants that were withered or dried up. Fortunately, it does not possess the strong aroma of *A. Moly* and other species. The plant grows about 1 foot in height, and its slender stems are surmounted by a head of flowers about 1½ inch in diameter, of a pleasing shade of soft rose, tinted with purple. It is easily increased by division. *W. H. Divers.*

THRUSHES AND BLACKBIRDS, ETC.—In your last issue, p. 238, Mr. H. Weir, writing of the song-thrush, says he should like to know if any other person had observed the habits of this bird which he had noticed. It so happens that the song-thrush is a favourite of mine; a good singer, and a gentle, innocent bird. Of course, it is very fond of small fruit when this can be got, but they can easily be kept away from it by nets, and it does not attack large fruit on trees and walls, and tear up mulching, as the blackbird does. By keeping down the blackbirds, which, when numerous, chase off the thrushes and take their worms from them, I have a large and happy family of thrushes here. On three sides this manse is surrounded by grass, a lawn, flower-garden, Rose-garden, and bowling-green. On these, I can see the thrushes every morning, and in summer time, not only at sunrise, as Mr. Weir says, but long before. When there is only the faintest streaks of light, and before any blackbird appears, I have often noticed them hopping over the green in quest of their morning meal. After the grass has all been searched many times over, and later in the day, I have frequently seen them, especially in dry warm weather, searching the rockery and secluded or sheltered nooks, disappearing under Ferns and other plants, and then emerging with a large shell snail, and making for one of the garden stairs (stone), where the milling process was instantly started on the shell. In fact my attention was first drawn to this habit of the bird, many years ago, by hearing a deal of tap, tap, tapping going on, on the stairs, and when I went and looked at the place I saw Mr. Thrush busy at his banquet, and the debris of many a rich repast scattered over the steps. In regard to the blue or tom-tit, he is certainly a most destructive little rascal; not for what he eats, but for what he destroys. Provided with a strong neck and a sharp bill, he seems to take a delight in puncturing fine Pears. They are very numerous in this part of the country, and if the trees were unprotected they would injure every Pear here. To put a collar on every Pear, as Mr. Weir suggests, would certainly be a troublesome and tedious process where Pears are at all numerous. I cover mine with nets. As a gardener's assistant, I venture to think the tit is an over-rated bird. Anyhow, last winter we reduced the number here as near to nothing as we could, and my fruit-trees, despite the dry and warm summer, never were freer of insect pests. *J. Hart, The Manse, Aberlady, East Lothian, N.B.*

BULBS, ETC.—An article by someone of genuinely practical experience, specifying which, among the rarer bulbs, can be successfully grown in the grass in England, would be very interesting. By such rarer bulbs or tubers, I mean *Adonis*, *Alströméria*, *Anemone Robinsoniana*, *palmata*, *blanda*, *Camassia*, *Chionodoxa*, *Erythronium*, *British Fritillarias*, bulbous *Irises*, *Leucojum*, *Lilium*, *Trillium*, exotic *Tulips*, and such-like. I understand that even on the mound at Kew most of these things have to be replanted each year. Some interesting things have turned up here this year. *Campanula rupestris* from the Peloponnese has not yet flowered, but its deeply-cut, tomentose foliage, lying on the ground in rosettes, is far more effective than *C. mirabilis*; its hardiness is not yet proven. This last remark also holds good for a most charming *Lilium* from Chili, with orange flowers and bright scarlet-tipped buds, of which I have not yet been able to send a plant to Kew for identification. *Lathyrus magellanicus* has returned to cultivation, but the flowers have not the beautiful azure-blue of Sweet's illustration. They are fairly large, lilac in colour, with a red base. It ripens a fair proportion of its seed, and the seed germinates at once. Few people seem to grow *Peroweskya atriplicifolia*. After *Salvia angustifolia*, that true queen of the autumn, I know of nothing so effective among the late flowers; but the flowers are individually small, which might not suit some tastes. *Ranunculus Lyalli*, in some quantity, seems

quite happy in stiff soil, under a north hedge, and well sheltered from winds. It flowered this spring, after going through the winter unprotected. It is also to all appearances contented, though quite dwarf, on the north side of a fearfully windy rockery. *Rodgersia pinnata*, which I have not yet dared to trust outside, is putting up dark-brown, hairy leaves, which are very taking. Dr. Henry tells me that when it was in full flower among the cliffs, at 8000 feet altitude, in Yunnan, it was a magnificent sight. Gardens are evidently going to be greatly enriched with *Meconopsis*. Besides the well-known *cambrica*, *nepalensis*, and *Wallichii*, and the less well-known *simplicifolia* and *aculeata* (this latter, perhaps, the most beautiful of dwarf spring flowering plants), seed of two new Himalayan species has germinated, viz., *grandis* and *paniculata*. Seed of the perennial Himalayan *M. bella* also reached Europe, but unfortunately it failed to germinate. Dr. Prain, the chief Director of the Calcutta Botanic Garden, told me that he has for years been endeavouring to secure seed of this fine species. Last year a lot of seed was obtained, but, as ill-luck would have it, a rat got at the seeds en route between Sikkim and Calcutta. The wretched creature showed unerring penetration. It might have glugged itself on *M. Wallichii* and *M. nepalensis*, but it preferred to devote itself to this choice *M. bella*, and devoured almost every seed. Only a few imperfect seeds reached Calcutta, and none of them has germinated. By-the-by, cultivators of *Meconopsis* must prepare for some changes of nomenclature. The true *M. nepalensis* (now being raised from seed) is apparently quite a different thing from the beautiful sulphur-flowered species generally known under that name. Besides these Himalayan species, we may shortly expect to gain, through the enterprise of Messrs. Veitch, who have sent a collector to tap the extraordinary riches of Western China, the superb *M. integrifolia*, whose great flowers are understood to be some 4 inches across. All lovers of hardy plants must heartily wish success to Messrs. Veitch in an enterprise which is bound to so greatly enrich our gardens. Beyond these above-mentioned Asiatic species, and several others unmentioned, there is yet another in the Californian *M. heterophylla*, which was so exceedingly beautiful this spring in the alpine-house at Kew. The worst news I know is, that Dr. Henry, our only first-class botanist actually in the field in China, has been moved to a spot wholly out of reach of the high mountains, where alone hardy things can be got; so at present outdoor gardeners in England will have to wait. *A. K. Bulley, West Kirby, Chester.*

CROCUS SPECIOSUS.—A large bed of this species is now a mass of beautiful blue flowers, and will continue in beauty for several weeks. Like many other early-flowering bulbs, it flowers whilst devoid of foliage, but scattered clumps among the herbaceous plants add much to the nice appearance of a border at a time when few others are in bloom. If left undisturbed, it increases readily from self-sown seed, and also flowers more satisfactorily than it does when transplanted. *W. H. Divers.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wigan, Bart. Clare Lawn, East Sheen.

Fire-heat and the Necessary Temperatures.—Artificial heat will now be necessary in order to maintain the temperatures in most of the Orchid-houses, and although care is always needful in the employment of fire-heat, it is doubly so now, when most Orchids are approaching their resting season. The man deputed to attend to the fires and heating of the houses at night should be one qualified to read ordinary signs of the weather, so that the house temperature in the morning may be as nearly right as possible. The temperatures for the various departments should approximate to the following figures, though, if the weather continues mild, the minimum readings need not be strictly adhered to, providing fire-heat be not largely used:—

	Morning.	Noon.	Night.
East Indian and Phalœnopsis-house...	68°	75°	70°
Cattleya-house	63°	68°	65°
Mexican-house	67°	68°	63°
Intermediate-house	58°	63°	60°
Madevallia-house	58°	58°	55°
Odontoglossum crispum-house ...	50°	55°	53°

On bright sunny days the noonday temperatures

in the first four houses may be permitted to rise considerably above the figures given. It should be clearly understood that these figures are intended to apply to temperatures obtained by artificial means, and they serve only as a guide; atmospheric influences and local conditions may render modifications advisable.

Shading may be dispensed with so far as the East Indian, Cattleya and Mexican houses are concerned, but the Phalœnopsis and plants in the cool houses may need for some time longer a small amount of shade during sunnier hours. Owing, however, to the very brilliant weather this season, the most delicate plants will stand stronger direct sunlight than would otherwise be good for them at this season. All permanent shading on the ends and sides of the houses should be removed at once, also any that has been employed on the roof-glass.

General Remarks.—*Bletia hyacinthina* should now be taken indoors and placed in a dry, cool position, and afforded no more water until the new year. If space is limited they may be placed under the stage, where no drip will reach them. *Thunias* also may be laid beneath the stage in an intermediate-house as soon as the leaves have fallen away. Arrange them so that the pseudo-bulbs will not lie flat upon the ground, and afford the plants no water whilst occupying this position. A light and dry position on a stage in a moderately cool house would be preferable. Continue to remove *Dendrobiums* to a cooler and drier position so soon as the new pseudo-bulbs show that growth is finished. Repot or re-surface such *Cattleyas* and *Lælias* as are emitting new roots from the base of the last-made pseudo-bulbs. The water supplied afterwards should be limited in quantity. *Cologne cristata* and its varieties now forming pseudo-bulbs should be afforded every encouragement to further their development. *Anguloas*, the deciduous *Lycastes*, and others that have matured their growth will now only require sufficient water to keep the latter in a sound and plump condition.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Tender bedding plants.—Cuttings of these that have made roots and are still out-of-doors must now be placed in cold frames, but for the present the lights need be used only during the nights. If sufficient cuttings have not been obtained of the tricolor or golden-leaved varieties of *Pelargonium*, it will be well to lift the old plants, and when they have laid out for a few days to dry, pot them up, putting three plants into a 6-inch pot. Place them in a cool and airy position.

Specimen trees in tubs.—Standard Oranges and other half-hardy trees in tubs should be removed to their winter quarters; and hardy trees in tubs, such as Portugal Laurels, Sweet Bays, and *Rhododendrons*, should be placed in a situation sheltered from rough winds. *Cannas*, *Melanthus major*, *Acacias*, *Aralias*, and *Aloes*, may be permitted to remain out for a few weeks longer, as a few degrees of frost will not harm them.

Calceolarias.—The propagation of these should be carried out in the course of next week. Few failures need occur if the shoots selected are firm, not showing flower, and come from near the base of the plants. The cuttings should be from 3 to 4 inches long, cut just below the joint, and a few of the lower leaves removed. They succeed better in a cold frame than in pots or boxes. Thorough drainage must be afforded, and the soil should be made up evenly and firmly to within 8 inches of the lights. The best compost to use is one consisting of loam, leaf-mould, wood-ashes, and sand. The cuttings may be dibbled in about 4 inches apart from each other, sprinkling the surface with silver or river-sand. A light spraying overhead in the mornings is beneficial, but the frame must be kept close for a few days so as to prevent flagging; after which, plenty of air will be necessary. No covering is needed except during frosts.

Gazania.—The two varieties, *G. splendens variegata*, and *G. splendens aurea*, make very pretty bedding-plants, especially when mixed with a blue *Viola* or a *Lobelia*. Cuttings taken from the tips of the shoots, and placed in boxes containing a light (not too rich) compost, soon make roots, and when thoroughly established, they may be wintered in a cold frame from which frost is excluded.

Chrysanthemum frutescens.—The white-flowered variety, *coronarium*, *coronarium grandiflorum*, and

the yellow-flowered *Etoile d'Or*, grow and produce flowers during the whole season. Cuttings of these strike readily if inserted around the edge of the pots, and the latter plunged in a little bottom-heat; but the cuttings should be taken from those plants that have been cut back, or from the sides of stems that have not produced flowers. *Chrysanthemums* are subject to the attack of a small fly, *Tephritis onopordinis*, which lays its eggs on the leaves, and the resultant maggot mines between the upper and lower surfaces. A careful examination should be made for these, and as a preventive, the cuttings, before insertion, should be dipped in tobacco-water.

Carnations.—It is rare that the yellow, yellow-ground, and other delicate varieties of Carnations survive the winter if planted out in the open, or allowed to remain in the situations in which they were layered. The layers should, therefore, be carefully lifted with a good ball of earth, and potted singly in 5-inch pots. Good drainage may be secured by putting some soft broken brick and half-inch bones at the bottoms of the pots. Place a small piece of fibrous turf over this, and use for potting a compost of good maiden loam, and sand. The plants may then remain outdoors for a few weeks before removal to a cold pit or frame for the winter. The hardier and stronger-growing varieties may be planted out in borders or beds. Before doing this, dig into the ground some maiden loam, and well decayed manure, and some soot. Having made the beds and borders firm and level, put out the layers at a not less distance than 15 inches apart.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Trenching the Land.—When considerable areas of kitchen garden are to be trenched, advantage should be taken of the dry state of the ground to wheel and neatly stack the manure that will be used on the plot, or on some convenient spots, so as to expedite the work. Refuse, or potting-bench soil, and garden-refuse of all kinds, excepting wood, should also be wheeled on to the land in readiness. This rough sort of rubbish is very useful in lightening heavy soils; but it must be put in two or three spits deep. Trenching should always be carried out piecemeal over the entire garden, in order that good vegetables may be grown, and provision made against a season of drought.

Celery.—The rainfall has been very slight in this district, and not sufficient to reach the roots of Celery in any useful quantity. If no heavy rains fall soon, good applications of water will have to be made, taking care in doing the work not to wash the soil into the hearts of the plants. Furrows should be made along the rows at about 8 inches distant from them, and water poured into these twice or thrice in succession. Continue to mould-up the plants when the stalks are thoroughly dry, and the heart-leaves are a few inches out of the soil. The plants, since the cooler weather has set in, are growing fast.

Turnips.—The plants from the last sowing will require to be singled, and the whole plot stirred with the Dutch-hoe. The bulbs on warm, dry soils, have not been very plentiful, and the flesh has been far from tender and sweet; but on cool, retentive soils, they have been excellent.

French Beans.—Let the useable pods be gathered on alternate days, as frost may come now at any time, and cut off the plants. The rows growing on warm borders for affording a late supply of Beans, should now be protected with hoops and mats, or in other ways. Bracken, if come-at-able, should be stored in quantity for covering Lettuces, Endive, Cauliflowers, cold frames, &c.

Tomatoes.—Gather daily all slightly coloured fruits, and lay them thinly in a vinery to ripen. The Tomato crop out-of-doors this year has been a heavy one of good quality; and those raised from early-sown seed, and grown on as single-stemmed plants, have ripened fruit up to a good height.

THE HARDY FRUIT GARDEN.

By G. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Late Plums.—The weather having now become cooler and the atmosphere moister, the greater part of the late dessert Plums still hanging on the trees may be gathered, and laid out thinly on the shelves of the fruit-room; or if boxes be used to

gather the fruit in, and they be placed thinly in these, which should be put into a dry and cool place. The fruits should be quite dry at the time of gathering. Before Plums are quite ripe, a few at a time may be brought on successively if placed in a vinery or other warm, dry house. Kitchen Plums, as *Monarch* and *Grand Duke*, may remain some time longer on the trees if desired, but if rainy weather sets in it will be better to gather them. Such dessert Plums as *Coe's Golden Drop*, *Brahya's Late Gage*, and *Reine Claude de Bavay* may be kept in good condition for several weeks if preserved carefully as described above.

Blackberries.—The old fruiting growths should now be cut away in a manner somewhat similar to that practised in the case of the Raspberry. The common Blackberry has fruited abundantly in a wild state during the past month, and where these are plentiful there is not the same necessity for cultivating such varieties as *Rubus laciniatus* and others. But as fruit for dessert, the common Blackberry, as grown wild, is not so good. Young strong growths for next year's fruiting should be tied to poles or a trellis, and allowed to hang in a semi-pendulous manner, and should not be shortened. The variety grown by Mr. Mitchell, of Farnham Royal, which received an Award of Merit at the Drill Hall last year, appears to be an improved form of the common Blackberry, producing larger fruits, which are borne profusely on strong pendulous growths.

Preparing Ground for Planting Fruit-trees.—The long drought has made digging and trenching difficult, and where it is intended to do a considerable amount of planting, the necessary double digging of the land must wait for a heavier rainfall. Avoid the practice of taking out circular holes of medium size to plant trees in, while the surrounding soil is left hard and in a state difficult for the roots to penetrate. The ground should be trenched throughout, and if the soil be of a heavy nature it will be necessary to have a good dressing of lime, or lime-rubbish and wood-ashes, incorporated as the work proceeds. If the varieties to be planted have been decided upon, the trees should be obtained from the nurseryman well in advance of planting time. If the selection be made at this date, the condition of the trees may be noted before the leaves fall, and the purchaser will know precisely the kind of trees he will receive as soon as it is possible to lift them in October or early November.

PLANTS UNDER GLASS.

By O. R. FIELDER.

Stephanotis floribunda.—Plants which have completed their growth should be afforded as much air and light as is possible without causing injury to other plants occupying the same house. This is necessary for the thorough maturing of the shoots, upon which successful flowering largely depends. The shoots should be thinly disposed upon the trellis, and where there is crowding the weaker growths should be removed.

Allamandas.—Plants which flowered early may be placed in a house where the temperature does not fall below 55°, in order to rest them. The ends of the shoots should be shortened slightly, which will allow the air and light to reach the remainder of the wood more readily. The amount of water should be gradually reduced until the plants are quite at rest, when they should be kept dry at the roots, or at the most should only receive water occasionally. It is not safe to rest *Allamandas* in a temperature lower than 55°. Late-blooming plants trained to balloon trellises should receive the final tying-in when the flower-buds can be discerned upon the ends of the shoots. At this season, they should be afforded a position in the stove where they will be fully exposed to the sun, otherwise the flowering will be unsatisfactory. Plants whose pots are filled with roots should be afforded weak manure-water once or twice a week.

Anthurium Scherzerianum.—When these plants have finished their growth they should be placed at the cool end of the stove in order to rest, or still better in an intermediate-house having a minimum temperature of 55°. While resting in this lower temperature the amount of water afforded to the roots must be considerably reduced, otherwise loss of roots will occur. Plants which have been rested in this way during the winter come quickly into flower when they are again placed in heat.

Gardenias.—Cuttings may be inserted to form plants for flowering in small pots in the late spring. Strong cuttings with not too firm a base should be selected, and inserted singly in small pots filled with sandy soil, and plunged in a moist, warm propagating frame, where they will strike readily. The plants should then be potted, and placed near the glass in the stove, and the points of the shoots pinched out occasionally, in order to produce bushiness. As soon as sufficiently well rooted, the plants should be shifted into pots one size larger, and subsequently into 5-inch or 6-inch pots, in which size they may be allowed to flower.

FRUITS UNDER GLASS.

By W. STAUWELL, Gardener to Lieut.-Col. RALPH VIVIAN, Wood Ashton, Trowbridge.

The Early Peach-house.—The foliage being nearly matured on those trees which were started at the end of last year, it may be detached by lightly brushing the shoots in an upward direction with a new birch-broom. If any planting or re-arrangement of the trees is to be carried out this year, the present affords the best time for the work. It is not advisable to transplant trees that are still in active growth, or the leaves may drop prematurely, and the trees be weakened. In any case, much care should be taken to preserve the roots from damage, and to afford water copiously at the time of planting. The formation of new roots is greatly assisted if a few leaves are left on the trees. If a tree be removed from out-of-doors to the Peach-house, or is merely lifted in the house while still in leaf, it should be shaded during the day, and syringed often in order to keep the foliage fresh. In removing large trees from the open to early Peach-houses, a trench should have been dug out round the ball some time ago, and partially filled in with light soil. *Alexander* and *Waterloo*, although they are fine early Peaches, are untrustworthy for forcing early, but are good varieties for starting slowly in February, or better still in March. When forced early, the buds drop in a most disappointing manner. *Amsden June Peach*, though smaller than either, is a more satisfactory variety as an early forcer; and *Hale's Early* and *Early Groes Mignonne* are good for succession. *Alexander* and *Waterloo* are very quick in ripening after stoning, and they may be forced hard after the fruits are well developed. In the maintenance of a continuous supply of early fruit it is not well to plant the early division with too many of the earliest kinds. This is only advised when there is a number of houses which may be started at short intervals of time. Every early Peach-house should include a tree of *Cardinal*, *Early Rivers*, *Lord Napier*, or *Elruge Nectarines*. If the wood of a Peach or Nectarine-tree has a tendency to grossness, now is the time to root-prune. Young trees are very prone to make much robust wood, especially in newly-made borders. As soon as the leaves are removed, pruning and training may begin, then the roof should be cleaned, and the walls lime-washed. If scale, mealy-bug, thrips, or red-spider, have been present, hot-water and petroleum may be employed at the temperature and strength previously directed, and in bad cases a dressing of some approved insecticide should be applied. Finally the surface-soil should be removed from the border, not, however disturbing the roots, and a quantity of new soil—turfy loam if it be procurable—or some good garden-soil, together with a sprinkling of charred garden refuse, and mortar rubble substituted for it. In the case of old trees, a dressing of artificial manure may be spread on the bare surface before the new soil is spread. The house should be thrown open for some weeks longer. If any plants in pots are placed in the early Peach-houses, they should be such as will endure continuous ventilation without harm.

Other Fruit-houses.—Where shading has been employed, this may now be removed, and the trees fully exposed to sunlight. If the borders are suspected to be deficient in moisture, remove the surface-soil forthwith, and afford water copiously so as to reach the bottom, and run from the drains.

A NEW GAZETTEER.—A cheap edition, in sixpenny weekly parts, is about to be issued of *Cassell's Gazetteer of Great Britain and Ireland*. The work is very fully illustrated from authentic photographs, and will contain sixty maps in colours. Part I will be ready on October 4.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.
Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR OCTOBER.

MEETINGS.

THURSDAY,	Oct. 5	Annual Dinner of the United Horticultural Benefit and Provident Society, at Holborn Restaurant.
TUESDAY,	Oct. 10	Royal Horticultural Society's Committee. National Rose Society's Committee. Royal Horticultural Society of Ireland.
TUESDAY,	Oct. 24	Royal Horticultural Society's Committee. National Chrysanthemum Society's Floral and Executive Committees.
SHOWS.		
TUESDAY,	Oct. 10	National Chrysanthemum Society's Exhibition at Royal Aquarium (three days). Taunton Chrysanthemum and Fruit (2 days). Southampton Chrysanthemum (two days).
TUESDAY,	Oct. 31	Wolverhampton Chrysanthemum Society's Exhibition (three days). Torquay Gardeners' Association: Chrysanthemum Exhibition (two days). Teignmouth Chrysanthemum.

SALES FOR THE ENSUING WEEK.

MONDAY, Oct. 2,	and the following Tuesday, Wednesday, Thursday, and Friday, Dutch Bulbs at Protheroe & Morris' Rooms.
TUESDAY, Oct. 3.	—Important unreserved sale of thousands of bedding and hardy border Plants and Bulbs in immense variety, at the Hale Farm Nurseries, Tottenham, by order of Messrs. Thomas S. Ware, Ltd., by Protheroe & Morris, at 11 o'clock.
TUESDAY, Oct. 3.	—Important unreserved sale of Nursery Stock at the Matlock Nurseries, Matlock Bank, by order of Mr. C. H. Harris, by Protheroe & Morris at 12 o'clock. Two days.
WEDNESDAY, Oct. 4.	—Annual important unreserved sale of Nursery Stock at the Tunbridge Wells Nurseries, Tunbridge Wells, by order of Messrs. Thos. Cripps & Co., by Protheroe & Morris at 12 o'clock. Two days.
THURSDAY, Oct. 5.	—Important sale of Freehold Land in large and small lots on the New Hall Estate, Hockley, by Protheroe & Morris, at 2 o'clock.
FRIDAY, Oct. 6.	—Important and Established Orchids at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period September 17 to September 23, 1899. Height above sea-level 24 feet.

1899.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.	NIGHT.	RAINFALL.		AT 1-foot deep.	AT 2-foot deep.
		Dry Bulb.	Wet Bulb.			At 1-foot deep.	At 2-foot deep.		
SEPTEMBER 17 TO SEPTEMBER 23.									
SUN. 17	W.S.W.	58.5	54.7	68.9	48.9	...	59.1	60.9	60.5
MON. 18	W.S.W.	57.9	52.6	63.2	51.8	0.08	59.1	60.6	60.4
TUES. 19	W.S.W.	56.2	50.8	62.7	54.0	0.21	58.3	60.2	60.2
WED. 20	W.S.W.	54.9	48.9	59.3	49.3	...	57.8	59.8	60.1
THU. 21	W.S.W.	52.4	47.3	62.8	49.9	0.15	55.3	59.2	59.9
FRI. 22	W.N.W.	55.1	48.8	59.9	51.0	...	57.1	58.8	59.6
SAT. 23	W.S.W.	53.3	47.6	59.8	49.5	0.02	54.5	58.5	58.5
MEANS...	...	55.5	49.8	62.2	48.1	0.46	57.4	59.7	60.0

Remarks.—The weather has been very dull and showery, with strong west winds.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—54°.

ACTUAL TEMPERATURES:—

LONDON.—September 27 (6 P.M.): Max. 63°; Min. 47°.
PROVINCIAL.—September 27 (6 P.M.): Max. 56°; Bath; Min. 46°; St. Andrews.

FRUITS AT THE CRYSTAL PALACE.

We have frequently remarked that in an exhibition such as that now being held at the Crystal Palace, one does not obtain a perfect illustration of the extent or quality of the year's fruit crops. Other sources of information, and the returns furnished by our correspondents and published in these columns on August 5, prove the crops of Apples, Pears, and Plums throughout the country to have been very much below the average. But this is not so much evident at the show. There are as many exhibitors this season as on the last occasion, though the number of entries from these exhibitors is a little less. In the single dish classes, the falling off that was recorded last year is continued this season to a greater degree, but there are more entries in classes for collections. It is curious that Pears are shown quite as well as Apples. But be the season never so unfavourable, it is always possible to make a fairly good display at an exhibition; and although the quality of Apples and Pears is not so good as we have previously noted at the Palace, the difference is only such as would be noticed by a fruit cultivator after careful observation. Grapes were not specially remarkable. There were some excellent exhibits, but some classes were weak.

The good effect that such exhibitions may have in the promotion and encouragement of high-class fruit cultivation may be imagined from the fact that the show is visited by nearly 29,000 people annually. A debt of gratitude is therefore due to the Royal Horticultural Society, the Crystal Palace Company, and to the gentlemen who in the aggregate have subscribed the £100 which the Society stipulates must be guaranteed each year before it will accept the responsibility of the Show.

Sir TREVOR LAWRENCE, Bt., presided over the Gardeners' Luncheon, and there being so many gardeners present, the opportunity was taken to publicly present to Mr. JAS. DOUGLAS the Victoria Medal of Honour.

As we have previously announced, Mr. DOUGLAS has been chosen by the Council of the Royal Horticultural Society to fill the vacancy in the sixty Medallists caused by the regretted death of Mr. MALCOLM DUNN.

In making this presentation, Sir TREVOR LAWRENCE paid a very deserved tribute to the memory of this eminent Scottish gardener. Not only was he a good friend to ourselves, to horticulture, to the Royal Horticultural Society, but he was a friend to all gardeners. But to whatever extent we may have cause to regret such losses, the duty remains to carry on the work that those we mourn were engaged in, and to fill positions that they have relinquished. The selection of Mr. DOUGLAS will be a very popular one. He would doubtless have been included in the first sixty had he not at the time been a member of the Council of the Royal Horticultural Society.

In former days Nature was supposed to be "absolutely perfect" in all her ways, and everything had its use, and was used. Anything like waste was thought to be impossible, as unworthy of her methods of procedure. A more careful investigation shows that waste is really enormous. By waste, I mean loss of structures which evince some definite purpose, are produced in profusion, but yet in innumerable instances they have no opportunity of being put to their uses, and perish.

The cases most evident are connected with the reproductive organs; roots and leaves are put forth in response to stimuli arising within or without the plant, and scarcely fall under this category; but regarding flowers, fruit and seed, as the means of propagation, it is among these that probably few persons realise the vast amount of energy displayed in their production compared with the feeble results which often ensue.

It was on the assumed superabundance of offspring produced, that the theory of natural selection, as a means in the origin of species, was based; but few statistics were forthcoming to test the truth of the hypothesis—or if it were true in some cases, whether it was true in all. Let us consider a few instances, and first, with regard to the quantity of pollen produced. It is believed that the nucleus of a single pollen-grain can impregnate a germ-cell, and so give rise to an embryo in a seed. But numerous flowers bear but one seed in the ovary-cell, as of the largest families, Compositæ and grasses. In each floret of the former there are five stamens, and each of which produces an abundance of pollen-grains. Labiatae and Boraginæ produce at most four seeds in each flower, accompanied by four or five stamens respectively; the Spurge-Laurel bears one seed and has eight stamens; and so all through the flowering world, numerous other examples may be mentioned, especially perhaps, among the Coniferae, the pollen of which is often wafted away, as from a Fir-tree, like a cloud of sulphur, and is lost in the breeze.

Again, although a plant, herb or tree, may bear a profusion of flowers, the proportion of fruit is often almost infinitesimally small compared with it. Take our Horse-Chestnuts, Lilacs, Elms, and Limes, what a wealth of blossom they bear, yet on each spike or cluster of the first two, one or two fruits remain to bear witness to their former glory, while the half-formed fruits of the last two fall without perfecting a seed. Especially is this the case with Orchids. Mr. FITZGERALD records the observation that in a particular plant of *Dendrobium speciosum* (the "Brisbane Lily") there were no less than forty thousand flowers open at the same time on that plant; but though the plant was growing in the open air, and was open to the visits of insects, only one flower produced a seed-pod.* Mr. FORBES and Mr. RIDLEY both observed that it was the self-fertilising species of Orchids which alone can be trusted to set any quantity of seed.†

Few of us were aware of the great preponderance of abortive fruits and seeds borne by many plants, and Dr. J. W. HARSBERGER ‡ has done good service in calling our attention to this matter, and correcting our erroneous and preconceived notions on the subject. During several summers he has taken statistical observations, in order to determine what was the successful termination of the act of fertilisation. He did not take into account all of the factors concerned, such as the weather, which, of course, influences seed-production, nor how far the plants were shaded, which condition reduces the flowering process; nor, again, the number of insect visitors, &c. Still, his tables possess much value.

Taking a perfect fruit as one well matured, and an abortive fruit as more or less shrivelled and seedless, he found that in *Arisæma tri-*

* Journ. Hort. Soc., vol. vii., p. 47.

† Origin of Floral Structures, p. 818.

‡ Publications of the University of Pennsylvania, new ser., 5; Contributions from the Bot. Lab., vol. II., p. 100.

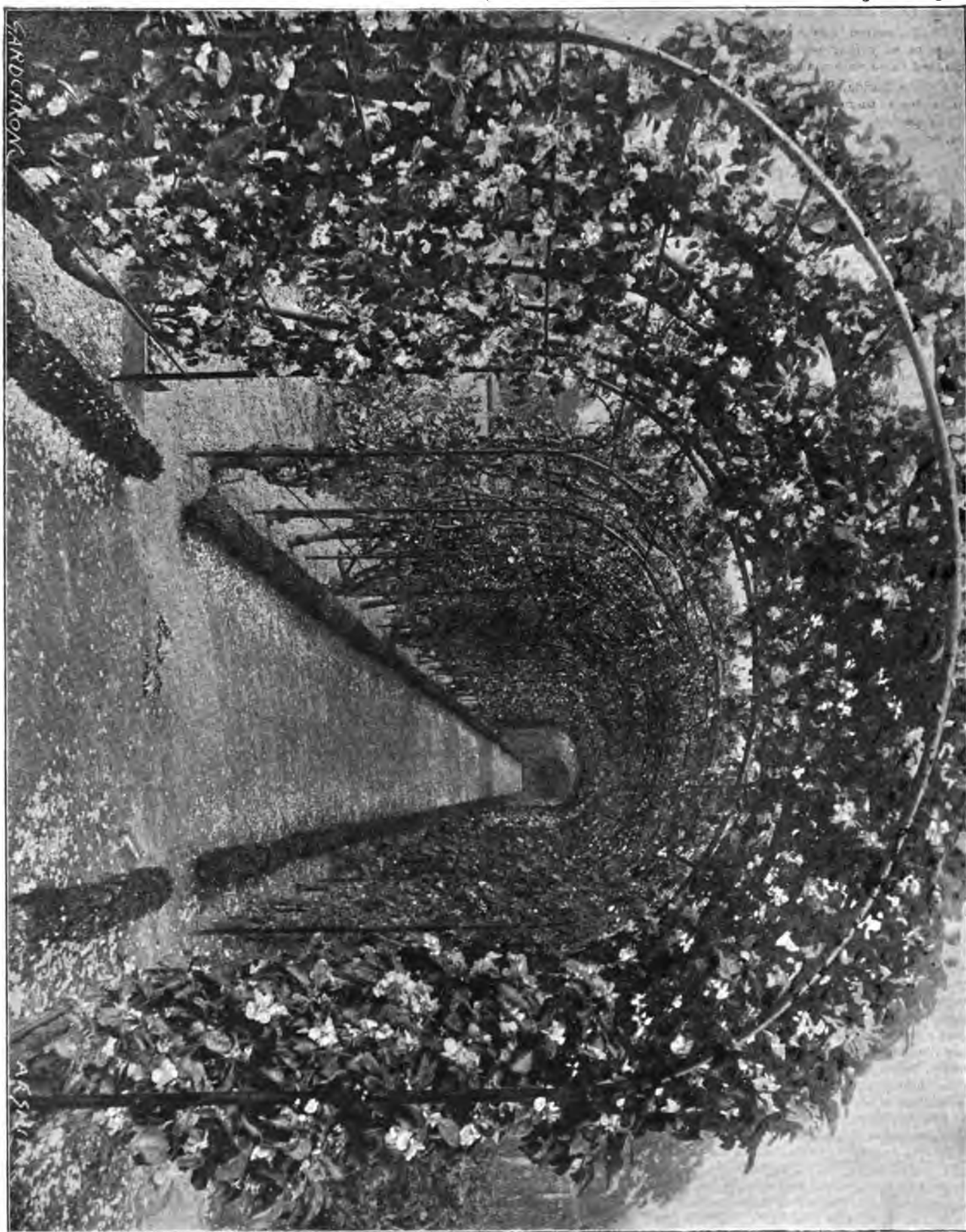


FIG. 91.—FRUIT-TREE ARCH IN THE GARDENS OF W. M. CAZALETT, ESQ., FAIRLAWN PARK, TONBRIDGE, KENT. (SEE P. 266.)

phyllum, Torr., of thirteen plants there were one hundred and forty-four perfect, but five hundred and thirty-seven abortive fruits, or only twenty per cent. of the former.

Of *Rhododendron* (*Azalea*) *nudiflorum*, Torr., there were only four perfect fruits on two plants, but there were ninety abortive.

Of *Cornus florida*, L., of thirty-four clusters on one bush there were two hundred and eighteen perfect, and four hundred and fifty-three, or a little over thirty-two per cent., of good seed.

Of *Yucca filamentosa*, L. (Adam's Needle), the author observes:—"This Liliaceous plant is of considerable interest from a biological standpoint, owing to its dependence upon the moth *Pronuba yuccasella*, Riley, which passes part of its larval existence in the capsule of the plant, feeding upon the seeds. The moth, previous to depositing its eggs in the soft ovary, pollinates the stigma by placing a ball of pollen from the same flower between the three stigmatic lobes. This insures the production of good seeds, on which the larvæ feed." In the tabulation of the results in which, besides the numbers of good and aborted seeds, he gives the number devoured, &c., the final result of observations upon eight capsules, each of which contains six rows of seeds, is that about thirty-five per cent. remain good for propagation.

Of *Pimpinella integerrima*, Benth. & Hook., six plants were examined, carrying one hundred and seventy-four umbels. Of these about eighty per cent. of good seed was the result. Lastly, of *Hibiscus moschatus*, L., as in the last instance the preponderance was in favour of good seed, being about seventy-five per cent.

Horticultural
and Agricultural
Exhibition at
Buda-Pesth.

THE HUNGARIAN AGRICULTURAL SOCIETY, we are informed, would have held an exhibition last year under the patronage of the Minister of Agriculture, but owing to the sad death of the Empress ELIZABETH, it was postponed for a year. We now learn that an exhibition has been arranged by the Committee of the Hungarian Agricultural and Horticultural Society of Hungary for fruit and garden productions, and that the undertaking will receive the utmost amount of support from H. V. DARANYI, the Minister of Agriculture. It is arranged to take place from October 7 to 15 of the present year in the Halls of the Commercial Museum, Buda-Pesth. The exhibits may comprise fresh and preserved fruits and vegetables, flowering ornamental plants and bushes, fruit-bushes and trees, cut flowers, Roses, samples of the bouquetists' art, Grapes, worked Vines, and fruit-trees in pots. Hungarians may take part in all of these competitions; but one of the objects of the exhibition being the improvement of the fruit trade of the country, there will be an international section for machinery and implements of use in the manufacture of fruit conserves of all kinds, and the like products, in which section foreign manufacturers may likewise take part. In this section there may be exhibited fruit-drying ovens, fruit-boilers, cider and other fruit-mills and presses, fruit-peeling and cutting-machines and instruments. The prizes to be awarded in this section consist of gold, silver, and bronze State medals, given by the Ministry, besides silver and bronze medals of the Society. No charge will be made for stands, but the exhibitor has to look after his own exhibits, and

pay the costs of transit. When the exhibition is at an end, a sale of the various productions and articles will take place.

Applications for space must be made to the Exhibition Committee, in Ungarischen Landesgarten Bauverein, IV. Ker. Koronahercezgeleza 16, Buda-Pesth.

FRUIT-TREE ARCH AT FAIRLAWN, TONBRIDGE.

—Our illustration on p. 265, shows an extensive fruit-tree arch in the gardens belonging to W. M. CAZALET, Esq., Fairlawn Park, Tonbridge, Kent, the photograph being taken when the trees were in full bloom last spring. The splendid bearing condition of the trees is seen by the number of fallen petals that strew the path; the trees being at the same time wreathed with blossoms. The archway was made about 1873, shortly after the present gardener, Mr. FENNELL, had succeeded Mr. CHAS. ROSS, now at Welford Park. Such archways as that illustrated may be recommended as a means of cultivating the choicer kinds of Apples, and almost all varieties of Pears. Better finish, colour, and size may be obtained in fruit so grown, than on bush trees, indeed, they rank next to a brick wall as an aid to fruit growing. Another advantage possessed by espalier trees over the bushes is that the fruits are not liable to be blown off, and they can be easily gathered. If cordon trees be used, a large space may be soon furnished with wood; and if the trees are planted intelligently and in a suitable situation, they will bear enormous crops of fruit of the finest quality. But we would not in respect to these arches or any trellis advise that cordons be crossed over each other, to form trees known as the "Diamond" cordon. It may be mentioned also that a fine fruit-tree arch is a pleasant feature in a large garden, and a feature much prized in some of our oldest and best fruit-growing establishments. At Barham Court, Maidstone, Mr. WOODWARD prefers to allow his trees more freedom of growth than such a system permits; but his garden is in such an unusually favourable situation as to be quite an exception. We shall publish further notes upon Fairlawn Gardens in an early issue.

A COMPLIMENTARY DINNER has just been given to the heads of the firm of Messrs. ED. WEBB & SONS, Wordsley, Stourbridge. The event, which took place in the Talbot Assembly Rooms, Stourbridge, was very largely attended by influential gentlemen of the district, the chair being taken by Sir H. FOLEY LAMBERT, Bart. The cordiality that characterised the proceedings illustrated the respect entertained for Lieut.-Colonel W. G. WEBB and Mr. EDWARD WEBB, and the firm generally.

PUTNEY, WANDSWORTH AND DISTRICT CHRYSANTHEMUM SOCIETY.—The approaching show of this flourishing suburban Society will be held on November 9 and 10 at Putney. In addition to numerous money prizes, there will be offered a Challenge Cup for the best collection of sixty blooms. Mr. J. F. McLEOD, gardener, Dover House, Roehampton, is the Hon. Sec.

FREDERICH ABEL, Secretary to the Imperial Royal Horticultural Society of Vienna, celebrated his fortieth year's jubilee as a gardener on the 18th inst.

GASTON TISSANDIER.—The death is announced of M. GASTON TISSANDIER, the author of a number of scientific works, and the founder of *La Nature*. He was a member of many scientific societies in France, and a vice-president of the French Meteorological Society.

THE SURVEY OF LAKE TANGANYIKA.—The *British Central African Gazette* (July 24), published at Zomba, announces the arrival at Nyasa of Mr. J. E. S. MOORE, who visited Lakes Shirua, Nyasa,

and Tanganyika in 1896, under the auspices of the Royal Society, to survey the basin of Lake Tanganyika, to collect specimens of the aquatic fauna and flora, and to study the geological history of this portion of Central Africa.

ANALYSES OF SOIL.—We learn from *Nature* that the Dorset County Council has set a good example in arranging for a series of reports with analyses of the soils of the county. The work has been carried out in Reading College under the superintendence of Mr. DOUGLAS A. GILCHRIST; and the soils have been analysed by Mr. C. M. LUXMOORE and Mr. A. M. RYLEY. The results so far obtained and published in the journal of the College are full of interest, and likely to prove of much practical importance.

THE ABERDEEN BOTANIC GARDENS.—A visit to these gardens the other day showed that fair progress is being made everywhere. Thanks to the assiduous attention of Dr. TRAIL, Professor of Botany in Aberdeen University, the Curator of the Gardens, assisted by Mr. STRACHAN, the gardener in charge of the whole place, and whose flower and market garden has been absorbed in the formation of the Botanic Gardens, matters are now assuming a very favourable appearance. The propagating garden shows a large selection of plants in a very fair condition. Included in the collection are some fine Conifers, Ivies, &c. A rockery is being formed alongside the main walk at the entrance. Rows of trees are to be planted round the propagating garden, and shrubberies are to be formed in triangular sections in the eastern portion of the public garden. Progress is being made with the new Botanical Museum, which is now approaching completion. Besides the new specimens which are to find a home here, the fine botanical collections at present in Aberdeen University are to be removed thence. It is expected that possession of the museum will be taken on Whitsunday, 1900.

JAMAICA PRODUCE, ETC.—In our last, we briefly noted the fact that an association had been projected in Glasgow for the purpose of assisting in the development of the fruit trade between Jamaica and this country, and for other objects in connection with the revival of industries in the ever-beautiful islands of the West Indies. With the commercial aspect of the matter we have nothing to do, but it is pertinent to the subject to ask if all has been done for the Sugar industry that it is possible to do? This has been denied, and it is affirmed that, properly managed the Sugar planters of Jamaica, &c., need have no fear of bounty-fed sugar—that the West Indies can give the European Beet-grower the difference of the bounty, and beat him in the race for a paying market. The late Mr. J. C. MORTON used to say, that what the arable and pasture-land in the old days stood in need of was brains! perhaps cane-land and Sugar-making stand to-day in need of the same. There are not wanting men in the West, and here in the East, who affirm that, with a better variety of cane, thrice the quantity of juice could be expressed, and placed on the consumers' table at far less cost than now obtains. A cleaner, better manured soil, a better variety of Sugar-cane, more powerful machinery in central mills, with good roads, and better steam service—these, it is claimed, would revolutionise the trade and the island! What has been done for and by the farmer and grazier here, should be done in degree for and by the planter in the Sugar-growing districts. What is the prize to be striven for? The favourite place and highest price on the British market, with peace and content to all engaged in the business.

IS IT ELECTRICITY?—An extraordinary phenomenon has been noticed with regard to the Chestnut trees in the Avenue Louise, Brussels, since the installation of the electric trams. Their foliage begins to turn brown and drop early in August, and the trees to bud, and even to blossom

again in October. The trees on the opposite side to the tramway behave like ordinary trees, for they lose their foliage in the late autumn, and do not put forth fresh blossom until the spring. Intelligent persons are inclined to believe that the cause of this singular state of things is due to the electrical current which passes underground acting upon the roots of the trees, which are otherwise quite healthy.

CACTUS DAHLIAS AT CHISWICK.—A somewhat large and representative collection of Cactus Dahlias has been grown at Chiswick, but as the plants were not put out until the end of June, through being received so late, and, further, as the effect of the hot weather was to arrest development, the plants were unusually late in developing flower-buds; and when on the 22nd inst. the Floral Committee made a visit of inspection to Chiswick, they found but little expanded bloom, though were the next fortnight or three weeks to be fine and warm, there would doubtless be a rare display of blossom, but at that late season of the year the habit of growth of the varieties could not be correctly estimated. The Floral Committee agreed upon a recommendation to the Council that a further trial of the leading varieties of Cactus Dahlias should be attempted next season; that raisers should be requested to send new varieties so that they may be compared with the older ones; and that those sending varieties for trial should be requested to do so as early as possible in the month of May, so that the plants may be potted and grown to a good size before planting them in the first or second weeks of June.

PUBLICATIONS RECEIVED.—*Journal of the Society of Arts*, September 22.—*Queensland Agricultural Journal* for August.—*Phanerogamæ et Pteridophyta Japoniæ Iconibus Illustratæ*, by T. Makino, Imperial University, Tokio. Text in Japanese, with some woodcuts.—*Cryptogamæ Japoniæ*, by J. Makumura and M. Miyoshi, Imperial University, Tokio.—*The Journal of the Board of Agriculture*, vol. vi., No. 2. This issue contains articles on manuring of Potatoes, as carried on in various places in England and Scotland. The detailed schemes of the trials at the four centres were directed, *inter alia*, to the elucidation of, 1st, the influence on the Potato crop of supplementing dung with artificial manures; the effects of using artificials alone and in combination with dung; the effects of the omission of nitrogen, phosphoric acid, and potash, respectively, from a complete manure containing all three; the effects of increasing nitrogen, phosphoric acid, and potash respectively, in a complete manure; and the relative values of sulphate of ammonia and nitrate of soda. Other articles deal with Tree-root Rot, the Ash and its Cultivation, Imports of Cereals, Marketing of Eggs.—*Georgia State Board of Entomology*, Bulletin No. 1, 1899.—*On Biotreps in its Relation to Cultivation*, by Hugo de Vries, Professor of Botany in the University of Amsterdam.—*The Tropical Agriculturist*, Colombo, A. M. & J. Ferguson.—*Anne Pratt's Flowering Plants, &c., of Great Britain*, Nos. 15 and 16, vol. ii.—*Journal of the Society of Arts*, September 15.—*Transactions and Proceedings of the Botanical Society of Edinburgh*, parts i., ii. and iii., vol. xxi.

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 26.—A meeting of the Committees of this Society was held on Tuesday last in the Drill Hall, James Street, Westminster, and considering that it was almost the eve of the fruit show at the Crystal Palace, there was a good display of exhibits. Orchids were not numerous, and the Orchid Committee recommended only two awards to novelties: one of these to a variety of *Cattleya* from T. W. THORNTON, Esq., Weedon; and the other to a variety of *Odontoglossum*, named "Bassano," from WALTER COBB, Esq., Tunbridge Wells.

The exhibits before the FLORAL COMMITTEE included a very extensive exhibit of *Codiums* from Mr. H. B. MAY, Edmonton; a group of well grown fine foliage plants from Sir HENRY TATE's garden at Streatham; several exhibits of Dahlias; a few cut blooms of *Chrysanthemums* from Mr. WELLS; a group of Ferns from Messrs. HILL & SONS, and some miscellaneous exhibits. Awards of Merit were recommended to two Cactus Dahlias—*Augustus Hare* and *Madame Medora Henson*, and to *Caryopteris mastacanthus*, a very pretty hardy flowering-shrub.

The FRUIT and VEGETABLE COMMITTEE recommended an Award of Merit to *Pear Triomphe de Vienne*, a variety that has been in commerce several years, and of which Mr. GEO. WOODWARD, Barham Court Gardens, Maidstone, sent excel-

lent fruits; and to two new Potatoes that had previously been tried at Chiswick.

In the afternoon, a lecture by Mr. E. LUCKHURST upon "Instructional Fruit Centres" was read by the Secretary, Rev. W. WILKS, M.A. Mr. Luckhurst's paper described a deal of useful educational work that has been done in Derbyshire under the auspices of the County Council.

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. C. T. Drury, H. B. May, R. Dean, W. Howe, C. J. Salter, J. Jennings, Chas. E. Pearson, J. W. Barr, T. W. Sanders, E. H. Jenkins, E. T. Cook, Harry Turner, Geo. Paul, H. M. Arderne (Cape Town), H. Selfe-Leonard, D. B. Crane, and George Gordon.

FINE FOLIAGE PLANTS.

A group of fine foliage plants, which covered a large area of the floor space, was shown by Mr. W. Howe, gr. to Sir HENRY TATE, Bart., Park Hill, Streatham Common. The large specimens of Bamboos, *Codiums*, Palms, *Cordylines*, *Aralias*, *Asparagus*, Ferns, &c., all showed the effect of first-class cultivation. It would have been of use to visitors to the hall had names been attached to the varieties of *Codiums* and *Cordylines* (Silver-gilt Banksian Medal).

A magnificent collection of *Codiums*, in 5, 6, and 7-inch pots, was shown by Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton. This exhibit filled the whole of one side of one of the long central tables, and included as many as sixty varieties. There was one new one called *Golden Gem*, with leaves about 1 inch wide, the centre of each golden yellow, with mottled-green and yellow margins. The petioles of the younger leaves are bright red in colour, and this affords a pretty effect. In a few instances the margins of the leaves have wavy outlines. Of the narrower-leaved varieties specially noticeable in the collection were the varieties *Mrs. Dorman*, *ruberrimus*, distinct in that it affords more red colour than other varieties; *superba*, *Imperialis*, *aurea*, *Flambeau*, and *Algburthensis*. Of the broader-leaved varieties we noticed *Sunbeam*, *Flamingo*, *Baron Frank Selliers*, *Mortil*, *Thomsoni*, *Reidi*, &c. (Silver-gilt Banksian Medal).

Messrs. F. SANDER & CO., St. Albans, showed a number of plants of *Dracena Sanderiana*, and D. Godseffiana, *Acalypha hispida*, *Linosyadix Patrickiana*, &c.

DAHLIAS.

Mr. JAMES STREEDWICK, Silverhill Park, St. Leonards, showed eighteen very choice varieties of Cactus Dahlias, the blooms being of fine quality. Some of the most charming were *Autumn Queen*, a mauve flower; *Mrs. Sanders*, pure yellow, large well-formed flower; *Augustus Hare*, crimson, with purple hue; *Magnificent*, Countess of Lonsdale, and *Mary Service*, orange colour and mauve (Bronze Banksian Medal).

Mr. S. MORTIMER, Rowledge Nurseries, Farnham, Surrey, showed some capital Dahlia blooms. There were 120 show blooms of much merit, and nearly fifty bunches of Cactus blooms (Silver Flora Medal).

Mr. THOS. S. WARE, Ltd., Hale Farm Nurseries, Tottenham, made a display, showing *Pompon*, *Decorative*, *Single*, and Cactus varieties. Also many of the perennial Asters were exhibited by Mr. Ware (Silver Banksian Medal).

CHRYSANTHEMUMS, CANNAS, CARNATIONS.

Mr. W. WELLS, Earlswood, Redhill, Surrey, showed fine cut blooms of some of the best early-flowering varieties of *Chrysanthemums*. Victor Mew, a pale sport from *Mrs. Hawkins*; *Edile*, M. Massee, *Julia Mary*, *Market White*, a valuable novelty of last season; *Madame Leger Ligneau*, a yellow Japanese variety that should be valuable, &c.

Mr. W. J. GODFREY, Exmouth, showed plants in flower of *Carnation Mrs. Geo. Foster*, a large yellow, winter-flowering variety, but with rather indifferent calyx. Mr. GODFREY also showed a few plants of a yellow sport from *Lady Fitzwigram Chrysanthemum*.

The newer strain of large-flowering Cannas was well illustrated by a collection of cut flowering sprays shown by Mr. A. H. RICKWOOD, gr. to the Dowager Lady FREAKE, Fulwell Park, Twickenham. There were upwards of forty spikes in this collection, which included such varieties as *Burbank*, *Austria*, *Alemania*, and the fine spotted variety *L. E. Bailey*.

MISCELLANEOUS.

Messrs. J. HILL & SON, Lower Edmonton, London, showed a handsome group of Ferns upon the floor of the hall. The plants were fine specimens of varieties of *Asplenium nidus*, and the largest plant particularly, with its large, broad leaves, and deeply-coloured, prominent rib, had a grand effect. It is a fine species for decorative work where space is not greatly limited. A few *Adiantums* and *Seleginella* interspersed between the specimens afforded relief (Silver Flora Medal).

Messrs. W. H. ROGERS & SONS, Ltd., Ba-sett, Southampton, showed plants of *Retinospora pisifera aurea*, and *R. p. a. Rogersii*; the latter as shown, being more golden in colour. Also a variety of *Skimmia* oblata.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, showed plants of *Caryopteris mastacanthus*, with pretty bine flowers; *Hydrangea Hortensia Marielsi*, and *Nandina domestica*. The latter is a Berberidaceous plant, hardy in warm situations; it produces berries about the size of Peas, and the compound leaves at this season are of a reddish tint, being very attractive.

Messrs. BARR & SONS, King Street, Covent Garden, London, made a fine show with hardy Perennial flowers. Some of the Asters were well represented; also *Kniphofia Pfitzeri*,

K. Leichtlini var. *distachya*, *K. coralina superba*, *K. hybrida nana*, and the large-flowered "Triumph"; also early-flowering *Chrysanthemums*, and a variety of hardy flowers. Messrs. BARR & SONS showed plants in flower of *Zauschneria californica* and *c. splendens*.

Messrs. HUGH LOW & CO., Bush Hill Park Nurseries, Enfield, showed varieties of *Statice protina*, in pots. Also a few plants of the elegant Palm, *Kentia (Zamia) Veitchi*.

Awards.

Caryopteris mastacanthus.—A half-hardy Verbenaceous flowering shrub, growing about 2 feet high; a very old species, having been introduced from China in 1844. The leaves are about 2 inches long, ovate, oblong, toothed or serrated, and downy on the under surface. Flowers violet, or violet-blue, produced in axillary, many-flowered peduncles. Shown by Messrs. BARR & SONS and Messrs. JAS. VEITCH & SONS (Award of Merit). (See fig. 30 in *Gardeners' Chronicle*, February 3, 1884.)

Dahlia Augustus Hare (Cactus).—A fine flower, with slightly incurving petals; colour scarlet or crimson, the shade of colour of different flowers varying very considerably. From Mr. J. STREEDWICK (Award of Merit).

Dahlia Medora Henson (Cact.).—A bright crimson flower, with purple shading; good form. From Messrs. T. S. WARE, LTD., Tottenham (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. J. Gurney Fowler, De B. Crawshaw, S. Courtauld, J. Gabriel, W. H. Young, H. J. Chapman, F. J. Thorne, E. Hill, J. Jaques, W. Cobb, J. Colman, and Jas. O'Brien (Hon. Sec.).

Orchids formed the prominent feature of the meeting. Messrs. J. VEITCH & SONS, Ltd., Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver Flora Medal for a very fine group, in which hybrid *Cattleyas*, *Laelias*, and *Laelio-Cattleyas*, of their own raising, were to the fore. As at several recent meetings of the Society, the varieties of *Laelio-Cattleya* × *callistoglossa* (*L. purpurata* × *C. Warscewiczii*), of which there were many specimens, including the handsome *L.-C.* × *callistoglossa ignescens* were the most showy. We may also mention the pretty novelty, *Cattleya* × *Chlce*, a plant with a nearer resemblance to *C. bicolor*, one of its parents, than to the other, which is *C. Bowringiana*. The sepals and petals are of a rosy-purple tint; the comparatively small side lobes of the lip, a light rose; and the front lobe, a bright purple colour. Other remarkable plants in the group were *Laelia* × *splendens* (*crispa* × *purpurata*), *Laelio-Cattleya* × *Fortuna* (*L.-C. Schilleriana* × *C. Mossiae*), *Cattleya* × *Patrocinii*, a pretty plant introduced as a natural hybrid, but apparently identical with *C. × hybrida* flowered by Messrs. Veitch in 1854 from a cross between *C. Loddigesii* and *C. guttata* var. Some good *Cattleya labiata*, *C. granulosa*, *C. bicolor*, *C. Loddigesii*, *Dendrobium Phalaenopsis Schroderianum*, *D. superbiens*, *D. Dearei*, *Zygopetalum maxillare*, *Houlletia Brocklehurstiana*, *Brassavola nodosa*, *Angraecum articulatum*, and a number of fine *Cypripediums*; both hybrids and species were shown by Messrs. VEITCH.

C. H. FEILING, Esq., Southgate House, Southgate (gr., Mr. Canham), was awarded a Silver Banksian Medal for a very tastefully arranged and extensive group, in which many well-flowered plants of *Dendrobium Phalaenopsis Schroderianum* were a marked feature; also *Cattleya Gaskelliana*, *C. guttata*, and other *Cattleyas*, *Miltonia Clowesii*, *Laelia pumila*, *Dendrobium formosum giganteum*, and a number of good *Cypripediums*, &c., were shown.

Messrs. HUGH LOW & CO., Clapton, staged a fine group, in the background of which were two *Oncidium Marshallianum*, some fine blue *Vanda cœrulea*, *Oncidium phymatoclilum*, *O. Carthagenense*, and other tall-growing species. Fronting them were nice plants of *Oncidium incurvum album*, a rather rare variety; *O. ornithorhynchum album*, *Cattleya Gaskelliana*, of a pure white; and also some well-coloured forms of *C. labiata*, *Laelio-Cattleya* × *elegans*, *L.-C. × Schilleriana*, *Cattleya* × *Minucia*, *Odontoglossum grande*, and other *Odontoglossums*, *Cypripediums*, &c. A Silver Banksian Medal was awarded.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), showed *Cattleya* × *Hardyana* "Rosslyn" variety, a very large and handsomely-coloured flower, of fine form.

The Rev. F. PAYNTER, Stoke Hill, Guildford (gr., Mr. Cooke), sent a fine yellow form of *Odontoglossum grande*, in which the usual chestnut-brown colour seen in the species was absent; also a *Laelio-Cattleya* between *L.-C. × elegans* and *C. Lawrenceana*, which closely retained the form and colour of the first-named.

WALTER COBB, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes), showed *Cattleya* × *Hardyana*, "Cobb's" variety, with very brightly-coloured flowers, showing a rich colouring of yellow on the lip; also *Odontoglossum crispum* "Bassano."

R. I. MEASURE, Esq., Cambridge Lodge, Camberwell (gr., Mr. H. J. Chapman), showed *Cypripedium* × *Lachmea* (*clivare* ?), *superbiens* ?), having a large flower with the colouring of *C. superbiens*.

HENRY LITTLE, Esq., Baron's Hall, Twickenham (gr., Mr. Howard), showed the fine *Laelio-Cattleya* × *elegans Littleana*, which secured a First-class Certificate when first shown by Mr. Little, in August, 1885. The variety is distinguished by its brilliant colour, and the more ample and trumpet-shaped lip. The exhibit on this occasion was interesting, as affording another instance that Orchids need not degenerate if taken care of. Mr. LITTLE also showed *Cypripedium Sanderianum*.

T. B. HAYWOOD, Esq., Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter), showed the fine *Cypripedium* x *Fowlerianum*, Haywood's var. (*Harrisonianum* superbum x *bellatulum*), together with flowers of both plants.

Major JOICET, Bunningdale Park, Sunningdale (gr., Mr. F. J. Thorne), showed a finely grown plant of *Dendrobium taurinum* ambloense, a remarkable colour variation of the type; originally imported by Messrs. J. Veitch & Son. The plant bore a fine inflorescence of large, Indian-yellow coloured flowers with a bronzy hue.

W. M. APPLETON, Esq., Tyn-y-Coed, Weston-super-Mare (gr., Mr. J. H. Brooks), showed *Cypripedium* x *Julia* (*Lawrenceana* x *exul*), flowered from seeds sown January, 1895; and C. x *Enfieldense*.

Awards.

Cattleya x *Weedonensis* (Mendell x *granulosa* Schofieldiana).—A very fine hybrid; the inflorescence bearing three large flowers, in outline partaking mostly of *C. granulosa*, but with all the segments more broadly developed and showy. The sepals were greenish-white, tinged with lilac; petals cream-white, with a greenish tinge on the midrib, the whole surface closely veined with purplish rose. The labellum had the acute side-lobes as in *C. granulosa*, pale yellow, darker on the inside; the conspicuous front-lobe crimped and toothed, of a bright purple colour, showing lighter tints between the veining. Raised and shown by T. W. THORNTON, Esq., Brockhill, Wotton.

Odontoglossum crispum "Buxano".—A fine flower, of perfect form, white, with a cream-coloured tinge on the flesh, sepals, and petals; the column marked with red-brown, and a large blotch of the same colour on the labellum. From WALTER COBE, Esq., Dulcote, Tunbridge Wells (gr., Mr. J. Howes).

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. Jas. Cheal, W. Iggulden, W. Poupert, A. F. Barton, P. C. M. Veitch, A. H. Pearson, Alex. Dean, S. Mortimer, W. Farr, J. W. Bates, Geo. Wythes, F. Q. Lane, G. Norman, J. Willard, Geo. Reynolds, and Robert Fife.

Seedling Melons were sent by Mr. ALLEN, Gunton Park Gardens, Norwich; Mr. D. HARRISON, London Road, Brighton; and Mr. R. DOX, Knowley Gardens, Prescot, but no awards were made to these.

Mr. Jas. Day, gr. to the Earl of GALLOWAY, Galloway House, Gartliestown, N.B., exhibited a collection of thirty-six dishes of Apples, of popular varieties. The fruits were not equal in size to exhibition fruits from the home counties, but they were very clean and bright in appearance, and extremely creditable to the cultivator, as they were grown so far North as Wigtonshire (Silver Knightian Medal).

Mr. Beckett, gr. to Lord ALDENHAM, Aldenham House, Elstree, Herts, again made a magnificent exhibit of vegetables, similar to that shown from the same establishment at the last meeting, when a gold medal was awarded the collection. The exhibit on Tuesday last was shown in competition for the "Sherwood" Cup, and it is now pretty certain that Mr. Beckett will gain this important prize. The exhibit on the last occasion was described in our issue for September 16, and we shall not cite varieties now, because it is not so much the merit of the varieties, as the superb manner in which Mr. BECKETT exhibits them; suffice it to say, that there were as many as forty-seven distinct varieties, and the collection was not only a most exemplary one, but it was exhaustively representative.

Messrs. D. & W. BUCHANAN, Forth Nurseries, Kippen, showed two bunches of a Black Grape, already shown in Edinburgh, and other places, under the name of Diamond Jubilee. The appearance of bunch and berry is handsome and very suggestive of Madresfield Court. The committee is however inclined to be cautious in regard to the variety, and no award was recommended on the present occasion. It has rather a thick skin, and is of good average quality.

From Mr. R. W. GREEN, Wiesbeck, fruits were shown of Early Victoria Apple, to which an Award of Merit was recommended on August 15. From the evidence of several fruit growers in that district it would appear that the Apple has been known for many years as Emmett's Early, and stock is common; at the same time it is not denied that the Apple is distinct from Lord Grosvenor and all others in general commerce, and its value is admitted. The same Apple, when shown before the Fruit Committee of the Royal Horticultural Society about a dozen years ago, was rejected, as being too nearly alike to Lord Grosvenor. The name under which it has been generally known should have been retained.

The Rev. DARNLEY SMITH, Landscove Vicarage, Ashburton, showed samples of the Fruit Protection, figured in *Gardeners' Chronicle*, March 18, p. 173, and Pears and Apples that had been protected by such means during ripening.

Awards.

Potatoes *The Sirdar*, from Messrs. HURST & SON; and *Ellington Seedling*, from Messrs. ELLINGTON & Co. (Awards of Merit). Both of these varieties were described in these pages, September 9, p. 213, in a report upon the trial of Potatoes at Chiswick.

Pear *Triomphe de Vienne*.—A large, handsome, bluntly pyriform-shaped Pear, russety, of very rich flavour. The trees grow vigorously, and are very free-bearing. This Pear has been in commerce several years, and generally ripens in September. Capital fruits were shown by Mr. Geo. WOODWARD, Barham Court Gardens, Maidstone (Award of Merit).

BRITISH-GROWN FRUITS AT THE CRYSTAL PALACE.

(See also p. 264.)

September 22, 23, and 26.

THE sixth show of British-grown fruits under the auspices of the Royal Horticultural Society, since in 1894 this Society succeeded in establishing an autumn show at the Crystal Palace, in place of the one held for many years previous to that date but which fell through, was opened on Thursday last.

Owing to the exhibition of the Article Club, which is still at the Palace, the whole of the exhibits were confined to one half of the nave, and some of the minor competitive classes, and many of the miscellaneous exhibits, were necessarily pushed into inconvenient positions. Sir TREVOR LAWRENCE, who presided over a very large gathering at the luncheon, said that he had just returned from the Continent. He had been in large towns, villages and small places, but during the whole time he had not seen a dish of good fruit.

In proposing the toast of the judges and referees, Sir TREVOR coupled the toast with the name of Mr. J. MCINDOE, who briefly replied.

The Chairman was pleased to think that the Crystal Palace Company had entered upon happier circumstances than they had experienced for a long time. He regarded the Crystal Palace as a place of education and of innocent amusement, and were the building in Hyde Park as it was once, the company would know nothing but success.

Mr. GILMAN, in replying for the Crystal Palace Company, spoke very hopefully of the future. Occasion was taken of this gathering to present to Mr. J. DOUGLAS a Victorian Medal of Honour.

The Show was a most satisfactory one for such a fruit season as that of 1899. The arrangements, as usual, were good, and everything passed off very successfully. The majority of the work connected with the exhibition falls upon the Secretary, Rev. W. WILKS, M.A., and upon Mr. S. T. WRIGHT, and his assistant, Mr. HUMPHREYS, from the Society's Gardens at Chiswick.

Mr. WOODWARD, of Barham Court Gardens, Maidstone, made no exhibit whatever, chiefly owing to the injury inflicted some time ago by a disastrous hailstorm. Mr. J. MCKENZIE, of Linton Park Gardens, near Maidstone, had a good number of exhibits of first-class fruit.

Below is given a report of the whole of the competitive classes. Our notes upon Division II., the Nurserymen's exhibits of fruit and other non-competitive exhibits, we must hold over until next week.

DIVISION I.

FOR GARDENERS AND AMATEURS ONLY. COLLECTIONS OF FRUIT.

The large class in this division was for a collection of nine dishes of ripe dessert fruit, and it was well won by Mr. G. MULLENS, gr. to Lady HENRY SOMERSET, Eastnor Castle Gardens, Ledbury. He had excellent Gros Maroc and Muscat of Alexandria Grapes, the former being the better, the Muscats not being perfectly "finished"; a fine specimen of Countess Melon; Peaches Barrington and Lord Palmerston; Nectarine Albert Victor; extra fine Pears of Pitmaston Duchess; Apple, Ribston Pippin; and Plum Cue's Golden Drop. For 2nd place, Mr. J. McIndoe, gr. to Sir J. W. PEASE, Bart., M.P., Hutton Hall, Guisborough, Yorks, beat Mr. J. H. GOODACRE, gr. to the Earl of HARRINGTON, Elvaeton Castle, Derby, who was a very successful exhibitor at Shrewsbury. Mr. MCINDOE'S Grapes were Foster's Seedling and Gros Maroc, both varieties of medium quality; a fine specimen of Queen Pine, Scarlet Premier Melon, Prince of Wales and Sea Eagle Peaches, Humboldt Nectarines, Souvenir du Congrès Pears, and Bryanstone Gage Plums.

Mr. GOODACRE had excellent Muscat Grapes of extra colour and finish, and the rest of his fruit was good. Throughout the class the quality of the exhibits was high.

The smaller class for a collection of six dishes was won by Mr. MAXIM, gr. to Col. H. WALPOLE, Heckfield Place, Winchester. His Cooper's Black Grapes were very fine, but the Muscats, although of good quality, were a little past the exhibition stage. Apple, Lady Sudeley; Nectarine Peach;

Albert Victor Nectarine, and a Melon were of fair quality. Mr. Jas. Dawes, gr. to M. BIDDULPH, Esq., M.P., Ledbury, was 2nd. He had a capital dish of Ribston Apples, Williams-Bon Chrétien Pears, and moderate Princess of Wales Peaches. His Gros Maroc Grapes were good; 3rd, Mr. W. Tidy, gr. to W. K. D'ARCY, Esq., Stanmore Hall, Middlesex. There were two other exhibitors.

GRAPES.

The first prize for six varieties, two bunches of each, included, in addition to the money offered by the Society, a Challenge Cup, value 25 guineas, presented by Messrs. W. WOOD & SON, Wood Green, to celebrate the Jubilee year of their firm. There were four entries, and the champion of these proved to be Mr. J. H. GOODACRE. He had two mammoth bunches of Barbarossa, very good Black Alicante and Alnwick Seedling, and moderate bunches of Muscat of Alexandria and Gros Maroc. Two bunches of Mrs. Pince were good. The 2nd prize was won by fruit cultivated in the neighbourhood of the Crystal Palace. The exhibitor was Mr. W. TAYLOR, gr. to C. BAYER, Esq., Tewkesbury Lodge, Forest Hill, S.E. His Black Alicante, Madresfield Court, and Muscat of Alexandria were the best of the six varieties, the others being Gros Colman, Mrs. Pince, and Gros Maroc. The only other exhibitor was Mr. F. COLE, gr. to Sir CHARLES RUSSELL, Bart., Swallowfield Park, Reading. The varieties Foster's Seedling and Mrs. Pince appeared in this exhibit.

In the class for three distinct variations, the only collection staged was one from Mr. J. DAWES. He had really fine bunches of Gros Maroc, and Black Alicante, but his Muscats of Alexandria were rather poor.

The best collection of three bunches of Black Hamburg were well finished and coloured bunches from Mr. W. MITCHELL, gr. to J. W. FLEMING, Esq., Chilworth Manor, Romsey. The berries were rather small. Mr. F. COLE followed, and Mr. J. H. GOODACRE was 3rd. There were five entries.

Mr. W. MITCHELL was 1st again for Madresfield Court, having a creditable exhibit. The remaining two collections in this class were distinctly discreditable and unworthy this magnificent variety.

Mrs. Pince was shown as well as it is ever seen. Mr. W. MITCHELL had very heavy bunches of good berries. A little more colour would have made them superb illustrations of this rather difficult grape. 2nd, Mr. N. W. TAYLOR, gr. to C. BAYER, Esq., Forest Hill.

Muscat Hamburg was represented by one exhibit only, and that from Mr. GOODACRE. They were not remarkable except for nice colour.

Black Alicante is such a general favourite that the class devoted to this variety is generally a strong one. The best on the present occasion were shown by Mr. W. ALLAN, gr. to Lord SURFIELD, Gunton Park, Norwich, and were heavy well-shouldered bunches of large, finely coloured berries, very typical of the natural type of this variety. Mr. F. COLE showed well for 2nd place, and M. W. MITCHELL was 3rd. There were nine entries.

Lady Downes was shown by five exhibitors, and two prizes only were offered. The 1st prize was taken by Mr. W. MITCHELL who had splendidly finished bunches; and the 2nd by Mr. W. TAYLOR, of nearly the same type.

The best variety in the "Any other Black" class was Gros Maroc, from Mr. W. ALLAN. They were superb in size and finish of berry; 2nd, Mr. Arthur Sadler, gr. to Mrs. TULK, Cowley House, Chertsey, with the same variety, also very good; 3rd, Mr. A. MAXIM, gr. to Col. H. WALPOLE, Heckfield Place, Winchester, who had Cooper's Black. There were eight entries.

The Muscat of Alexandria class was not specially strong, there being but four collections, and one of these was very poor in respect to finish. The best were very good specimens indeed, and were shown by Mr. G. DUNCAN, gr. to A. J. LUCAS, Esq., Warnham Court, Horsham; 2nd, Mr. Ed. SKELTON, gr. to JOHN BARKER, Esq., The Graperies, Bishop's Stortford, and Mr. A. MAXIM, 3rd.

Mrs. Pearson brought three exhibitors, and the 1st prize was awarded to three large unripe bunches from Mr. T. OSMAN, gr. to L. J. BAKER, Esq., Ottershaw Park, Chertsey; and the 2nd to three bunches of moderate size but much more fit for table, from Mr. W. J. EMPSON, gardener to Mrs. WINGFIELD, Amphil Hill House, Amphil Hill. The judging in this case was open to much criticism.

The best of "any other White" proved to be Dr. Hogg, nice specimens coming from Mr. T. OSMAN; Foster's Seedling came next from Mr. F. COLE, and were the best specimens of the variety in the show.

PEACHES.

There were ten exhibits in a class for a single dish, and the best were from Mr. A. MAXIM, who showed very fine samples of the Nectarine variety. Only two prizes were given, and the 2nd was awarded to Sea Eagle, from Mr. W. MITCHELL. There were good dishes staged of Admirable, and Walburton's Admirable.

Only three dishes of Nectarines were staged from indoors, and the best of these was Spenser from F. W. THOMAS, Esq., Wannock, Polegate, Sussex. The variety Victoria was 2nd, from Mr. W. H. BACON, gr. to Sir MARCUS SAMUEL, Mote Park, Maidstone. The other variety staged was Pitmaston Orange.

PLUMS.

There were two exhibits only of three dishes of dessert Plums or Gages from under glass, and the best were shown by Mr. J. Hudson, gr. to Leopold de Rothschild, Esq., Gunnersbury House, Acton. He had Golden Transparent Gage, Transparent Gage, and a sport from Cox's Golden Drop, the colour of the fruits being inclined to purple. Mr. J. McIndoe had Reine Claude de Bavay, Bryanston Green Gage, and Late Transparent Gage.

FIGS.

There were only three exhibits of one dish of Figs, and none of these was thought to justify a 1st prize being awarded. The varieties were Negro Largo and Rond Noir.

COLLECTIONS OF HARDY FRUIT

GROWN ENTIRELY IN THE OPEN.

The best exhibit of thirty-six dishes was from Mr. R. Potter, gr. to Sir M. W. Collett, Bt., St. Clare, Kemsing, Sevenoaks. The best of the Apples were Lady Henniker, Cox's Orange Pippin, Warner's King, Bramley's Seedling, Gloria Mundi, Mère de Ménage, Ribeton Pippin, Emperor Alexander, Peasegood's Nonsuch, Stone's, Worcester Pearmain, &c. Of Pears, Conselleur de la Cour, Nouveau Poiteau, Triomphe de Vienne, Pitmaaston Duchess, Conference, Beurré Bachelier, &c. There were Reine Claude de Bavay, Pond's Seedling, Cox's Golden Drop Plums, Figs Negro Largo; Peaches, Nectarine, Lady Palmerston and Ospray, also Nuts Kent Cobs. The exhibit was one of much general excellence.

The only other exhibit was one from Mr. J. Dawes, and in this there was greater variety. Fewer Apples and Pears were staged, but there were Nuts, Medlars, Morello Cherries, Peaches, Siberian Crabs, Damsons, Quince, Imperatrice and other Plums, Red Dutch Currants, Sweetwater Grapes, Figs, Mulberries, &c.

FROM THE GLASSHOUSE.

There was only one exhibit of twenty-four dishes of hardy fruit, grown partly or entirely under glass to illustrate Orchard House culture, Grapes excluded. The varieties shown were Apples: The Queen, Lady Henniker, Peasegood's Nonsuch, Stone's, Jefferson's, Gascoigne's Scarlet Seedling, Ribeton Pippin, and Cox's Orange. Pears: Van Mons Léon de Clerc, Beurré Steckmans, Durondeau, Duchess d'Angoulême, Beurré Bachelier, Beurré Hardy, Doyenné du Comice, Beurré Baltet. Peaches: Lady Palmerston, Nectarine, and a Seedling. Plums: Transparent Gage, Kirke's and Reine Claude de Bavay. Figs, Negro Largo and Rond Noir.

DIVISION III.

OPEN TO MARKET GROWERS ONLY.

The classes in this division are intended to attract exhibits that will illustrate the best of the present systems of packing hard and soft fruits for market, and to encourage systems not generally known. The points of view from which the exhibits are judged, in addition to the quality of the fruits, are packing, grading, and the suitability for travelling and for market purposes of the box, basket, or other receptacle in which the fruit is shown.

Grapes, Hamburg, a single layer weighing not less than 12 lb., in a "Baby-basket." The above class, brought but one exhibit, and this very poor, and no award was apparently made.

In the next class, corresponding with the above, but the Grapes to be white, The Frome Flower and Fruit Co., proprietor Mr. IGOULDEN, was awarded the 1st prize, for a basket of handsomely coloured Muscat of Alexandria; 2nd, Mr. W. GREEN, Harold Court, Harold-wood, Essex. Mr. IGOULDEN'S Grapes were tied to the side of the "Baby-basket," and the latter was stood in a square bushel-flat hamper, similar to those used by Watercress-growers, and tied at each side to prevent its moving; the lid is tied down and labelled "Grapes, with Great Care." This seems to be a perfect way of sending baskets of Grapes: those of Mr. IGOULDEN having travelled some distance, and opened in excellent condition.

For Grapes of any variety sent in any other way than the above, Mr. GREEN was 1st with a basket of fine Gros Colman. In this instance, an ordinary cross-handled basket had been lined inside with paper; and the bunches of Grapes tied around the top edge—some twigs were bent across the top over which brown paper had been tied. This arrangement seems to be as good as one as possible to use for the purpose; Mr. IGOULDEN was 2nd with a similar package.

Class 28 was for four varieties of cooking Apples, about 42 lb. net of each, packed in baskets or boxes. Here Messrs. POUPART & SONS, Marsh Farm, Twickenham, were 1st with Peasegood's Nonsuch, Bismarck, Warner's King, Lane's Prince Albert, packed in ordinary bushel sieves, lined with blue paper, and paper between each layer of Apples; the 2nd prize was awarded to Mr. E. BASHAM, Bassaleg, Newport. Monmouth, for four varieties packed in boxes, with a small quantity of wool between each fruit.

For a similar number of packages of dessert Apples, 20 lb net, Messrs. POUPART & SONS were again 1st, the fruits being packed in a similar manner to those mentioned above. The 2nd prize was awarded to Mr. A. WYATT, Hatton, Middlesex, for baskets similarly packed, minus the paper between each layer of fruits.

For a single package of cooking Apples, Mr. GEORGE TEBBUTT, Isleworth, was awarded 1st prize for a fine basket of Lady Henniker, but the fruits in this basket were raised considerably above the rim of the basket, and could not be considered an ideal market package, as the raised fruits must become bruised when sent with a number of packages for market; Mr. WYATT was 2nd.

With a single package of dessert Apples, Messrs. POUPART & SONS were easily 1st with fine Cox's Orange Pippin, packed as described in their former exhibits; 2nd, Mr. MARCHANT, Somerfield Plantation, Maidstone. There were seven competitors, and Messrs. POUPART'S arrangement and packing seems to be perfect in a market sense.

About 42 lb. nett of Apples was asked for in any improved form of package for market, and here Mr. BASHAM gained the 1st prize, for a basket (square) of Bismarck, each fruit packed between a thin layer on each side of wood-wool; and with the same kind of packing and hamper the same exhibitor took the 1st prize in the next class for a similar quantity of Apples of the variety, and showing any improved system of packing.

Messrs. POUPART & SONS were successful with packages of Pears, winning the 1st prize for two varieties, in two packages of about 20 lb. each. The varieties were Pitmaaston Duchess and Calabasse Boec, and the system adopted was similar to that described for Apples; Mr. WYATT was again 2nd.

The last-named exhibitor was 1st for twenty-four to forty-eight fruits (Pears) of one choice variety, suitably packed in one package for market. Here, a stout box, holding twenty-eight fruits was used, the bottom lined with wood-wool, and each fruit wrapped partly in pink paper, leaving the upper half of the fruit exposed, a sheet of paper being folded over the top under the lid. Mr. MARCHANT was 2nd, the Pears being packed in wood-wool only.

For twelve varieties of Apples and six of Pears, distinct, eighteen fruits of each to be laid flat on the table without dishes or baskets, six competed, making a large display. Messrs. POUPART & SONS were 1st, and noticeable among their varieties were Peasegood's Nonsuch, Warner's King, Mère de Ménage, Bismarck, Cox's Orange Pippin, and Ribeton Pippin Apples, and Pitmaaston Duchess Pears; Mr. WYATT was 2nd.

In the Plum competition a basket or box of 28 lb. of fruit, for cooking purposes, Messrs. POUPART & SONS were 1st with a basket of Monarch. These were packed similarly to the Apples, and were in good condition; Mr. TEBBUTT, 2nd. There was no exhibitor of a basket or box of dessert Plums.

Twenty-four fruits of one or more varieties of Peaches, packed in a suitable box, brought but two exhibits. Mr. GORE, Polegate, Sussex, gained the 1st prize. His fruits were wrapped individually in tissue-paper, so that the upper part of the fruit was visible, and packed in wood-wool. Messrs. POUPART were 2nd, cotton wadding being the packing material used by them.

Mr. GORE was 1st for a basket of Tomatoes, a cross-handled basket as for Grapes being used, and a layer of paper between the fruits.

DIVISION IV.

FRUITS GROWN IN THE OPEN AIR.

(Gardeners and Amateurs only).

APPLES.

In this Division the colour of the fruit, especially in the dessert varieties, was a striking feature, and despite a season that was thought would have proved hostile to the development of fine fruit, there was really fine. Some culinary sorts, as well as leading dessert varieties, were in brilliant form.

In Class 41, for twenty-four dishes (sixteen cooking and eight dessert), there were seven entries. Mr. J. McKenzie, gr. to F. W. CORNWALLIS, Esq., M.P., Linton Park, Maidstone, was 1st with a fine, clear, bright collection, consisting of Tyler's Kernel, very fine; Gloria Mundi, Emperor Alexander, very fine; Loddington Seedling, Mère de Ménage, Hornhead's Pearmain, Peasegood's Nonsuch, very fine; Tower of Glamis, Bismarck, well-coloured; Golden Noble, Brabant Bellefleur, Warner's King, Alfriston, Golden Sire, The Queen and Stirling Castle; dessert: Autumn Pearmain, very fine; Gascoigne's Scarlet, St. Edmund's Pippin, Baumann's Red Reinette, and fine Wealthy, brilliant in colour; Allington Pippin, Fearn's Pippin, in very fine form; and grand Ribeton Pippin. Mr. R. Parker, gr. to the Duke of Richmond and Gordon, Goodwood, Chichester, was a very close 2nd, also having some grand fruit, such as Grenadier, Lady Henniker, Peasegood's Nonsuch, Gloria Mundi, Stone's, very fine; Lane's Prince Albert, very fine; Warner's King, Bramley Seedling, King of Tomkin's County, Yorkshire Beauty, very fine; Cox's Pomona, Golden Spire; and of dessert, Blenheim Orange, finely coloured; Royal Russet, Gascoigne's Seedling, very fine; Ribeton Pippin, very good; Cox's Orange Pippin, Worcester Pearmain, &c.; 3rd, Mr. King, gr. to J. COLMAN, Esq., Gatton Park, Beigate, also with admirable fruit, a very fine, even lot.

In Class 42 there were also seven entries. Here Mr. A. Maxim, gr. to Col. H. WALPOLE, Heckfield Place, Winchfield, was 1st, with brilliant fruit of the following twelve varieties of cooking Apples, having Lady Henniker, Cox's Pomona, Peasegood's Nonsuch, very fine; grand Cellini Pippin, Bramley's Seedling, Emperor Alexander, Newtown Pippin, and Alfriston; and four dishes of dessert, as follows: Ribeton

Pippin, Cox's Orange Pippin, Gascoigne's Scarlet (highly finished), and King of Pippins. Mr. G. Mullins, gr. to Lady HENRY SOMERSET, Eastnor Castle, Ledbury, was a good 2nd; he had, of culinary sorts, Tyler's Kernel, Lord Derby, Peasegood's Nonsuch, Lord Suffield (very fine), Cox's Pomona, &c.; and of dessert, Claygate Pearmain, Ribeton Pippin, Baumann's Winter Reinette, and Cox's Orange Pippin. 3rd, THE SOUTH-EASTERN AGRICULTURAL COLLEGE, Wye, near Ashford, Kent.

There were four entries in Class 43, for six cooking and dessert. Mr. J. Dawes, gr. to M. BIDDULPH, Esq., Ledbury, was 1st with excellent fruit, with Warner's King, Tyler's Kernel, Lord Suffield, Peasegood's Nonsuch, Royal Jubilee, and Beauty of Kent; dessert, Cox's Orange Pippin, Worcester Pearmain, and Ribeton Pippin. 2nd, Mr. W. Jones, gr. to J. R. BROUHAM, Esq., Wallington Bridge, Carshalton, who had as his leading cooking varieties, Lady Henniker, Peasegood's Nonsuch, Hollandbury, and Bramley's Seedling; and as dessert, Ribeton Pippin, Blenheim Orange, and Cox's Orange Pippin. 3rd, Mr. W. WALLACE, gr. to H. G. SMITH, Esq., Mount Close, Rochampton, with a good representative collection.

There were six entries of six dishes of cooking Apples, the 1st prize was awarded to H. H. HURNARD, Esq., Gurney's Manor, Higham, Norfolk, who had very fine fruit of Peasegood's Nonsuch, Mère de Ménage, Bramley's Seedling, Lane's Prince Albert, very fine; Warner's King, and Emperor Alexander; 2nd, Mr. B. M. WHITING, Oredenhill, Hereford, his leading sorts were Frogmore Prolific, Lane's Prince Albert, Bramley's Seedling, and Stirling Castle. In this and the following classes, no 3rd prize was offered.

There were seven entries in Class 45 for three dishes of cooking Apples; Mr. G. Fennell, gr. to W. M. CAZALET, Esq., Fairlawn, Tonbridge, was 1st with Peasegood's Nonsuch, Castle Major, a very fine variety; and Lord Derby. Mr. J. DAWES, Ledbury, was 2nd with finely coloured Tyler's Kernel, Peasegood's Nonsuch, and Warner's King.

There were only two collections of six dishes of dessert Apples in Class 46, Mr. KING, Gatton Park, coming in 1st with a superb lot, consisting of Ribeton Pippin, Cox's Orange Pippin, Worcester Pearmain, rich in colour; Blenheim Orange, Allington Pippin, and King of Pippins; 2nd, Mr. H. COOK, Knowle Gardens, Sidmouth, his leading varieties were Cox's Orange Pippin, Rosemary Russet, Autumn Pearmain, and Lady Derby, very fine.

There were fifteen entries in Class 47 for three dishes or dessert Apples. The 1st prize went to Mr. G. H. SAGE, gr. to the Marquis of CAMDEN, Lamberhurst, Kent, who had Washington, Cox's Orange Pippin, and Ribeton Pippin, all very fine, and nicely set up with Vine-leaves, a practice to be commended at such an exhibition. Mr. W. H. GODDEN, gr. to F. W. BUXTON, Esq., Cashibury, Sawbridgeworth, was 2nd, having very good fruits of Cox's Orange Pippin, Blenheim Orange, and Ribeton Pippin.

PEARS.

In Class 48, for twelve dishes of dessert Pears, Mr. R. Potter, gr. to Sir M. W. COLLETT, Bart., St. Clare, Kemsing, Sevenoaks, was 1st with remarkably fine fruits of Duchesse d'Angoulême, General Todleben, Pitmaaston Duchess, Beurré Alexandre Lucas, Nouveau Poiteau, Madame Treve, Madame Chady, Beurré Rance, Durondeau, Beurré Diel, and two unnamed. Why at such an important show as this did the judges allow this to go unchallenged? Mr. W. H. BACON, gr. to Sir M. SAMUEL, Mote Park, Maidstone, 2nd. He had fine examples of Triomphe de Vienne, Pitmaaston Duchess, Williams' Bon Chrétien, Doyenné du Comice, Durondeau, Souvenir du Congrès, Beurré Superfin, &c.; 3rd, Mr. W. E. HUMPHREYS, gr. to A. H. SMER, Esq., The Grange, Hackbridge, Surrey.

There were three entries in the class for nine dishes of dessert Pears. Mr. W. JONES, gr. to J. R. BROUHAM, Esq., Wallington Grange, Carshalton, was 1st with good fruit of Pitmaaston Duchess, Beurré Diel, Beurré Bachelier, Souvenir du Congrès, Madame Treve, Beurré Superfin, Maréchal de la Cour, Louise Bonne de Jersey, and Urbanlate; 2nd, Mr. H. COOK, Knowle Gardens, Sidmouth, who had in good character Doyenné Boussoch, Marie Louise, Ickworth Park, Doyenné du Comice, Durondeau, &c.

In Class 41, for six dishes of dessert Pears, there were seven entries. Mr. G. H. SAGE, Bayham Abbey Gardens, was 1st, with excellent fruits of Souvenir du Congrès, Gansell's Bergamot, Beurré Bachelier, Admiral Todleben, Pitmaaston Duchess, and Doyenné du Comice; 2nd, Mr. A. COLE, gr. to Major HENKAGE, Compton Bassett, Wilts, who had very fine Louise Bonne de Jersey, Marie Louise, Pitmaaston Duchess, and Doyenné du Comice.

There were ten collections of three dishes; Mr. R. EDWARDS, gr. to G. H. FIELD, Esq., Beechinglee, Sevenoaks, was 1st with excellent fruit of Pitmaaston Duchess, Madame Treve, and Doyenné du Comice; 2nd, Mr. J. RICK, gr. to G. H. HADFIELD, Esq., Monastor, Ross, Hereford, who had fine Souvenir du Congrès, and Marie Louise.

Three dishes from Mr. A. MAXIM were Highly Commended. In Class 52, for three dishes of cooking Pears, there were four entries. Mr. W. E. HUMPHREYS, The Grange Gardens, Hackbridge, was 1st, with Uvedale's St. German, Triomphe de Jodoigne, and Catillac; Mr. H. COOK, Sidmouth, was 2nd, with Beurré Clairgeau, differing from the foregoing.

There were fifteen single dishes of cooking Pears. 1st, Mr.

B. POTTER, St. Clare, Bellissime d'Hiver; 2nd, Mr. C. ROSE, gr. to Captain CARSTAIRS, Welford Park, Newbury, with Uvedale's St. Germans. The latter with Catillac were the principal varieties grown.

PEACHES.

Class 54 was for three dishes grown in the open air. Mr. MAXIM, Heckfield Gardens, was 1st, with finely-coloured fruit, of Sea Eagle, Gladstone, and Princess of Wales. Mr. J. SPARKS, Upper Grove House Gardens, Roehampton Lane, Putney, was 2nd, with very good fruit of Sea Eagle, Princess of Wales, and Late Admirable. Mr. S. OSBORNE, gr. to the Duke of Fife, East Sheen Lodge, was 3rd, he having, with Sea Eagle, Royal Ascot, and Walburton Admirable, three capital dishes.

There were eleven single dishes of Peaches in Class 55. Mr. Geo. WYTHES, gr. to the Duke of NORTHUMBERLAND, Syon House, Brentford, was 1st, with splendid Sea Eagle; 2nd, Mr. T. H. SLADE, gr. to Lord POLTIMORE, Poltimore Park, Exeter, with excellent Princess of Wales. Barrington and Walburton Admirable were also finely shown.

NECTARINES.

There was no entry in Class 56 for three dishes; and in the class for a single dish, they fell much below the Peaches in point of quality; Mr. J. SPARKS, Upper Grove House Gardens, Roehampton, was 1st with Victoria; and Mr. C. EARL, gr. to O. E. D'AVIGDOR GOLDSMID, Esq., Somerhill, Tonbridge, was 2nd with Prince of Wales.

PLUMS.

There were three collections of four dishes of dessert Plums. Mr. H. FOLKES, gr. to C. E. STRACHAN, Esq., Gaddesden Place, Hemel Hempstead, was 1st with well coloured fruits of Cloth of Gold, Jefferson, Washington, and Reine Claude de Bay; Mr. R. CHAMBERLAIN, gr. to F. M. LONGROAN, Esq., Cressingham Park, Reading, who had Coe's Golden Drop, Transparent Gage, Jefferson, and a small, late, yellow variety, unnamed, was 2nd.

There were six dishes of one variety of dessert Plums, not Gages. Mr. THOS. SPENCER, gr. to W. H. C. MORTART, Esq., Goodrich Court, Ross, was 1st with fine Coe's Golden Drop. Mr. A. WRIGHT, gr. to J. G. DEARDEN, Esq., Walcot Hall, Stamford, was 2nd with the same; in both cases the fruit was bright and clear. With the exception of the purple Imperiale de Milan, all the dishes were Golden Drop.

There were six dishes of Gage Plums; Mr. G. DUNCAN, gr. to C. J. LUCAS, Esq., Warnham Court, Horsham, was 1st with Transparent Gage; and Mr. RICK, Monastion Gardens, Ross, 2nd with the same, Purple Bryanston Gage and Purple Gage.

There were three entries of four dishes; and Mr. J. McINDOE, gr. to J. W. FRASER, Bart., Hutton Hall, who had a very fine form of Archduke, Magnum Bonum, Grand Duke, and Pond's Seedling was 1st; 2nd, Mr. H. FOLKES, the Gardens, Gaddesden Place, who had Prince of Wales, not shown by any of the other exhibitors.

The best single dish in Class 62 was Pond's Seedling, from Mr. W. E. COLEMAN, gr. to T. L. BOYD, Esq., Tonbridge. Mr. H. H. HURNARD, Kingham, Norfolk, was 2nd with the same. Monarch, was also shown in good character, and Diamond.

In Class 63 there were two collections of Damsons, Prunes, and Bullaces. Mr. T. CLINCH, Sittingbourne, obtained the 1st prize, having the Crittenden and Cluster Damsons, the Prune, and Shepherd's Bullace. Mr. G. FENNEL, Fairlawn Gardens, Tonbridge, was 2nd, he had the Old Cheshire and Cluster Damsons, and a Yellow Bullace.

DIVISION V.

SPECIAL DISTRICT COUNTY CLASSES.

(Open to Gardeners and Amateurs only.)

The first of these classes is one for six dishes of Apples, four culinary and two dessert; the second for six dishes of dessert Pears. In the order of competitors KENT came first, the 1st prize in the former class, Mr. W. T. STOWERS, gr. to C. H. DEAN, Esq., Whitehall, Sittingbourne, who had grand samples of Bramley's Seedling, Warner's King, Prince Albert, and Peasgood's Nonsuch; and of dessert, Cox's Orange Pippin and Worcester Pearmain. Mr. G. H. SAOR, The Gardens, Bayham Abbey, was 2nd. He had very fine Peasgood's Nonsuch, Warner's King, Bismarck, and Lord Derby; his dessert varieties were Cox's Orange Pippin, very fine, and Ribston Pippin.

There were four collections of Apples, and the same number of Pears. In this class Mr. G. H. SAOR was again 1st, showing very fine fruit of Beurré Jongmans, Pitmaston Duchess, Beurré Bachelier, Souvenir du Congrès, Doyenné du Comice, and very fine Gansell's Bergamot; 2nd, Mr. R. EDWARDS, gr. to G. H. FIELD, Esq., Beechy Lees, Sevenoaks; he had Doyenné du Comice, Durondeau, Gansell's Bergamot, and Madame Treve, in fine character.

The next division was for the counties of SURREY, SUSSEX, HANTS, DORSET, SOMERSET, DEVON and CORNWALL. There were six collections of six dishes of Apples, and Mr. W. CAMM, gr. to the Duchess of CLEVELAND, Battle, Sussex, was 1st, with very fine and bright specimens of Warner's King, Peasgood's Nonsuch, Stone's, Mrs. Barron, and of dessert, Washington and Ribston Pippin. Mr. KING, Gattin Park Gardens, was 2nd, having Bismarck, Beauty of Kent, and Cox's Orange Pippin, very fine.

There were four collections of Pear, the 1st prize going to Mr. W. MAUCEY, gr. to A. BENSON, Esq., Upper Gattin Park, Merstham, who had very good Beurré Hardy, Souvenir du Congrès Pitmaston Duchess, Durondeau, Bon Chrétien, and Marguerite Marillat. Mr. KING, Gattin Park, was 2nd. Chief among them, Doyenné, Boussoch, Brockworth Park, and Souvenir du Congrès.

The counties of WILTS, GLOUCESTER, OXFORD, BUCKS, BEDS, HERTS, and MIDDLESEX came next. There were five collections of Apples, Mr. W. STRUGNELL, gr. to Col. VIVIAN Rood Ashton, Trowbridge, was 1st, with very fine Peasgood's Nonsuch, Warner's King, Hambour Franc, Bramley's Seedlings, Cox's Orange Pippin, and Ribston Pippin. Mr. R. CHAMBERLAIN, the Gardens, Cressingham Park, Reading, was 2nd; he had very fine Peasgood's Nonsuch, Golden Noble, Emperor Alexander, and the two same dessert varieties.

There were five collections of Pears. Mr. W. A. COOK, the Gardens, Compton Bassett, Wilts, was 1st with Pitmaston Duchess, Doyenné du Comice, Bon Chrétien, Marie Louise, Beurré Diel, and Louise Bonne of Jersey; Mr. R. CHAMBERLAIN was a close 2nd with very fine Doyenné Boussoch, Bon Chrétien, Beurré d'Amalins, and Clapp's Favourite.

The next group of counties was ESSEX, SUFFOLK, NORFOLK, CAMBRIDGE, HANTS, and RUTLAND. There were three collections of six dishes of Apples, the 1st prize falling to H. H. HURNARD, Esq., Higham, Norfolk, who had in very fine character, Cox's Pomona, Emperor Alexander, Lord Derby, Peasgood's Nonsuch, Ribston and Cox's Orange Pippin; 2nd, Mr. A. ANDREWS, gr. to the Hon. W. LOWTHER, Wickham Market, Suffolk, whose culinary varieties were superb, he had Lane's Prince Albert, Mère de Ménage, Bramley's Seedling and Peasgood's Nonsuch, with Cox's Orange and Ribston Pippins.

There were three collections of Pears, the 1st prize going to Mr. W. ALLAN, gr. to Lord SUFFIELD, Ganton Park, Norwich, who had fine fruit of Pitmaston Duchess, Beurré Diel, Bon Chrétien, Marie Louise d'Uccle, Thompson, Marie Louise, very large; 2nd, Mr. A. ANDREWS, the Gardens, Wickham Market, who had Durondeau, Doyenné du Comice, Pitmaston Duchess, Emile d'Heyst, in good form.

Next in order came the counties of LINCOLN, NORTHAMPTON, WARWICK, LEICESTER, NOTTS, DERBY, STAFFS, SHROPSHIRE, and CHESHIRE. There were three collections of six dishes of Apples. Mr. A. WRIGHT, the Gardens, Walcot Hall, Stamford, had very fine Mère de Ménage, also Warner's King, Peasgood's Nonsuch, Lord Derby, Cox's Orange Pippin and Worcester Pearmain; 2nd Mr. W. H. DIVERS, gr. to the Duke of RUTLAND, Belvoir Castle, Grantham, who had what we thought to be remarkably fine fruit for the district, consisting of Peasgood's Nonsuch, Stirling Castle, Bismarck, and Warner's King, Cox's Orange Pippin, and Worcester Pearmain.

There were two collections of Pears, and from this district they were relatively smaller than from any of the preceding counties. Mr. A. WRIGHT, Walcot Hall Gardens, Stamford, was 1st with Bon Chrétien, Durondeau, Van Mons Léon le Clerc Beurré Diel, Marie Louise, and Louise Bonne of Jersey. Still, with a good even lot, Mr. W. H. DIVERS was 2nd; he had Bon Chrétien, five Beurré Clairau marked not a dessert Pear, Louise Bonne of Jersey, Fondaute d'Automne, and Doyenné du Comice, certainly the best quality of fruit as far as development is concerned.

The counties of WORCESTER, HEREFORD, MONMOUTH, GLAMORGAN, CARMARTHEN, and PEMBROKE furnished five bright fruit. The 1st prize for six dishes of Apples going to Mrs. BLASHETT, Hereford, who had very bright examples of Warner's King, Golden Noble, Peasgood's Nonsuch, Emperor Alexander finely coloured Adams, Pearmain, and Cox's Orange Pippin. 2nd, Mr. R. M. WHITING, Credenhill, Hereford, with Bramley's Seedling, Stirling Castle, Peasgood's Nonsuch, Cox's Orange Pippin, and Egremont Russet, very fine.

There were three collections of Pears, the 1st prize going to Mr. JOHN RICK, Monastion Gardens, Ross, who had in fine character Pitmaston Duchess, Souvenir du Congrès, Conseiller de la Cour, Durondeau, Marie Louise, and Beurré Hardy. 2nd, Mr. T. SPENCER, Goodrich Court Gardens, Ross, whose leading varieties were Beurré d'Avalon, Durondeau, Souvenir du Congrès, and Duchess d'Angoulême.

Other counties in Wales furnished but two collections of Apples, and those of an inferior character. The best came from Mr. R. T. JONES, gr. to R. D. HUGHES, Esq., Denbigh, who had Blenheim Orange, Norfolk Beautif, Warner's King, Ribston Pippin, Dutch Mignonne, and Wareham Russet; 2nd, Mr. H. AUSTEN, gr. to L. P. PUGH, Esq., Abermarde, Aberystwyth, who had fine Warner's King and Alfriston, the others poor. There was but one collection of Pears and no award was made.

The six NORTHERN COUNTIES of England and the Isle of MAN furnished but one collection of Apples from Mr. GARSIDE, Larbrick Gardens, Gt. Eccleston, near Garstang. These were of fairly good character, and consisted of Grenadier, Annie Elizabeth, Scotch Bridget, Lane's Prince Albert, Worcester Pearmain, and one unnamed.

SCOTLAND.

From Scotland came two collections of Apples, the best from Mr. J. DAY, The Gardens, Galloway House, Garsiestown, N.B., and consisted of good, clean, well coloured examples

of Warner's King, Yorkshire Beauty, Mère de Ménage, Peasgood's Nonsuch, Lady Sudeley, and James Greive, a handsome dessert kind.

The 2nd prize was awarded to Mr. J. McKinnie, gr. to H. MILLAR, Esq., Roundwood, Orkney, the best being Stirling Castle and Ecklinville Seedling.

There was but one collection of Pears, this also came from Mr. Day, all the varieties of good character, consisting of Souvenir du Congrès, Jersey Gratioli, Marie Louise d'Uccle, Doyenne Boussoch, Pitmaston Duchess, and Madame Treve.

IRELAND.

No contribution came from Ireland, and so no comparison could be afforded between Irish fruit, and that of Scotland and England.

DIVISION VI.

SINGLE DISHES OF FRUIT FROM OPEN AIR.

DESSERT APPLES.

First of these came Adam's Pearmain, in four lots, all nice samples, Mr. CORNELIUS, gr. to H. A. WILLIAMS, Esq., Truro, coming 1st; with Mr. CAMM, gr. to the Duchess of CLEVELAND, Battle Abbey, Sussex, 2nd.

There was only one dish of that poor Apple Allen's Everlasting, and a poor sample at that.

Then came Allington Pippin, a far superior one, with six dishes, the best coming from Mr. ROSS, gr. to Captain CARSTAIRS, Newbury. This fruit carries a nice bloom.

Baumann's Red Reinette, in three dishes, made a good show of colour, Mr. ROSS being again 1st here.

Then came twenty-one lots of that grand Apple Blenheim Pippin, but there were only two prizes to award. There were large and small, as well as a sprig, medium samples; but really small fruit for the variety were awarded the prizes, whilst the public were wondering why. Mr. Chamberlain, gr. to F. M. MORGAN, Esq., Reading, was 1st; and Mr. EARL, gr. to O. E. D'AVIGDOR GOLDSMID, Esq., Horsham, was 2nd.

There were but four dishes of Brownlee's Russett, and the same number of Claygate Pearmain, whilst there were but three dishes of Cackle Pippin.

Then of Court Pendu Plat there were six, the best examples coming from Mr. LINTOTT, gr. to WALPOLE GREENWELL, Esq., Marden Park, Surrey, very handsome fruits.

That grand dessert Apple, Cox's Orange Pippin, was represented by no fewer than thirty-two dishes, but there were only two prizes to award, where there should have been many more. Here, oddly enough, quite large fruits for the variety—certainly handsome ones—were selected, these coming from Mr. KING, gr. to J. J. COLMAN, Esq., Catton Park, Reigate; Mr. SLADE, gr. to Lord POLTIMORE, Exeter, was 2nd.

The Duke of Devonshire found representatives in six dishes, but one half of these were poor. Mr. JOHN RICH, gr. to C. H. HADFIELD, Esq., Ross, was 1st.

There were eight dishes of Egremont Russett, Mr. WHITING coming 1st; and thirteen lots of Pearmain Pippin, generally good in colour. Mr. STOWERS, gr. to C. H. DEAN, Esq., Sittingbourne, being 1st; Mr. McKENZIE, gr. to F. S. W. CORNWALLIS, Esq., Linton Park, Kent, coming 2nd.

Very brilliant was the colour of Gascoigne's Scarlet, smallish, high-coloured fruits, taking the Awards. C. H. DEAN, Esq., Sittingbourne, again was 1st here. Some over-looked fruits were superb samples.

There were but three of Gravenstein, the 1st prize lot coming from Battle Abbey, but much the finest from Hackfield Place, Hants.

There were but two dishes of Jas. Greive, the raiser, Mr. DAY, of Galloway House, N.B., coming 1st.

King of the Pippins had fifteen dishes to represent it, distinctly poor samples for the variety, being placed 1st, from Mr. McKENZIE; Mr. STOWERS coming 2nd with larger samples. The judging here has been greatly commented upon.

King of Tomkin's County had few representatives, Mr. MAXIM bringing the best, apparently well grown, from Heckfield. It is a poor Apple for this country.

Mabbott's Pearmain, a very handsome Apple, had but three dishes; and there were but five lots of Mannington Pearmain, the best coming from Linton Park.

Margil was better shown, there being thirteen dishes. Mr. CAMM had very handsome samples of these.

Of American Mother Apple, eight lots being staged, smallish samples seemed to be most favoured, very fine samples being overlooked. Mr. WHITING was 1st with the variety.

There came no fewer than thirty-six dishes of the fine old Ribston Pippin, showing how very much this grand variety is alive. Mr. KING was 1st, with medium-sized high-coloured fruits, two of which were weak. Mr. SAOR came 2nd, with fine samples, very even and clean, but less highly coloured. Some capital samples obtained no award.

There were six dishes of the late Rosemary Russet, and two only of Ross Nonpareil, with only one of the old Scarlet Nonpareil, that coming from Mr. J. HURSON, of Gunnersbury House Gardens, very handsome samples, that might in a free competition have been regarded as too large.

Sturmer Pippin brought six, and Wealthy but three dishes, whilst the rich-coloured Worcester Pearmain was represented by eighteen dishes, of which Mr. KING and Mr. DUNCAN, gr. to C. F. LUCAS, Esq., Horsham, had the richest.

There were no Winter Quarrendens staged, in spite of Messrs. Pearson's prizes.

Finally, with any other variety, eighteen dishes being shown, Mr. Ross captured the 1st prize easily, with his beautiful new seedling, Thos. Andrew Knight; Golden Russet, from Mr. WYTHES, Syon House Gardens, Brentford, being 2nd.

CULINARY APPLES.

Kitchen Apples were generally fine, the classes starting with Alfriston, Mr. Spencer, gr. to H. C. MOFFATT, Esq., Hereford, being 1st, with fine clean samples.

Beauty of Kent had but five dishes, only moderate samples. In the class for Belle Pontoise, Mr. McKENZIE had superb fruits.

Bismarck brought only eight dishes, and none high-class. The best came from Mr. S. W. SWEET, Ipswich.

Bramley's Seedling, for three prizes offered by Mr. MERRYWEATHER, of Notts, brought sixteen generally grand samples, Mr. COCK, of Sidmouth, coming 1st, and Mr. SHORR 2nd, with splendid fruits; the 3rd went to Mr. A. H. SMES, Hackbridge.

Cellini Pippin was poorly represented by six dishes; but Cox's Pomona was better with eleven lots. Mr. STOWERS was 1st with fine clean fruit; and Mr. KING 2nd, with smaller and more highly-coloured ones.

Damelow's Seedling, alias Wellington, brought fifteen dishes, Mr. CAMM coming 1st, and Mr. KING 2nd.

Ecklinville Seedling very much showed its speckled character. Mr. STOWERS had the best samples. Emperor Alexander brought superb fruits, that from Mr. McKENZIE and Mr. STOWERS taking the prizes. The former was also 1st with handsome Golden Noble, of which there were nine lots, but there were but one of Golden Spire and four of Grenadier staged.

The best of New Hawthornden came from Mr. Herbert, gr. to J. F. CHARLESWORTH, Esq., Redhill; whilst Mr. STOWERS was 1st with grand Prince Albert, and Mr. CROSS was very near, also with fine samples.

The samples of Lord Derby were very fine, especially those from Mr. STOWERS; Mr. WHITING was 2nd.

There were but five lots of Lord Grosvenor, Mr. WHITING taking 1st, and Mr. C. HERRIN, Dropmore, 2nd prizes.

There were also but five dishes of Lord Suffield, only moderate samples; and but six of Mère de Ménage, but the fruits shown by Mr. ROSS and Mr. McKENZIE were grand samples.

Messrs. PEARSON's prizes for Newton Wonder from northern counties brought but four dishes, the best coming from Mr. H. H. TURNER, Fincham, Norfolk; and Mr. DIVERS, The Gardens, Belvoir Castle.

In the class for the same variety grown in southern counties, handsome samples were shown, Mr. COCK, of Sidmouth, was 1st with very fine ones, and Mr. POTTER, gr. to Sir MARK COLLERT, Sevenoaks, was 2nd. There were eleven dishes of Peasgood's Nonsuch, Messrs. McKENZIE and STOWERS, taking the prizes with handsome samples. Mr. McKENZIE was again 1st with good Pott's Seedling. There were but three dishes of Royal Jubilee, and seven of Sandringham, the 1st award going to Mr. McKENZIE; and Mr. GAGE was 1st with Spencer's Favourite, only two dishes being staged. Stirling Castle, was represented by some fine fruits from Messrs. WHITING and ROSS, the latter having the best Loddington Seedling. Mr. STOWERS had the best, and Mr. MAXIM, the second best lots of Queen, out of nine dishes. There were but four dishes of Waltham Abbey Seedling. Then came that popular variety, Warner's King, with ten dishes, Mr. HARRIS, gr. to P. CROWLEY, Esq., Croydon, having very fine samples. Finally, in any other variety, grand fruits of Tyler's Kernel, from Mr. DAWES, gr. to M. BIDDULPH, Esq., Ledbury, and Mr. ROSS, with large Wiltshire Defiance, were 1st and 2nd Yorkshire Beauty, and Gloria Mundi, were fine in this class.

DESSERT PEARS.

Thirty-five classes were devoted to dessert Pears in single dishes, and in several of the classes the competition was very keen, and the exhibits generally of good quality.

The first class, that of Buerré Bosc, comprised seven dishes, all good, the 1st prize being taken by Mr. J. Friend, gr. to the Hon. P. C. GLYNN, Rooknest, Godstone; 2nd, Mr. A. SMITH, The Convent, Roehampton Lane, S.W.

Buerré d'Angou brought a small number of dishes, Mr. R. Chamberlain, gr. to F. M. LONERGAN, Esq., Cressingham Park, Reading, coming 1st with finely-coloured fruits; 2nd, Mr. SAGE, gr. to the Marquis CAMDEN, Bayham Abbey.

Five good dishes of Buerré Diel were staged. 1st, Mr. W. ALLAN, gr. to Lord SUFFIELD, Gunton Park, Norwich, with large fruits; 2nd, Mr. WYTHES, Syon House Gardens, with nicely-coloured fruits.

Buerré Fouqueray, two dishes only. 1st, Mr. SAGE, with very fine fruits; 2nd, Mr. HUDSON.

Four competitors staged good fruits of Buerré Hardy. 1st, Mr. J. ALLAN, gr. to G. HANBURY FIELD, Esq., Ashurst Park, Tunbridge Wells; 2nd, Mr. T. STOWER, gr. to G. H. DEAN Esq., Sittingbourne.

Buerré Superfin brought the same number of exhibitors. 1st, Mr. BICKWOOD, gr. to the Dowager Lady FRAKE, Fulwell Park, Twickenham.

Comte de Lamy.—1st, Mr. T. W. HERBERT, gr. to J. T. CHARLESWORTH, Esq., Nutfield Court, Redhill; 2nd, Mr. W. ALLAN.

Conference.—1st, Mr. HUDSON, Gunnersbury; 2nd, Mr. FRIEND.

Conseiller de la Cour.—1st, Mr. CHAMBERLAIN; 2nd, Mr. ROSS, gr. to Captain CARSTAIRS, Welford Park, Newbury.

Some very fine dishes of Doyenné du Comice were staged, Mr. W. H. BACON, gr. to Sir MARCUS SAMUEL, Mote Park, Maidstone, coming 1st with a large and nicely coloured dish; 2nd, Mr. W. HARRISON, gr. to Col. ARCHER HOUBLON, Bishop's Stortford.

But one dish was forthcoming of Duchesse de Bordeaux, a good one, from Mr. E. Coleman, gr. to T. L. BOYD, Esq., North Firth, Tonbridge.

Eight highly coloured lots of Duroseau were staged, the 1st very fine, from Mr. W. H. BACON; 2nd, Mr. SPENCER, gr. to H. C. MOFFATT, Esq., Goodrich Court, Ross.

Easter Buerré and Emile d'Heyst, brought each but two exhibitors, for the former Mr. W. JONES, gr. to J. R. BROUGHAM, Esq., Wallington Bridge, Carshalton, was 1st; for the latter, Mr. W. ALLAN.

Fondante d'Automne.—1st, Mr. W. H. GODDEN, gr. to F. W. BUXTON, Esq.; 2nd, Mr. W. ALLEN, gr. to Lord BRASSEY, K.C.B., Normanhurst, Sussex.

Glen Moreau was a poor exhibit of three fairly good dishes, the best coming from Mr. SPARKS, Grove House Gardens, Putney.

Six dishes were staged of Josephine de Malines, the best coming from Mr. W. JONES; 2nd, Mr. ROSS.

Mr. W. JONES was the only exhibitor of Le Lectier, and was awarded the 1st prize.

Eleven exhibitors staged Louise Bonne of Jersey, a very even lot. The 1st prize was awarded to Mr. WYTHES for a very fine and highly coloured lot; 2nd, Mr. W. A. COOK, gr. to Major HENEGOE, V.C., Compton Bassett, Wilts.

Marie Benoist was poorly represented, the best dish coming from Mr. W. H. GODDEN. The popular Marie Louise brought but five dishes, 1st, Mr. WM. ALLAN; 2nd, Mr. MOORE, Babington, Bath.

Three very fine dishes of Marguerite Marillat were staged; 1st, F. W. THOMAS, Esq., Polegate; 2nd, Mr. SLADE, gr. to Lord POLTIMORE, Exeter, with more highly coloured fruits. Nouvelle Fulvie, 1st, Mr. THOMAS; 2nd, Mr. WYTHES.

Two dishes of Olivier de Serres only were staged, the best came from Mr. C. HARRIS, gr. to O. A. SMITH, Esq., Hammerwood Lodge, East Grinstead. Pittaston Duchess brought the strongest competition in this division, seventeen handsome dishes being staged, Mr. C. MORGAN, gr. to S. J. DU CROZ, Esq., Oaklawn, Weybridge, coming 1st with a very heavy lot; 2nd, Mr. WEBB.

The pretty little Seckle was well shown by Mr. ROSS, who was a good 1st; 2nd, Mr. SPARKS.

Some very fine specimens of Souvenir du Congrès were staged by four competitors: 1st, Mr. HERRIN, Dropmore Gardens; 2nd, Mr. THOMAS.

Six competed with Thompson's, the best coming from Mr. W. ALLAN; 2nd, Mr. HUDSON.

A similar number of Winter Nellis were staged, Mr. CHAMBERLAIN coming 1st; Mr. J. WEBB, 2nd.

In the last class, that for any other variety, seventeen dishes were staged, the winning variety being a fine lot of Williams' Bon Chrétien from Mr. W. ALLAN; 2nd, Mr. W. H. STOWER, with Duchess d'Angoulême.

BRITISH ASSOCIATION.

SEPTEMBER 18.—Various papers interesting to botanists were read in the Botanical Section during the day. Mr. F. DARWIN, F.R.S., contributed a paper "On the Localisation of the Irritability of Geotropic Organs," which in some respects was a continuation of the work undertaken by CHARLES DARWIN and himself on the movement of plants.

Professor DOUGLAS CAMPBELL next gave the results of studies in Araceae; and Mr. J. C. WILLIS followed with a paper, entitled, "Studies in the Morphology and Life-history of the Indo-Ceylonese Podostemaceae." In the afternoon, Professor F. O. BOWEN, F.R.S., read a valuable paper on "Fern Sporangia and Spores," in which he gave a general account of his interesting researches in Ferns. Mr. A. C. SEWARD, F.R.S., then spoke on the Jurassic Flora of Great Britain.

In the course of his remarks, he said that the lower oolite rocks exposed in the cliff sections between Whitby and a few miles south of Scarborough had long been famous as affording rich collections of fossil plants, which enabled us to form a fairly accurate idea of the chief characteristics of the Jurassic flora. The Ferns, Cycadean genera, constituted a large proportion of the vegetation, with an abundance of one or two species of Equisetaceae and a few Conifers; no trace of undoubted Angiosperms had so far been discovered. The account of the flora included a description of the more important types, a general comparison of the English species with recent plants, and remarks on the characteristics and distribution of the Lower Oolite floras.

Miss E. DALE read a paper which dealt with the intumescences of Hibiscus vitrifolius.

The Effects of Sea Water on Land.—At the meeting on this day, a paper by Mr. T. S. DYMOND and Mr. F. HUGHES, on "The Chemical Effect on Agricultural Soils of the Salt Water Flood of November 29, 1897, on the East Coast," was read. On that occasion, about 30,000 acres of land in Essex alone were flooded. By analysis made after the water had run off, but before an appreciable quantity of rain had fallen, the

soil was found to contain 0.2 per cent. of salt, or about twenty times the normal quantity. This was insufficient to produce plasmolysis of the root-hairs, and it therefore was not directly injurious to growing crops. The immediate injury appeared to be chiefly due to the entire destruction of earth-worms. In the following season (1898) very few crops were worth harvesting. The soils were re-examined this spring (1899). It was found that nine-tenths of the salt had been washed down by rain and removed by drainage, and that young worms had again made their appearance. The condition of the soil was, however, very unsatisfactory, and while on some farms there was promise of fair crops, on others the crops had failed. When shaken with water, the soil was no longer quickly deposited, but remained partially suspended for several weeks, evidence that the clay had become gelatinous. This was also shown by the higher percentage of water of hydration in the air-dried clay from the flooded soil. The retentivity of the soil for water had not become greatly altered, but percolation of water through the flooded soil was just half as rapid as through the unflooded.

BOSTON DAHLIA AND CHRYSANTHEMUM.

SEPTEMBER 21.—Boston, following upon the lines of Wallingborough, has started a Dahlia and Chrysanthemum Society, with every prospect of success. An exhibition of Dahlias took place in the Corn Exchange on the above date, and aided by the presence of several of the leading southern growers and their blooms, an excellent exhibition of the flower in its various types resulted. Several local growers also exhibited, and the result appears to be that another year an extended schedule of prizes of greater value will be issued. The southern cultivators are worthy of great praise for the self-denying support they gave to the new venture.

The first six classes for Dahlias were open to all comers. There were as many as six entries of twenty-four blooms of show and fancy varieties. Mr. S. MORTIMER, Swiss Nursery, Farnham, took the 1st prize; Messrs. KEYNES, WILLIAMS & Co., nurserymen, Salisbury, were 2nd; and Mr. GEO. HUMPHRIES, nurseryman, Chippenham, was 3rd. With twelve show varieties, there being eight entries in this class, these exhibitors took corresponding positions. Mr. MORTIMER was in remarkably good form for so late a part of the season; he had really fine blooms of Shirley Hibberd, Sunbeam, Victor, one of the finest dark varieties, extra good; Mrs. Gladstone, J. B. Service, John Walker, Duke of Fife, Virginale, John Hickling, R. T. Rawlings, Rebecca, Rev. J. Godday, Duchess of Albany, Perfection, and Chieftain.

Cactus Dahlias shown on boards, in collections of twenty-four varieties, brought ten entries. Here Messrs. KEYNES & Co., came to the fore, with an excellent selection; chief among them being Clown, Charles Woodbridge, Mrs. Carter Page, Mrs. J. J. Crowe, a new variety, which has been consistently good all the season; Loyalty, Lucius, Progenitor, in its best form; Britannia, Fusilier, &c. Mr. R. Keeble, gr. to F. W. SHARP, Esq., Twyford, Berks, was a very good 2nd. There were also ten entries of twelve blooms; Messrs. KEYNES & Co. were again 1st; Mr. KEEBLE, 2nd.

The finest feature of the show was the class for twelve bunches of Cactus, three blooms of each, there being seven entries. Messrs. KEYNES & Co., and Mr. R. KEEBLE, showed in such excellent form that the most careful pointing of the blooms brought both collections out as exactly equal, and eventually equal 1st prizes were awarded; Messrs. KEYNES & Co. had in perfect character such varieties as Clown, Innovation, J. F. Hudson, one of the most distinct of the newer varieties; Mrs. Carter Page, Loyalty, Mary Service, Mrs. J. J. Crowe, &c. Mr. KEEBLE had J. F. Hudson, remarkably well coloured; Lucius, Keynes' White, Mary Service, Viscountess Sherbrooke, Starfish, and Alfred Vasey, extra fine. Mr. S. MORTIMER came in a close 2nd.

Pompon varieties were also shown in collections of twelve bunches, and there were six entries; Messrs. J. BURRILL & Co., were 1st in the varieties of medium sizes, fresh, even, and perfect in form; among them, Red Indian, Eurydice, Dr. Jim, Emily Hopper, Bacchus, Douglas, Mary Kirk, &c. Messrs. KEYNES & Co., were 2nd.

Special prizes were also offered in a few classes, and the 1st in a class for twelve blooms of Cactus, was won by Mr. KEEBLE; and he also won the 1st of Messrs. KEYNES & Co.'s special prizes for 12 blooms of Cactus varieties sent out by themselves; and also a special prize by Mr. R. DEAN, for the best bloom of any type, having a remarkably fine one of Cactus Magnificent.

There was a series of classes for amateurs residing in the county of Lincoln; and for cottagers.

Miscellaneous exhibits filled a considerable space of tabling. Mr. J. GREEN, Norfolk Nursery, Dereham, had a large bank of Cactus Dahlias in bunches, including his new varieties, Red Rover, Green's White, and Zephyr; also Pompon Dahlias in variety, and Tomatoes. This was awarded a Special Medal, offered for the best miscellaneous exhibit.

Mr. W. COCKS, nurseryman, Donnington, had a very interesting collection of Lincolnshire-grown Apples, generally of fine character, some of them brilliantly coloured; also a select collection of Pears, the variety Fertility being very good.

Messrs. W. & J. BROWN, nurserymen, Stamford, had illustrations of standard, dwarf-trained, and bush-fruit trees, Apples, Dahlias, &c.

Messrs. PENNELL & SON, nurserymen, Lincoln, had a collection of blooms of Dahlias.

Mr. T. B. DOLBY, nurseryman, Boston, had stove, greenhouse, and hardy cut flowers, Dahlias, Apples, &c.

Mr. F. WATTS, seedman, Boston, had a collection of about fifty dishes of Apples.

Mr. C. T. CHATTAND, Floral Gardens, Boston, had a collection of blooms of Cactus and Pompon Dahlias.

NATIONAL CHRYSANTHEMUM.

SEPTEMBER 27.—A meeting of the Floral Committee of this Society was held in St. Stephen's Hall, Royal Aquarium, on Wednesday last. There were very few exhibits.

Mr. W. J. GODFREY, Exmouth, showed a perfect yellow sport from Lady Fitzwilliam; Mr. WELLS, Earlswood, had a fine yellow Japanese named General Paque; Mr. A. G. DAVEY, Oakhurst, Burgess Hill, showed an early-flowering Japanese variety, with broad petals, named Miss Burton, flowers ivory-white; and Messrs. CARRON & BAXTER, Ayr, N.B., sent a rosy-cerise coloured sport from the well-known early-flowering variety Madame Marie Masee. No awards were made. Sufficient members of the Committee were not present to form a quorum.

Obituary.

JAMES MARTIN.—We regret to announce the sudden death, at three o'clock on Wednesday morning, after four hours' illness, of Mr. Jas. Martin, the well-known hybridist, who was for over forty years the faithful servant of Messrs. Sutton & Sons, of Reading. His death was entirely unexpected, he having retired to rest in his usual health on Tuesday night.

VARIORUM.

THE FIBRES OF THE PHILIPPINES.—By far the most important of the fibre plants growing in the Philippines is Manila Hemp, or Abaca. At first sight this plant might be taken for an ordinary Plantain, or Banana-tree, but its fruit is much smaller than the Banana, and is not edible. According to a recent report of the United States Department of Agriculture, the Manila Hemp crop comes chiefly from the provinces of Albay and Camarines, on the island of Luzon, and from the islands of Marinduque, Leyte, Cebu, Mindoro, Samar, Mindanao, and the southern part of Negros. The finest quality of the fibre is called "Lupis," or "Quilot," and is of a pearly lustre. Other grades are distinguished by their colour and consistency. Nearly the whole crop is placed on foreign markets. The average yearly shipments amount to nearly 1000 tons, and form the most important item in the Philippine export trade. The United Kingdom and the United States receive the largest shipments, although considerable quantities are also sent to Spain, Australia, China and Japan. Cotton occupies a peculiar position in the Philippines. It was the first raw fibre used locally in the manufacture of textile fabrics, but it has recently lost much of its former importance, partly because of the excessive taxation that has for some time been imposed on the textile industry of the islands, but principally because of the competition of British fabrics. The Cotton plants cultivated in the Philippines are chiefly of the herbaceous varieties. They yield a fine white staple, of superior quality and strength. One variety, however, known under the name of Cayote, produces a cinnamon-coloured fibre. There is also a species called Bubuy, that grows like a shrub; the fibre it produces cannot be employed in weaving, but is used in stuffing mattresses, pillows, cushions, &c. Another textile plant that occurs is the Amray! This plant is found only on the Batanes Islands, north of Luzon; it closely resembles Ramie, and yields a fine white fibre of great tensile strength. Various other fibre plants are found in the Philippines, such as the Pita (a kind of Aloe), the Balibago, the Dalanot, or Tree-nettle, the Pine-apple, and the Cabonero (a species of Palm-tree), as well as many other varieties more or less unknown outside the Archipelago. *Indian Gardening*, August 31, 1899.

ANSWERS TO CORRESPONDENTS.

APPLE AND PEAR-LEAVES DISEASED: F. C. The spots on the Pear-leaves are caused by a fungus (*Fusicladium pirinum*), which attacks both leaves and fruits; on the latter causing the "Pear-scab," see figures, *Gardeners' Chronicle*, November 5, 1898, p. 341. The disease on the Apple-leaves is in part due to a similar fungus, but at least two others are present, all assisting in destroying the leaves. As to remedy, the first thing is to satisfy yourself that the trees are in a good situation, and properly treated. The disease may be successfully combated as follows. During the winter the trees should be well washed down with copper-sulphate (1 lb. in 15 to 20 gallons of water). Then spray with Bordeaux Mixture, first, as the flower-buds begin to open; then immediately after the petals fall; and finally, about two weeks after the second application. The strength of the mixture, given in *Gardeners' Chronicle*, May 20, 1899, p. 328 (see also August 21, 1897, p. 118), is about the best. This is the method recommended by the United States Department of Agriculture. The disease is important enough to warrant the trouble (the expense is very little), because of the injury it causes to the fruit. This year we have seen whole trees bearing fruit which was of no market value, because scabbed.

BOOKS: C. A. *British Flora*—that by Bentham & Hooker; price 10s. 6d., 5th edition. *Illustrations* to the same, 10s. 6d. (L. Reeve & Co., London).

CATALPAS BEARING SEED: G. Burt. The result, doubtless, of the last two very warm summers.

CREEPERS FOR COVERING A DWELLING: A. B. Ampelopsis Veitchii, A. purpurea, Vitis Coignetie, Ceanothus azureus, C. stricta, Bigonia grandiflora, B. capreolata; Crimson Rambler, Ayrshire, and other rambling Roses, Banksian Roses, white and yellow; Magnolia grandiflora Pyrus japonica in variety, Smilax aspera, S. laurifolia, Wistaria sinensis, and Clematis in variety.

CUCUMBER LEAVES BURNED IN SPOTS: H. P. R. Due to scalding, from lack of air, bad glass, &c. No disease.

CUCUMBERS DISEASED: W. K. The disease is a form of mildew. Allow a free circulation of air amongst the plants, and, if need be, raise them slightly above the ground. In America the spraying of outdoor Cucumbers with the Bordeaux Mixture resulted in a better supply of healthy fruit than from unsprayed parts of the same field. In spraying, the underside of the foliage must be thoroughly wetted.

EUCARIS SANDERI, CORRECTION: On p. 239 of our last issue, the second line under E. Sanderi should have read "with tall leaves 1 foot wide, a peduncle 2 feet wide," not inches.

FRUITING OF THE CAMELLIA: Stanley Jordan. A common occurrence on single and semi-double-flowered varieties, and less common on double-flowered ones.

GRAPES: G. H. A sudden access of water to the border after a period of drought has caused the cracking of the fruits, and too much humidity in the air is responsible for the decay, in so far as it follows on the cracking of the berries. There is no disease beyond a little shanking.

HOP PLANT: S. J. Humulus Lupulus.

LAND AND FIXTURES: Beeston. If the buildings have foundations that are fixed in the ground, you must leave them standing unless your agreement states that you may remove them. In regard to the whole matter it will be prudent to take legal advice.

NAMES OF FRUITS: We are most desirous to oblige our correspondents as far as we can, but we must request that they will observe the rule that not more than six varieties be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. They should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.—H. H. 1, Margaret; 2, not received; 3, Norfolk Stone Pippin; 4, Yorkshire Greening; 5, Hawthornden; 6, Calville Rouge d'Hiver.—C. A. C. 1, Crimson Quoining; 2, Scarlet Tiffing; 3, White Paradise; 4, Hubbard's Pearmain.—R. F. 1,

Stamford Pippin; 2, Scarlet Nonpareil; 3, Golden Spire; 4, Hawthornden; 5, North End Pippin; 6, not known—probably a local variety.—T. W. S. Apple Golden Noble.—A. C. Plum, Red Magnum Bonum. You did not follow instructions given above. It is necessary that wood and leaves should be sent with all stone fruits, but particularly with Plums and Peaches.—X. You have not attended to the instructions given in this column relative to sending fruits for name; we have therefore selected the following six varieties from those received:—3, Mank's Codlin; 4, Stirling Castle; 6, Keswick Codlin; 9, Margaret; 10, Devonshire Quarrenden; 11, Duchess of Oldenburgh.—B. Dumelew's Seedling.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—W. B. Populus canescens—probably; you should have sent shoots with catkins in the spring.—Percy Bicknell. Fraxinus excelsior var. simplicifolia.—W. H. M. Cassia corymbosa.—J. R., Villenoy. 1, completely withered; 2, Polystachya species; 3, Odontoglossum cariniferum.—B. B. 1, Caryopteris mastacanthus; 2, Polygonum cuspidatum; 3, P. orientale; 4, Vitis laciniata; 5, Mentha pulegium.—P. H., Cambo. Lælia Dayana, sometimes called Lælia pumila Dayana.—Constant Reader. 1, Begonia incarnata metallica; 2, Polystichum angulare; 3, Cyrtomium caryotideum; 4, Adiantum capillus-veneris; 5, Pteris longifolia; 6, Clematis vitalba.—S. G. S. 1 and 2, Cyrtopidium bellatulum; 3, C. Charlesworthi; 4, Epidendrum radiatum; 5, Brassia signata.—T. B. 1, Brassia caudata; 2, Gomezia planifolia.—A. E., Ascot. 1, Pteris argyrea; 2, Gymnogramma ochracea; 3, Blechnum occidentale; 4, Davallia dissecta Mariesii; 5, Pteris Mayi; 6, Cyrtomium falcatum. Some of the tickets were wet and scarcely decipherable.

OAK LEAVES WITH GALLS: E. Bros. The leaves are covered with the Oak spangles, the work of an insect—Diplolepis lenticularis, figured in the *Gardeners' Chronicle*, p. 52, 1943, together with Cynips Querous tians, the Silk Button Gall.

RAISING WATER TO A HEIGHT: Riga. We should suppose that an American windmill would suffice to pump the water to a height of, say, 15 to 20 feet, and it would be greatly more economical than a steam-engine. An hydraulic ram would be very suitable if sufficient water be available to work it.

THE ROOTS OF POT PEACHES, &c.: T. B. There will be no injury done to the trees if you remove the longer roots in moderation, performing the operation at this season. A sharp knife should be used, and a somewhat oblique cut made. Next year numbers of roots will be emitted from the callus formed at the edge of the wounds, which will collect and afford more nourishment to the plant than the long, somewhat bare roots removed.

TRAVELLER IN FRANCE AND GERMANY: T. K. You should advertise your wants in the *Gardeners' Chronicle*, which has a considerable continental circulation; or in Möller's *Gärtner Zeitung*, Erfurt, and *Le Moniteur d'Horticulture*, 14, Rue de Sevres, Paris.

VINERY IN THE SHADE: A. B. You might get over the difficulty encountered in ripening the crop of Grapes, by starting the Vines early in the month of March, and thus afford them a longer period of warm weather in which to mature.

COMMUNICATIONS RECEIVED.—A. Child.—A. D.—F. W. R.—J. C. & Sons, Rochester, New York.—J. H. P. W.—W. E. E.—D. T. F.—S. J. T.—W. Cobb.—W. R.—D. McKinnon.—V. R.—H. B.—D. H. D.—J. C.—R. D.—A. H.—Prof. G. Henslow.—Wild Rose.—E. Bonavia.—H. W.—G. G.—B. N. Reid & Co.—Jutt.—S. G. S.—C. G.—E. J. L.—W. H. C.—T. W. R.—A. S.—R. W.—Quercus.—Northfield.—S. S. A.—H. J. C.—G. C. W.—Phytophila.—W. J. W.—C. B.—S. A.—J. McL.—G. E. P.—W. G. Smith, Leeds.—W. G. S.—H. G. B.—J. J. W.—R. H. W.

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal libraries.

(For Markets and Weather, see p. x.)



THE

Gardeners' Chronicle

No. 667.—SATURDAY, OCT. 7, 1899.

FAIRLAWN PARK, TONBRIDGE, KENT.

THIS fine park, the residence of W. M. CAZALET, Esq., is situated some 3½ miles from Wrotham Station on the London, Chatham, & Dover Railway, and about 5 miles from Tonbridge, on the London & South Eastern line. Either way there is a pleasant drive through leafy country lanes and apparently prosperous villages. On the Tonbridge side the scenery is as diversified as it is beautiful; and though at the time the visit was made the drought was being severely felt, yet hedgerow, field, and tree were in the full flush of their summer glory. One of the glories of Fairlawn are the splendid trees which form the framework of a picture, which is typical of many another southern English scene, nestling in the shade of Limes, Beeches, and other big trees.

Fairlawn was in ancient times accounted a manor, though it has long since lost that appellation. It was the seat of the family of the Bevants, afterwards of the Colpepers till the end of the reign of Henry VI., when it was alienated to one Chown, whose descendant, Sir George Chown, resided at Fairlawn in the reign of Henry VIII., till ordered by the King to confine his possessions within the county of Sussex, he alienated Fairlawn to Sir Harry Vane the elder, whose son, Sir Harry, became a prominent Roundhead. On the Restoration of Charles II., Sir Harry Vane was exempted from the general pardon, and executed on Tower Hill in 1662. He was succeeded by his second son, who improved the estate by means of extensive planting, &c., and who was created Lord Barnard in 1698.

Fairlawn remained in the Barnard family till 1789; and then, after several minor changes of proprietorship, it was purchased by the father of the present owner in 1871, by whom, and also by his son, the present proprietor, many considerable additions have been made both to the mansion and the grounds.

Lord Barnard, who owned Fairlawn during the latter part of the seventeenth century, did the chief part of the planting in the grounds and park, and there is a record of his having planted a singular arrangement of Yew trees in what is known as the Wilderness in 1684. Very little in the way of improving and planting had been done on the estate from that time until J. Ridgway, Esq., purchased the property in 1843. He, shortly after coming into possession, laid out the flower-garden in its present form, and made and planted the American walk, the older of the specimen Conifers, including a fine specimen *Sequoia gigantea* in the park near the American Walk, which is now 60 feet in height, and 110 feet in the circumference of the branches. The veteran, Mr. Charles Ross, now of Welford Park, Newbury, was gardener here at that time, and he has never lost a warm interest in the place he did so much to embellish. The American Walk,

leading to the Wilderness, is straight, and 200 yards in length, and the Rhododendrons, Kalmia, American Azalea, &c., with which it is planted, must form an attractive mass of colour in early summer.

Mr. Edward Cazalet, the father of the present owner, purchased the estate from Mr. Ridgway in 1871, and entrusted the gardens to the care of Mr. George Fennell, who still holds the position of head-gardener. During the past twenty-eight years Mr. Fennell has carried out numerous alterations and improvements, formed drives, &c., and made a terrace-garden on the west front of the house. In 1872-73 improvements were made in the huge sloping bank of trees and shrubs in which Lady Vane's well is situated, and below which is Lady Vane's pond. Many interesting traditions have gathered about the place in the past, and some ghostly legends abound in the neighbourhood, and probably centre about the fact that the body of the beheaded Sir Harry was brought here, and interred in the church of Shipbourne close by; and his ghost is still supposed to haunt the wilderness, carrying his head under his arm. Lady Vane's spirit is represented as haunting the spot where her well is situated. Just above the well, tower up some tall and majestic Lime-trees of prodigious proportions, the roots of which are probably watered by the springs which appear to be here, or perchance have found their way into her ladyship's well.

The covered walk of Apples and Pears in the kitchen garden [figured in our last issue. *Ed.*] was planted about this time. In 1876, glass-houses and a fruit-room on modern principles, were erected. In 1882-83, Mr. Fennell enclosed, laid out, and planted a new lawn, 4½ acres in extent, on the eastern side of the American walk. In 1896 a range of three-quarter span-houses was added to the kitchen garden. In 1898 a spacious conservatory was erected by Messrs. McKenzie & Moncur, access to which is obtained from the dining-room of the mansion.

The gardens of Fairlawn may be said to be laid out upon a series of levels; the gardener's house, elaborately constructed, with swimming-bath and other offices, occupying the higher ground. The plant and forcing-houses form a compact whole, though from the nature of the ground, broken up as it is into sections; and in walking about the visitors come suddenly upon varied and beautiful views. What strikes the visitor is the orderliness and tidiness found on every hand.

There are early, mid-season, and late vineries, and near these are plant-houses filled with useful decorative plants. Tuberous and fibrous-rooted Begonias are made great use of in various ways; the brilliant *B. corallina* being especially noticeable. We remarked a number of Melon plants growing in inverted Seakale-pots, and doing well.

The early vineries are on a lower level than the plant-houses, and near them are old walls covered with Fig-trees and other plants; and on a north wall the Japanese Honeysuckle, *Lonicera aureo-reticulata* covers a large amount of space. There are several Peach-houses, in one of which a grand specimen of the old French variety, Belle Beauce, planted by Mr. Charles Ross some forty years ago, is still in existence. A venerable Fig-tree on an outdoor wall is said to have been planted in the time of Sir Harry Vane, the tree being imported direct from Turkey.

Some very fine specimens of *Cypripediums* were noticed in one of the houses; there were also Carnations, fine flowering examples of

Ruellia macrantha, and *Richardia Elliotiana*, which Mr. Fennell said he made a point of drying off, the plants succeeding capitally under this kind of treatment.

Then comes the walled-in garden, with its well-managed Apple, Pear, and Plum-trees. The leading feature is the arcade of Apple-trees running athwart the garden. The principal varieties consist of Cox's Orange Pippin, Cox's Pomona, Lord Derby (which does specially well), Gloria Mundi, and Peasgood's Nonsuch. The direction of the walk is from north to south; thus enabling the fruits to colour well on two sides.

Then comes the raised flower-garden on the east side of the mansion, with a venerable hedge of Laurel affording shelter from wind and sun. Dotted about the gardens are standards of various Hollies, with green and variegated leaves. From this garden there is a descent to the south front, and the spacious new lawn fenced in on certain sides by a bank of shrubbery and the new conservatory. Among the occupants of this building are some fine Kentias; and a delightful fernery has been made at one end, with an appropriate waterfall.

From the east side of the mansion, splendid trees of *Sequoia gigantea*, *Cryptomeria japonica*, a pair of magnificent Acacias, and lines of towering Limes, reported to be 200 years old, become visible. On the front line of the terrace are stone vases filled with plants; and alternately with these are lamps, with Crimson Rambler Rose trained to each standard. Then on by Lady Vane's pond, I noticed fine specimen *Sequoias* and *Thuyas*; and so round by Ross' monumental *Sequoia* to the American Walk, and past this to the Wilderness, a quiet and reposeful place.

A grassy walk leads to a circle of Yews, planted, it is supposed, two hundred years ago; and from the centre of which radiate in all directions several walks lined with Yews, and forming a circle at the termination of each. The question will always be asked, What did, or does, this arrangement of Yews indicate? From here, by a shady walk, a return is made to Mr. Fennell's abode. Of the trees which abound in these grounds, mention may be made of English and Turkey Oaks, these very fine; Elm, Lime, Beech, *Pinus sylvestris*, of which there are some splendid specimens; and there are good examples of Wych Elm. *R. D.*

NEW OR NOTEWORTHY PLANTS.

LÆLIO-CATTLEYA × *ETHELWALD* (C. GASKELLIANA × L. BOOTHIANA).

THIS, while not being so showy as some of the other *Lælio-Cattleyas*, is an attractive flower, somewhat resembling *L.-C.* × *Gottoiana*, and not unlike some of the varieties of that natural hybrid. The sepals and petals are like those of *Cattleya labiata* Gaskelliana, and of a pale rose-lilac, with silvery midrib at the base. The lip well displays the influence of *L. Boothiana*, known in some gardens as *Cattleya lobata*, Lindl. It is of the same colour as the petals, the base in the inside being red, changing to orange colour towards the centre, the front lobe bearing a showy purple veining, and connecting tinge, the rosy margin finely crimped. It flowered with the Rev. F. Paynter, Stoke Hill, Guildford (gr., Mr. Cook).

CYPRIPEDIUM × *HELVETIA*.

A flower of a very pretty and distinct hybrid, purchased in Switzerland as a probable cross between *C. Chamberlainianum* and *C. Lawrenceanum*, but which the Manchester Orchid Committee

decided was *C. Chamberlainianum* × *philippinense* (a decision with which I agree), is sent by J. Leemann, Esq., West Bank House, Heaton Mersey, (gr., Mr. Edge).

The flower, which well displays itself, has the dorsal sepal broadly ovate acuminate, pale apple-green with a white margin, about a dozen distinctly-blotched chocolate-purple lines radiating from the base. The petals, which are decurved and reflexed at the tips, are 3 inches in length, twisted, and with undulate margins bearing ciliate warted protuberances; the ground colour greenish-white profusely spotted with chocolate-purple. The lower sepals, which are two-thirds of the size of the upper one, are greenish-white with fine purple lines; the lip, pale-yellow at the base and edges of the side lobes, is spotted inside with purple, and tinged outside with rose-colour. The very singular-looking cushion-like staminode, which, with the petals, gives the best indication of the presence of *C. philippinense*, is emerald-green shading off to yellowish-green at the edges, which latter bear a conspicuous fringe of blackish hairs. It was acquired from M. Otto Froebel, who, while not accounted an Orchid specialist, yet grows many reputedly difficult Orchids better than anyone else. *James O'Brien.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA × HARDYANA, OAKWOOD VARIETY.

In August, 1877, Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr., Mr. Wm. Murray), crossed a fine form of *Cattleya Dowiana aurea* with the pollen of a good *C. Warszewiczii*, and a year later the seeds were sown. On September 8, 1896, two of the plants were shown at the Royal Horticultural Society, and occasioned much interest on account of their proving the correctness of the surmise that *C. × Hardyana* as imported were natural hybrids. The plants have gained strength, flowering regularly every year, and proving equal to good forms of imported *C. × Hardyana*, but with distinct peculiarities in the form and colour of the lip. A fine example has been sent with sepals and petals, of a bright rose-purple colour, and with a delicate veining of silvery white. The tint of the lip is Indian-red, from the base to the centre, with orange-lines running into orange blotches on each side of the tube. The upper portions of the side-lobes are of a purple tint, and the showy front-lobe is of purplish-crimson.

SOPHRONITIS GRANDIFLORA.

Again the time of flowering of this charming scarlet-flowered autumn and winter-blooming Orchid is commencing, and several exceptionally fine forms have been received. By far the best is a magnificent flower sent by Geo. C. Raphael, Esq., Castle Hill, Englefield Green (gr., Mr. H. Brown), which has almost the whole surface of the flower filled in by the various parts, thus making it nearly circular, and $3\frac{1}{2}$ inches across. The labellum is marked with light orange colour, and there is a pale violet flush over the bases of both sepals and petals. Few plants of such small size bear such large and showy flowers as do the best varieties of *Sophronitis grandiflora*, and an additional advantage is that they thrive in any warm greenhouse if properly tended.

A TRAVELLER'S NOTES.

CHALONS SUR MARNE.—This is the head quarters of the Aij champagne district, but the passing traveller sees no Vines in the immediate neighbourhood. Indications of a warmer climate than ours are however presented in the public garden, the Parc du Jard, as it is called; Jard, being an abbreviated form of Jardin. The ornamental garden occupies the slope of a valley, at the bottom of which a clear-green stream runs. The area is small, but it has been so cleverly and artistically

managed, that it appears to be much larger than it really is. It is remarkable for its fine trees, but as usual, these have been allowed to spoil one another for want of timely thinning. Taking the trees at random as I find them in my note-book, I notice the finest *Acer Negundo* I have ever seen, but I am unable to give precise dimensions. A lofty *Gleditsia triacanthos* (?) was covered with its long, flat pods. *Sophora japonica* was a mass of bloom; and the weeping variety is used very effectively, a group of three or four together giving the undulated appearance of a "swelly" sea. Another tree of similar habit is the weeping variety of the

before, viz., an Alder copse on the top of a dry chalk down, with no water-course near. This is to be seen on the road from Chalons to Nôtre Dame de l'Epine. Gardeners and botanists are not wholly engrossed with plants when out on an excursion, so that the suggestion that they should, when occasion serves, visit the exquisite architectural gem above-named may be acceptable. It is a gothic cathedral of the thirteenth and fourteenth centuries, perfect and uniform in style and detail. Together with the very interesting churches of Chalons it is full of interest to the architect, and a delight to the mere tourist.



FIG. 92.—FLOWERING SPRAY OF CAMPANULA MIRABILIS. (SEE P. 275.)

Mountain Ash, which one does not often see at home. *Ailanthus*, with reddish flowers and twisted seed-vessels, was very conspicuous; *Kölreuteria paniculata* a sheet of golden bloom.

Tulip-trees and *Liquidambar* have not yet begun to change colour (September 18). *Euonymus latifolius* is covered with its crimson-lilac seed-pods. Magnificent *Paulownias*, with their noble foliage, are covered with capsules (which we very rarely see in England), and *Catalpas*, with their long, narrow pods, indicate a warmer climate. It seemed strange to see *Tamarisks* overhanging the water, as one generally associates these bushes with a dry situation (the sea-coast excepted). In any case, they droop very gracefully over the stream. This reminds me, too, of an association I never saw

BEDDING LOBELIA, &c.

Much use is made in Swiss town-gardens of a very beautiful *Lobelia* of the cardinalis type, with dark purplish-red foliage, and abundant flowers of a rich, bright, rose-pink colour. We may have it at home, but I was unable to procure its name, and think the colour more beautiful than in any variety I have seen. *Begonias* of the *sempervirens* type do excellently well as bedders; and those of the tuberous-rooted section are, on the whole, better this season than *Pelargoniums*.

CLEMATIS MONTANA.

Over a nurseryman's house at Vevey may be seen in letters, 18 or 24 inches long, the title of his establishment—"La Rosière." The whole front

of the house is covered with *Clematis montana*, which is allowed to roam at will, except where it is made to do duty as a sign-board. It is pretty, one is bound to admit, though on principle one ought to object to it; and when the flowers are out, it must be prettier still.

FRUIT-TREE PROTECTORS.

Fruit-trees have to be protected from other enemies besides birds. Featherless bipeds often do more mischief than those bedecked with feathers. To prevent this, they encircle the trunk of the tree in some parts of Switzerland with two or three coils of barbed-wire. This is hard on the boys, and recalls Leech's sketch of the poor boy bemoaning the fact that "they had been an' spiked the postes," so that they could no longer be overlept by his vaulting ambition.

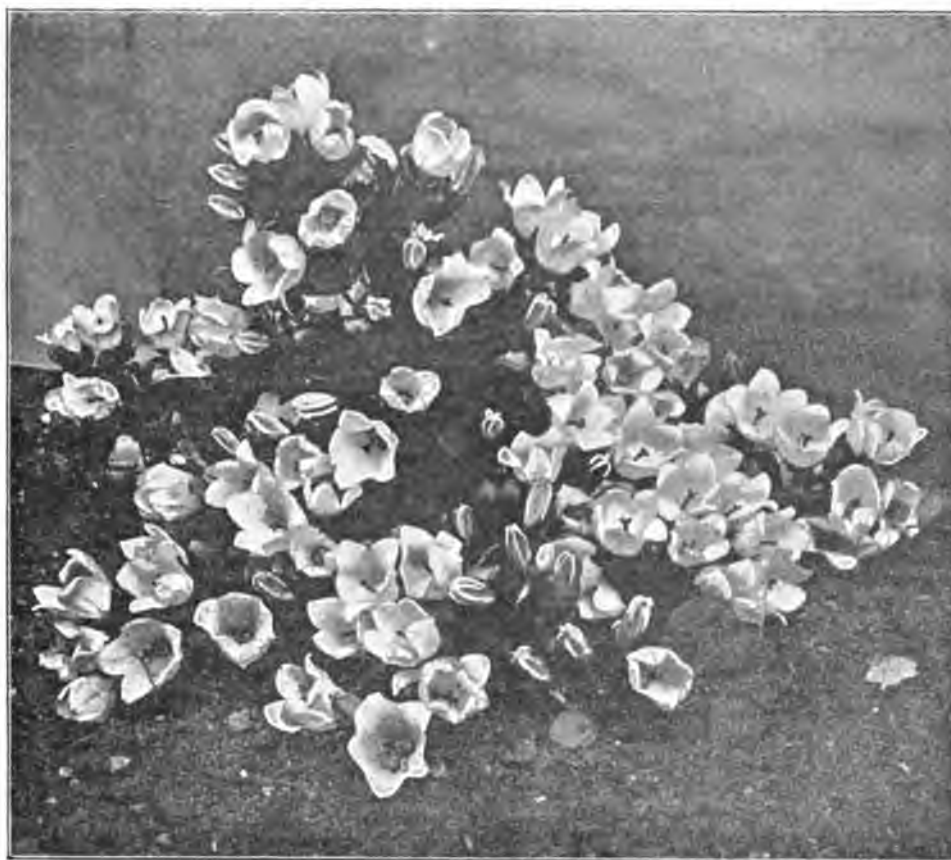


FIG. 93.—*CAMPANULA MIRABILIS*, AS IT FLOWERED IN THE ROYAL GARDENS, KEW.

SPRAYING.

The Americans make much more use of this procedure than we do, or the Swiss either. Not a single Pear that came to our notice in the latter country was free from the maggot (*Carpocapsa*). It may be that this was an indication of the excellence of the fruit; but one would rather get that information in another way.

THE VINTAGE

here (Lake of Geneva) will be late and scanty, but the natives say the quality will be good. This seems hard to credit, for neither in the Jura districts nor here have I seen a single perfect bunch in the vineyards. In the shops may be seen fine bunches of "table" Grapes, coming, I am told, from the Valais, but about here the berries do not seem to have set; not a fourth were, as it appears, properly fertilised, and they are now shrivelled and mouldy, with only a good berry here and there. The foliage, though small, looks healthy, and shows no mildew so far as I have seen.

CAMPANULA MIRABILIS.

We have already had more than one occasion to refer to this species, but the plant is so remarkable that we gladly avail ourselves of the permission of the Director of the Royal Gardens, Kew, to reproduce a photograph taken by Mr. Rose, of Ross Villas, Richmond. The general character of the plant is shown in the illustration (fig. 93), which is rather less than one-third the natural size. The broadly-ovate leaves are fleshy, and marked at the edges by fine spines; and the flowers are of a pale blue colour. It is a native of the Caucasus, where it was found by our late correspondent, M. Alboff. Some difficulty has been experienced in its cultivation, as recorded, but the plant at Kew, planted in a narrow border against a wall, was, in August, laden with flowers, and apparently in vigorous health.

other shows every year, tells me that many of his cut-backs are from 12 to 15 years old; but then he adopts the plan I have a long time advocated of cutting out all the old wood and all spindly shoots in the autumn. As the plants are dwarf-budded on either the Manetti or Briar, it is more than probable that they have been budded low down, so that roots have pushed out both from the stock and scion, and it seems to me a pity to disturb them. The shoots which have been left on the Rose are simply those which have been pushed up from the lower part of the stem during the present season, and I therefore think that this is the plan which ought to be adopted now—at any rate, with hybrid perpetuals and hybrid Teas; and where you have long shoots of this year's growth, it is better to shorten them somewhat, so that high winds will have little power over them. There is another advantage in adopting this plan: it is that you will not have so much to do when the ordinary pruning season in March and April demands your attention; and in spring there is always a quantity of work to be got through, and everything that will save work then ought to be adopted.

Every few years there are changes made in our Rose-gardens, and many flowers which we once valued as exhibition and decorative Roses have to give way to newer and better varieties, and the National Rose Society comes to the help of all Rose-growers in this matter—it will publish a new and revised catalogue very shortly. The Catalogue Committee, consisting of some of the most experienced Rose-growers, both amateur and professional, have been engaged on its composition, and their great experience is to be relied upon; but while we are waiting for that, and the planting season has arrived, I will pen a few notes which may be helpful to Rose-growers.

Of course, after six years there are many Roses which appeared in the catalogue then which you very seldom see on the exhibition-table now. Who cares much now for Mary of Cambridge? for example; and how seldom do we see Duchesse of Valombrosa, Mrs. H. Turner, Alphonse Soupert, Marguerite de St. Amand, or Madame Lacharme! We may have valued them in their day, or they would not have found their place in the catalogue; but these and several others we want no longer. Of those which may be added to our collections, several are the products of our own raisers. Tom Wood, Beattie Brown, Killarney, Mrs. Edward Mawley, and Ulster will, I think, be found valuable additions. With regard to hybrid Teas, I do not care to say much; there are some persons who are so enamoured of this section, that if a Rose only bear the character of a hybrid Tea, they are ready to take off their hats to it, and I dare say they will be ready to acclaim any candidate as an addition to its ranks. Of the pure Teas we have had very few claimants for public favour. It is true that we have a great many very beautiful varieties in the various shades of colouring that pervade this class; therefore, it is not easy to produce something which would be considered an improvement. The two most conspicuous are Empress Alexandra of Russia and white Maman Cochet; the former is one of those dark-coloured Teas which some people admire—but which I, for one, think spoil the chaste and delicate beauty of the stand in which it appears.

I think one of the great charms of the Tea Rose is its delicacy and refinement, and these very high-coloured flowers greatly interfere with that characteristic. The white Maman Cochet is very beautiful, and promises to be a very useful flower; the type is a great favourite now, and most people are glad to welcome a really good white variety. Of new garden Roses, there are many which growers will gladly welcome. I may mention Purity, Dawn, and Psyche amongst others, but doubtless many have taken notes during the past season of varieties which they would like to introduce into their gardens. When the revised catalogue of the National Rose Society is issued, I may have something more to say on this subject.

THE ROSARY.

THE PLANTING SEASON.

As the month of September draws towards its close, we are reminded by various signs, such as the arrival of catalogues and letters from correspondents, and the aspect of our own gardens, that the time for planting is at hand. We are never certain in our treacherous climate what weather we may have, and therefore in the first fine time after October 1, operations should be commenced. We ought to have decided in our minds what Roses are to be discarded and what new ones introduced. But there is one subject of importance to be first considered—what is to be done with our old-established plants. Some people advocate the lifting of the entire stock, and replanting them at once. I, however, say—No; let them be undisturbed, provided you have adopted the course best calculated to give good results. One good Rose-grower, who takes a large number of prizes at the National and

With regard to the method of planting, I do not think much need be said. Rose-growers know pretty well their business in this matter; and to those who are novices, the "Hints on Planting" published by the National Rose Society will afford them all necessary details. There is one point, however, one would like to insist upon after this long period of drought, when the soil is what in this part of the world we call "hover" (that is very light, and apt to run from the fork), viz., firm planting; at all times it is necessary, but doubly so this season.

We have had amongst the newer Roses a great many of light shades, pink and rose, and therefore in filling up the beds it would be desirable to see a little bit of bright colour amongst them. Such Roses as Victor Hugo, Jean Souper, Prince Camille de Rohan, Charles Lefebvre, Duke of Edinburgh and Duke of Connaught should be liberally employed for this purpose, and it is to be earnestly hoped that some of our Rose-growers who are engaged in raising seedlings will devote more attention to the production of such varieties, which moreover have the advantage of being very sweet scented. I think it is becoming more and more the wish of Rose-growers to stipulate that their Roses should be on either the seedling Briar or Briar cuttings, though I think that in some soils the Manetti is still a favourite.

To those who are particular about Tea Roses, the half standard Briar is still the most favourite stock, and probably the best exhibition Roses are produced from it; but then it shares the risk of all such Roses of being cut off by frost, whereas when dwarfs are used, should the plants be severely punished by frost, fresh shoots come up from the bottom, and the plant is preserved. In all directions I hear, both from nurserymen and amateurs, glowing descriptions of the healthiness of the plants, so that those who are intending to add to their stock will do so under favourable conditions; and when the plants arrive let them beware of leaving the roots exposed to the sun. I have seen all the contents of a package laid out on the beds, and probably a couple of hours elapse before planting is finished—it is wiser to heel them in at once, and then take them out as required. These little matters if attended to or neglected involve very often success or failure. *Wild Rose.*

SPECK IN APPLES.

The following communication appeared in *Indian Gardening*, October 20, 1898, and is forwarded to us by Dr. J. F. Duthie, of the Botanical Department, Northern India, under date of August 29 last. "A. C.," a resident of Mussoorie and Dehra Dunn, is an enthusiastic cultivator of Apples and other fruits, and a very successful one.

"A. C.," Mussoorie, writes on the 8th inst. :—"What is the cause of speck in Apples, and is there any cure for it? More than half of my Apples have been specked and useless. I have been trying all kinds that are supplied from the Ranikhet Nursery to see which kind suited the climate of Mussoorie, and I expected that some would do better than others; but I did not expect so many to fail as there have been.

"I have been looking up in all the books on fruit-growing that I can get, but with the exception of Bunyard's *Fruit Farming for Profit*, which mentions, under the head of Wellington, that it is apt to speck in a cold season, I cannot find any references to this matter of specking. I have several trees of Dumelow's or Dumelow's Seedling which are said to be the same as Wellington, and these speck very badly. Some I have cut down and grafted with Red Astrachan, which hitherto have done well here. Margaret, or Red Juneating, planted in December 1888, fruited in 1897, the fruit seemed good and the tree vigorous, and fruited early. I planted a number in November last. This year, this tree had a good crop of beautiful fruit—to look at—but the inside of the

Apples were all specked, some with only a few reddish-brown specks; but in others, with great patches of decay in them; other kinds are also affected. I see in a former issue of your paper, that Mr. Barron, of Kulu, transplants his Apple-trees when the fruit specks, due, he says, to the roots going down to the cold sub-soil. This may do when the trees are young, but even then it seems a very troublesome operation. Would not root-pruning do instead of transplanting the tree bodily? Is it the want of something in the soil that causes the specking, and could not this be given along with the manure? The trees are exposed to the north-east; the sub-soil is good loam, rather clayey; it makes good bricks. There is plenty of leaf-mould on the surface, and the ground being on a hill side, is well drained; the rock is dolomitic limestone."

(We shall be glad to have the experience of some of our readers on this subject.—Ed. I. G.)

"M. R." wrote in the *Indian Gardening* of Nov. 3, that in his opinion, it was a fungus closely allied to that which is attacking the Sugar-cane in southern India; he had found that transplanting into entirely fresh soil, liberal manuring and copious watering, have often cured the tree—but if the fruits are badly attacked, then he would recommend the entire destruction of the trees. Lime mixed with the soil has often cured trees.

In *Indian Gardening* of Nov. 24, Mr. Gollan writes that he does not agree with "M. R." that the speck is caused by a fungus, nor that the disease is caused by an insect, and that the fungus is an after effect; he mentions several insects, but the editor says that on reference to the Indian Museum authorities that though the insects named have been recorded as attacking Apples in Europe, that they have not so far been reported from India. Mr. Gollan asks what about the ubiquitous mosquito, but I think from what you have seen of my Apples, that you have no doubt that it is a fungus.

"M. R." could not copious water the trees here, but the rain in general does so after June 15, and so far as I can make out, it is then when the Apples are swelling that the speck commences, but it may be that the germs get in during the dry weather, and do not become visible till the rains.

[Without having seen the diseased fruits, we cannot indicate the fungus which is the cause of the specking; but we would refer "A. C." to an article on *Oidium fructigenum* with illustrations, (both of which were supplied by Mr. W. G. Smith), appearing in the *Gardeners' Chronicle*, July 11, 1885, which seem to fit "A. C.'s" case in most particulars. We should advise the use of the Bordeaux Mixture twice during the season of growth, and the burning of a small quantity of sulphur in the fruit-room before and after storing the fruit. Ed.]

WROTHAM PARK, ITS VINES, &c.

As many of our older readers are doubtless aware, the gardens at Wrotham Park, Barnet, afforded an excellent example of gardening in its various features, and more especially in the cultivation of the Grape-vine when the late William Thomson had charge of the gardens from the year 1837 to 1855. The Vines were of great age when Thomson went there, as the following particulars, furnished by Lady Susan Byng to Mr. Markham, the present head gardener, will show :—"In the reign of Queen Anne, about the year 1710, the Lord Strafford of that time was British Minister in Holland, and the Dutch were then the greatest gardeners in Europe; so Lord Strafford sent home to his mother, who lived at Twickenham, a piece of a Vine, and in 1785 his great-nephew planted at Wrotham, a slip from the Twickenham Vine, which was then getting old. That is the story of it, and I believe the Hampton Court Vine is no older. The berries certainly are not so good as the Wrotham ones."

As Thomson states in his *Practical Treatise on the Grape Vine*, sixth edition, "The Vines in the very large vinery at Wrotham and the other vineries, were in a very unsatisfactory state, and it was determined that the Vines and borders of three of them should be renewed at once. But the large vinery in question was not one of those; it was 65 feet long, 22 feet wide, and 7 feet high in front, and the back-wall was 16 feet high. There was a row of strong cast-iron pillars running along the centre of it to support the rafters, and against these the Vines were planted, twisting round them like enormous snakes. My employers were loath to have these old Vines destroyed, and wished me to make an effort to renovate them if possible. I made a careful examination of the state and position of their roots, and found that none of them was within 1 foot of the surface of the soil. It was the custom to keep all the bedding-plants standing on the floor of this house, and the constant watering and treading had made the whole surface, which had not been broken up for years, as hard as asphalt. This I had picked up, and removed from the house to the depth of 1 foot. I then got hold of the leading-roots, and traced them as far as possible. When they could be pursued no further, without going to a great depth, I cut them, and coiled them round the pillars that supported the stems, till in this way I had raised some eight or ten of the roots of each Vine; not one of which so far as I traced them had any live rootlets on them. I had mats put round these bundles of roots, and kept them damp for the time being. I removed six old Peach-trees that grew as standards in the house, the Vines been confined to the rafters. I took out a large pit where each of these stood, and in doing so cut many of the roots of the Vines. I then filled the pits for the Peach-trees with the best turfy loam I could get, and planted them, and laid 6 inches of the soil I had prepared for the new Vine-borders all over the surface of the border of this house, with a considerable allowance of good rotten dung. I then laid out all the roots on this bed of new soil, making a regular set of incisions with the knife, right and left, at about 9 inches apart, along their whole length, covering them over with 6 inches of the same compost, and giving them a good watering with warm water. This was done in March, just as their buds were beginning to swell. They broke as weak as straws, and looked very miserable till about the end of July, when they showed some signs of making second growths of a more vigorous character than the first. This was in the summer of 1838, and in 1839 they broke comparatively strong, showing a fair crop of fruit which they brought to perfect maturity. In 1840, and for seven or eight years afterwards, they bore first-rate crops of excellent Grapes, colouring well; they were Black Hamburgs. In 1848 they were on the wane again; and as the vinery had to undergo extensive repairs, I removed them all to make way for a new border and young Vines, except those Vines at the west end of the house, which I kept, partly as a memento, and partly to experiment upon." So far, W. Thomson's methods of renovating a Vine-border fell but little short of what we now advise and practice fifty years later. These mementos are still in existence, and we may suppose that the successive gardeners at Wrotham have in most instances done their utmost to maintain their vigour and fruitfulness, for when I saw them in August last the remains of a crop of very fair bunches of good colour and size were to be seen upon them.

The present gardener intends to curtail the tops of these old Vines, clear out the other Vines by degrees, planting new Vines in their place, and making a new outside border, and later renewing the inside border, and thus afford the young Vines plenty of feeding space.

The other vineries are filled with Vines of great age, but not so old as this one, and doubtless they must all undergo renovation at Mr. Markham's hands, he being a gardener very thorough in his

methods, and not readily satisfied with mediocre produce. His efforts in renovation in general will be much in demand, the gardens apparently having been under rather indifferent management for some years past.

The fruit walls are well built, and mostly of good height, ranging from 11 to 20 feet; but they are but poorly covered with trees. The kitchen gardens—there are several divisions, walled in and

above the ground level, about 10 feet in diameter, and there are others but little less in girth.

A fine feature of the vegetable garden is a wide border planted with a good selection of herbaceous perennials, many of which were in full bloom. A magnificent *Magnolia grandiflora* clothes a wall 20 feet high, and has a breadth nearly as great. The situation being warm, and sheltered by a viney on one side and a high wall on the other,



FIG. 94.—FOQUIERA COLUMNARIS.

communicating—appear to consist of a productive soil, excellent crops being obtained when it is deeply dug or trenched and suitably manured, as was observed on the occasion of my visit. Choice plants were not much in evidence, except in a large isolated conservatory on the lawn near the mansion. A goodly number of robust, promising *Chrysanthemums* were remarked; and the forcing-pits contained nice crops of Melons, Cucumbers, Tomatoes, table-plants, &c. Some magnificent specimens of Lebanon Cedar are scattered about the gardens and park, one of the trees being just

the plant ripens its wood thoroughly, consequently it blooms finely.

The flower-garden, once furnished with numerous beds, is now much curtailed in size, the beds having been turfed over in great numbers, and flower-gardening as such is greatly reduced. The entire place is rich in evergreen shrubs and Conifers, but singularly destitute in deciduous flowering subjects, suffering as a consequence a dearth of those beautiful effects in the spring and early summer months, which the latter afford when planted in quantity, and suitably cultivated. *A Traveller.*

FOQUIERA COLUMNARIS.

AMONG the many curiosities at Kew likely to interest the plant-lover, but to be passed over with scant appreciation by the unlearned, is the very singular looking plant, of which we are privileged to give an illustration (fig. 94), by the courtesy of the Director. It looks like a plant, adapted by its construction, to live in hot, desert places where water is scarce, and the supply intermittent and precarious. The stem is pyramidal, succulent, deeply wrinkled, and emits thin, straggling branches, beset with scattered slender spines. These spines are called by Baillon (*Dict. Bot.*, ii., 638) abortive leaves, in whose axil is developed a tuft of small fleshy leaves. The flowers are paniculate, and their construction such as to indicate an affinity to the *Tamaricaceæ*. The plant is a native of Mexico.

CHRYSANTHEMUMS IN JAPAN.

In the gardens of the Mikado, *Chrysanthemums* are trained in surprising fantasies. The imperial specimens are of enormous size, sometimes as large as trees; their numerous branches ranging with perfect symmetry around one central stem. At the end of each branch is to be seen a fully developed flower, never faded, never deformed, and always at the same stage of expansion. When once picked, these flowers keep twice as long as do the *Chrysanthemums* of Europe; and that, thanks to the very simple manner in which the Japanese cultivate. In place of overworking the plants and forcing the buds, the plants are well fed—not excessively—and constant, but not excessive care is bestowed upon them. The Japanese have two precious factors for the culture of the *Chrysanthemum* which growers in other countries lack, namely, camphorated earth (presumably humus surrounding Camphor-trees, *Camphor officinarum*), and special flower-pots in which to grow their stock.

In the culture of the *Chrysanthemum*, the camphorated earth replaces our loam. Being at the same time as rich as the latter, owing to its fecund properties, it thoroughly prevents the inroads of worms and insects. Besides this, it constitutes the right amount of nourishment, which seems particularly adapted to the development and well-being of the *Chrysanthemum*. The camphorated earth is not unknown in France. Its very cheapness seems to place it among important necessities for the culture of flowers.

M. de Loverdo gives in *L'Agriculture Nouvelle* a very complete description of the system of culture obtained from M. Oasma, gardener to a former Emperor of Japan:—

"The soil destined to receive the young plants, no matter of what consistency, demands a previous preparation. By the aid of a spade, a bank is made, 35 centimetres* in thickness, heaped up to one side. The bottom of the excavated part is covered with from 8 to 10 centimetres of pebbles. Before being filled-in, the soil which has been removed is mixed with camphorated earth at the rate of 4 kilos. of that per cubic metre of soil. The quantity removed from a surface of 3 square metres corresponds to 1 cubic metre. This mixture, which is well incorporated, is placed on the pebbles, and the trench filled up, the soil left over is made use of for cultivation of *Chrysanthemums* in pots.

"Upon the soil thus prepared the newly-rooted plants are set out, 40 centimetres each way. At a distance of 3 centimetres from each plant Bamboo supports are placed, the surface being then covered with moss, save immediately around the plants. Around these a trench is dug of about 20 centimetres. The object of these trenches is to keep off all larvæ, earwigs, snails, and other known enemies of the *Chrysanthemum*. The wall thus formed is sprinkled with pure camphorated earth, on which also is applied lime-wash, which forms a kind of collar of protection around each plant. This done, winged insects only have to be feared, and these can easily be kept away by sprinklings made with a solution of camphor." *La Semaine Horticole.*

* A metre equals 1 $\frac{1}{4}$ yard; a centimetre is rather less than half-an-inch; a cubic metre equals 35.32 cubic feet; a kilo. equals 2.2 lb.

ARDDARROCH, N.B.

BEAUTIFULLY situated on the shores of Loch Long, and bounded on the west by its waters for a considerable distance, Arddarroch enjoys in many respects a favourable position. The mildness of the climate allows many plants to grow and thrive outside that will not live through the winter in scarcely any positions north of the Tweed. The Orchids are, and have been for years, one of the chief objects of interest to the owner of the estate, R. B. White, Esq., and large sums of money have been spent, and special collectors engaged to secure the best possible varieties, especially of *Odontoglossums*. The greater part of the Cattleyas were disposed of some time ago to make room for constant additions to the cool section. Numerous fine varieties of *Odontoglossum crispum* have flowered, and the collection is equally rich in the best crosses, some of which the writer has seen in flower; and for the rest, paintings by Mr. McFarlane are ample proof of their merit. Among the varieties are *O. c. Andersonianum pulchellum*, with flowers having intensely purple edges, and the spotting yellow on a white ground; *O. excellens*, three plants, one flower measuring 3½ inches across; *O. Chestertonii*, a beautifully-formed flower, finely spotted. Another curious variety, *O. egregium*, is curiously spotted all over with small spots, very pretty. The plants of *O. Andersonianum*, *O. Ruckerianum*, *O. Wilckeanum*, and *O. Mulus Holfordianum*, are very fine.

Some of the *Odontoglossums* have received certificates from the Royal Horticultural Society of London, among them *O. crispum* "Starlight," a beautifully heliotrope-tinted variety, finely spotted. *O. crispum* "Northern Beauty," an appropriately named variety, with very distinct spotting; *O. c. Arddarroch* variety, having a slightly darker ground than "Starlight," and larger spots; *O. c. lilacinum*, a gem, and as its name implies, intense lilac in colour; *O. c. "Twilight,"* sepals lilac, petals white, finely spotted; *O. c. "Sunset,"* another deeply-tinted, finely-spotted variety. Paintings of two varieties arrived while these notes were being taken, viz., *O. c. Aurora*, and *O. c. Lady Helena Carnegie*, both finely-spotted varieties; in the former the colour was purple-brown, and in the latter chestnut-brown. In *O. c. dulce* we have another fine solid, heavily-blotched flower. But perhaps the best form of a typical white ground *O. crispum*, a fine round flower, regularly and heavily spotted all over, is found in *O. c. White's* variety. Very few *Odontoglossums* were in flower, but here and there a spike appeared, as might be expected where thousands of plants are grown. I was just in time to see the finest form of *O. madrense* I ever saw, the colouring being very deep. Several good spikes of *O. crispum*, a few good forms of *O. Coradinei*, with *O. tripudians*, complete the list.

Cattleya gigas made the end of a house still devoted to this class very gay. A number of semi-established plants of *C. Mendeli* suspended from the roof were growing away freely, and close by *Oncidium ornithorychum* was finely in flower. Among the *Cypripediums* in flower were *C. Curtisii*, *C. Chamberlainianum*, and several plants of *C. bellatulum*; and here we have a gem in *C. bellatulum album*, Bank House var., not in flower, but the foliage at once denotes a distinct break from the type.

Suspended from the roof of a Palm-stove was a fine batch of *Dendrobium nobile* and hybrids; some of the baskets with the potting material bristling with seedlings showed that *Dendrobiums* are by no means neglected here. In another house I was shown a fine lot of seedling *Dendrobiums* in various stages, in a division specially fitted up for and devoted entirely to their culture.

In a cool division, a fine piece of *Cochlidia Noetliana* was finely in flower, while *Oncidium macranthum* and *Odontoglossum Edwardi* had flower-spikes well advanced. A small batch of *Maadavallias* in flower were very pretty.

In a house originally devoted to Grape-culture, several plants of the new *Acalypha hispida* (Sanderi),

well grown and flowered, were telling objects among other plants, and in an adjoining greenhouse a monster plant of *Abutilon Boule de Neige* on a back wall, was carrying hundreds of flowers.

At the west end of the principal range of glass, a division is set apart for the cultivation of Carnations, chiefly varieties of *Souvenir de la Malmaison*. These presented a picture of health, and were finely flowered. A welcome sight in an adjoining division was that of some large plants of *Phenocoma prolifera* in full bloom; also several plants of *Boronia* in variety, unobtrusive, but very sweet, and far too seldom seen in gardens.

On leaving the glasshouses, we passed out into the kitchen garden below, and noted a series of arches forming a covered way several yards in length, clothed with Turner's Crimson Rambler Rose, which, being a mass of bloom, presented a glorious sight. To the right, a large circular bed, filled with *Anemone japonica* was very effective; and to the left, beds of *Carnation Raby Castle* and *Duchess of Fife* were very showy. General bedding is not carried out here to any extent; herbaceous plants being more favoured.

In what is usually called the American garden, I admired the huge *Rhododendrons*, in clumps and single specimens, some of them upwards of 20 feet in height. Also large masses of hardy *Azaleas*. There are several large plants of *R. Nobleianum* on the lawn near the mansion, and it is nothing unusual for these to be in full bloom at Christmas. A large piece of *Spiraea ariifolia* near the gardener's cottage, in full bloom, was a striking object; and as I turned to leave I was pleased to note the unabated vigour of the two fine trees of *Araucaria imbricata*, and of an equally fine one of *Cryptomeria elegans* beside the walk leading to the houses, the three having been planted about half a century ago by the late superintendent of the Glasgow Public Parks, Mr. D. McLellan. *Visitor*.

PLANT NOTES.

LYCIUM AFRUM.

THIS plant belongs to an extensive genus of hardy deciduous and evergreen shrubs of which but few are cultivated in English gardens, excepting the European species, *Lycium barbarum*. A short time since, on the occasion of a visit to an old garden near Guildford, I came across a remarkable specimen of *Lycium afrum* growing on a wall with a south-east aspect. This plant was 10 feet in height, and 12 feet in width, and completely covered with flowers and red fruits. Judging by the size of the shrub, it must be many years old. This species was introduced from Northern Africa in 1712, but it is rarely seen in cultivation. It is of erect growth, somewhat spiny, and of straggling habit. The leaves are linear, fasciculated, obtuse, pointed at the base, and of a deep green colour; the flowers are of a deep violet tint, solitary, drooping, axillary, and produced in great profusion during the months of June, July, and August, being succeeded by coral-coloured, elliptical fruits, about half an inch in length, which contain about twenty seeds. Owing to the decorative character of the flowers and fruits, the plant deserves the attention of planters. The plant may be readily propagated from cuttings taken in the spring, or by layers and suckers in the autumn. This species is described in the *Botanical Register*, p. 354; and in Sweet's *British Flower Garden*, p. 324. *E. S., Woking*.

CAMPANULA VIDALI.

Some fine examples of this rather singular perennial *Campanula* are now flowering in pots here. Like *C. colorata*, it is not perfectly hardy; hence, it requires frame protection during the winter. The flowers are racemose and pendulous; corolla pure white, with a remarkably broad disc, which is surrounded by thick orange-coloured annulus. Its leaves are oblong, spatulate, coarsely serrated, and

of a bright green colour. The plant is of dwarf, compact habit, and may be employed in the herbaceous borders during summer. It was introduced from the Azores in 1851. *P. Bolt, Wentworth Gardens, Barnsley*.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By C. HEARIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maldenhead.

Root-pruning Apples and Pears.—After the trees have been cleared of fruits, operations may be commenced on any trees that may need root-pruning. This applies more especially to such as are grown in the form of bushes, pyramids, cordons, or wall trees. Until now the soil has been too dry in most parts of the country for such operations to be undertaken. Early root-pruning, that is, before the leaves fall, has much to recommend it, for the ground being still warm favours early re-establishment, and large roots that have been severed soon callus, and are ready to push forth new roots when the spring arrives. The cooler weather is an advantage when hard pruning has to be done, the trees suffering very little in such weather, and more especially if showery. Large trees should be root-pruned to the extent of only one-half, the other half being treated similarly next autumn. The first thing to be done is to throw out a trench as deep as the lowermost roots, at a distance of 3 to 4 or even more feet from the stem of the tree according to its size, and gradually work the soil away for 2 feet towards the stem, or closer if deemed necessary for young trees, burrowing under the ball, and severing or lifting all descending or tap-roots met with. All the roots should be brought upwards as much as possible, and the stronger ones shortened to within 3 feet of the stem, the cuts being made from below upwards. If the land is inefficiently drained, brick rubble may be placed in the bottom of the trench to the depth of 6 inches, then return some of the soil, and proceed to lay and spread out the roots radially and evenly in one, two, or three horizontal layers, and having covered them with some of the finer portions of the soil, make it firm by trampling as the filling-in proceeds. The loose soil under the unmoved portion of the root-mass should be made firm with a rammer. If the soil is deficient in lime let some mortar rubbish be mixed with the staple, but do not add any manure. Finally, afford water plentifully if the soil is not sufficiently moist, and apply a mulch of stable-litter. Only trees which make strong growth, or those whose fruit is indifferent, need this kind of treatment. If the work is carefully carried out, flower-buds will form in place of wood-buds as hitherto, and fruitfulness once induced will tend to keep the tree fruitful. Several bushes on the Paradise-stock of Blenheim Pippin, and some others which I treated in the above manner early last autumn, have this year borne excellent crops of fruit of a moderate size, as well as abundance of fruit-buds for next year.

Colour in Apples.—The change in the colour of Apples since cooler and showery weather set in has been very noticeable; as notwithstanding the bright sunshine previously experienced, Apples in general possessed very little colour in the skin. This was very remarkable in Cox's Orange Pippin, Cox's Pomona, and Blenheim Pippin. Mid-season and other varieties may now be gathered, later ones being left upon the trees so long as the weather permits.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Planting Bulbs.—When the summer bedding-plants have been removed, those beds it is intended to plant with bulbs should be deeply dug or trenched, and if any of them are apt to become very damp in winter, such will need to be thoroughly drained. For this purpose remove the soil to a depth of 2½ feet, and put in at least 1 foot deep of broken bricks at the bottom of the trench. Should the staple soil be poor, an addition of some well-pulverised loam, leaf-mould, road-scrappings, or sharp grit, well mixed together, will effect good. Manure, unless it has been kept for at least two years, should not be used. In situations where the soil is naturally of a retentive nature, and apt to become sodden and sour, bulbs will succeed better

if some other plant be used with them, such as *Myosotis*, *Violas*, *Daisies*, *Aubrietias*, and other early spring-flowering plants, which will absorb a great deal of the surface-water. *Myosotis disitiflora* mixed with the White Swan Tulip, or a ground-work of the double-crimson Daisy, dotted over with the bright yellow Tulip *chrysolora*, make excellent combinations for occasional beds on lawns. When planting Tulips, the distance allowed between each bulb must vary according to their size. They need not be planted more than 4 inches deep, but if they are put too near the surface, the bulbs are apt to rise. The end of October is a good time to plant Tulips; they will not then show shoots until spring, and will thus escape hard frosts. Single-flowered Hyacinths will last longer in bloom if planted in beds partially shaded; they require the soil to be made much firmer than for Tulips, and are best when planted in poorer soil, and given stimulants when making growth in the spring.

Crocuses may be left undisturbed for several years, and should be planted rather deeper in beds than the generality of bulbs, or under grass.

Amaryllis Belladonna, &c. (the Belladonna Lily).—Charming is this "Lily" in the autumn, it throws up its strong spikes with umbels of when beautiful white flowers, much flushed and tipped with rose. To succeed perfectly, this species should be planted in a warm, sunny position facing south, and at the foot of a wall. Dibble in the bulbs about 5 inches deep, and 1 foot apart, in a deep, well-drained, loamy soil. They may then remain undisturbed until the bulbs become overcrowded. *Sprekelia formosissima* (Jacobsen Lily), with rich, dark crimson flowers; and *S. glauca*, bright crimson-scarlet, succeed under the same treatment.

Scillas.—Both the blue *Squilla*, *S. sibirica* and *S. bifolia*, make a fine display in spring, when planted in large clumps in the grass, or alternately with *Snowdrops*. The flowers soon fade if planted in too sunny a position. Bulbs placed 2½ inches deep and 3 inches apart in a deep rich soil or sandy loam and leaf-mould, will only require to be re-lifted once in three years. *S. italica*, flowering in May, with beautiful bright blue flowers borne on stems 10 inches high, is excellent for cutting purposes, and attains perfection when grown in sandy or light soil. *S. hispanica* is a very strong-growing bulb, and its light blue flowers contrast finely when planted with the variety *alba*.

Muscari (the Grape Hyacinth).—The culture of these is very simple, and if planted in good soil they rapidly increase. *M. botryoides* succeeds well in grass, and flowers at the same time as *Narcissus nanus* and *N. bulbocodium*. *M. monstrosum*, *moschatum*, *grandiflorum*, *concinnum*, *racemosum*, and *Elwesii* are distinct, and well adapted for the herbaceous border, or for bold positions in the rock-garden.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FRIDERICK WIGAN, Bart. CLARE LAWN, East Sheen.

Preparation of the Houses.—Sunlight being of vital importance to most cultivated plants, and seeing that in the winter it is not of long duration here, the glass should be made clean and bright, and efforts made to keep it in this condition until spring. The cleansing of an Orchid-house requires some care and forethought on the part of the gardener or his assistants, the crowding together and removal of the plants, unless carefully done, are operations likely to produce more harm than would result if the house were to be left in a dirty state. A commencement should now be made with those houses the occupants of which require much light, viz., the Cattleya, Mexican, and Dendrobium-houses. In these let the glass, all woodwork, the stages of whatsoever material, and all pots and pans be well washed with hot soap-suds; then sponge the plants, and arrange them in the most suitable position. The outside of the glass need not be washed as yet, unless very dirty. Where there are tanks to receive the rain-water falling on the roof, the dirty water from the washing should not be allowed to enter them, or harm may be done to the plants.

Plant-cleaning.—Having cleaned the glass, &c., the leaves of the plants should be sponged with soft-soap and rainwater, and where there are no insects, with water. A day or two previously,

lightly fumigate the house with Richards' XL All Compound. Cattleyas and *Lælias* are frequently infested with a small, white scale, which, if not soon removed, cause the infested parts to turn a yellow tinge. These insects hide beneath the basal sheathing bracts, and are likely to remain undiscovered unless the plants be closely examined. To remove them, use a pointed stick or a stiff hair-brush and soft soap-suds.

Staging the plants.—Epiphytcal Orchids, when grown in pots or pans, seldom have a thrifty appearance when stood on the stage, and it is now the custom to stand them on another trellis-work stage, 6 inches higher than the main stage; or place them on inverted pots, thus insuring good drainage and a better circulation of air among them. Nothing has come under my notice that is better than this, excepting Murray's Orchid-stands, which are made of wire, and are neat, safe, durable, and well adapted for small plants. They may be used for suspending the plants from the roof, or when inverted, as plant-stands. In arranging the plants, give them as much space as possible, and place the younger plants in the lightest places. When plants are suspended from wires attached to the rafters, they should be so arranged that the drip falling from them does not fall in or among the young leaves of plants standing underneath, more especially if these be *Phalenopsis*, *Vandas*, *Aërides*, and such-like. If it cannot be avoided, the moisture must be collected in the morning with a piece of sponge fastened on a small stick. This is very necessary in old glasshouses with numerous sash-bars. Many instances have come under my notice of plants receiving injury through being suspended from nails driven into the sash-bars, the drip being thus brought down to the plants.

PLANTS UNDER GLASS.

By G. R. FIELDER.

Plant-houses.—With the approach of mid-autumn and comparatively sunless days comes the necessity of taking steps to obtain as favourable conditions as possible for the welfare of the plants in the glass-houses. To this end an effort should be made to cleanse the glass and woodwork of, at least, the interior of the houses. Structures which are infested with mealy-bug should be thoroughly washed with petroleum. Stages and floors, and any portion of the house which cannot be got at with the scrubbing-brush, should be forcibly syringed with petroleum and hot soap-suds. All brickwork should then be limewashed, adding half a pint of petroleum to each pailful of wash, and keeping it well stirred while applying it. If any whitewash or other shading material remains on the glass, it should be cleaned off; and all blinds not required for the protection of the house during severe weather should be taken down and stored for the winter after being well dried.

Ferns.—Species of *Adiantum* which have been grown in a close, moist house for the purpose of affording fronds for cutting, should be given more air and light as the growth approaches completion, in order to harden the fronds; otherwise, when cut they will quickly wither. A better plan when plants are required for this purpose is to grow them in a moderately cool house, which is not heavily shaded. The fronds of *Adiantums* produced under such conditions are of a much firmer texture, and the colour a softer shade of green, while they last well when cut.

FRUITS UNDER GLASS.

By W. STRUGNELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

Late Figs Fruiting in Pots.—For use in the dessert in late autumn Figs are invaluable. Given a sufficient number of trees established in pots or tubs, and an efficiently-heated house in which to grow them, there is not much difficulty in obtaining an occasional dish until late in the year. Negro Largo when suitably prepared is one of the best autumn fruiters, as also Nebian, with fruits above medium size, pear-shaped, skin greenish-yellow when ripe, a delicious Fig. There is a greater certainty of a regular crop being obtained from rather small trees, as two or three plants growing in small pots may be accommodated in the space required by one of a large size. This point should be borne in mind by gardeners having to supply Figs at this season. A stock of young plants should be kept up by purchases in the

autumn, or by spring propagation at home. It is not advisable or easy to obtain autumn Figs from old planted-out permanent trees. A fairly brisk temperature is needed at this season, with ventilation in accordance with the weather. Top-dressings of bone-meal will maintain activity in the surface-roots, but it must be applied only in small quantities, at intervals of a week or ten days. Liquid-manure and clear soot-water may be employed as long as such are necessary. Atmospheric moisture in a Fig-house at this season is better generated by damping of the floor and between the pots than by overhead syringing, and even this should be modified to suit external conditions.

Late Melons.—The syringing of the foliage should entirely cease, and a brisk bottom and top-heat is necessary in houses or pits where there are half-matured fruits in order to prolong the activity of the roots of the Melon plant. For this purpose light dressings of loamy soil, with a slight addition of decayed manure, lime-rubbish, and burnt refuse will be a great help. Let this dressing be made firm by hand pressure, a firm soil being an important matter in Melon-culture. Keep the soil immediately surrounding the stems of the plants dry, as a preventive against canker. Afford water at a slightly higher temperature than that of the house, but do not apply it over abundantly, the amount being governed by the conditions under which the plants are growing. Beds overlying chambers heated by hot-water pipes will naturally require more frequent applications than others which have beds of tree-leaves or manure beneath them. A large bed of soil is decidedly objectionable where late Melons are desired. Growth will not be freely made now, nor is it necessary, the primary leaves on plants that have set two or three fruits being quite enough, without encouraging laterals.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Late Cauliflower and Early Broccoli.—As night frosts may now be expected, it is a matter of prudence to lift such of Cauliflowers and Broccolis thrice a week as are of a useable size, and lay them in somewhat close together on a sheltered border to be protected with fern or litter when frost seems imminent. It is easy to maintain a constant supply of heads by this method, till the first week in February. Pits and frames, Peach-houses, &c., may also be used for storing them, and they may be kept for several days in a fresh condition by merely suspending in a not too airy shed. The stumps of those which have been cut, and all decaying leaves, should be removed from the quarters. Autumn Giant Cauliflower, and Self-protecting and Snow's Broccolis, afford heads in succession.

Sea Kale.—The plants which have been prepared for forcing, should be stripped of the dead leaves, and the soil freed from weeds, so that the crowns may mature without hindrance, the well-ripened crowns forcing more readily than ill-matured ones. In order to obtain very early Sea Kale, the crowns should be dug up fully a fortnight previous to placing them in heat, taking care of the young roots or "thongs," which may be cut off the proper length, sorted into different sizes, and placed in boxes of light soil in readiness for planting in the spring.

Beetroot.—The roots may now be taken up and stored for the winter, either in soil or sand, in sheds or pits. The roots require careful handling, the adhering soil should be rubbed off by the hand, and the leaves twisted off. If the shed or cellar is frost proof, it is sufficient to merely cover them with a small quantity of straw. Another method is to lay the roots closely together in deep furrows dug out with a spade on a border, burying the crowns of the roots about 2 inches deep; throw some bracken or long litter over them in frosty weather.

Mushrooms.—The temperature of the Mushroom-house may be kept between 55° and 60°. No artificial heat will be made use of for the present, the warmth arising from the new beds keeping the temperature sufficiently high. Lose no chances of collecting stable-manure. Throw it into heaps and ridges, and turn these at intervals of a week to sweeten and free it of the excess of ammonia. Beds which have been spawned and cased with loam, should receive a light covering of hay or litter.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, Oct. 10. — Royal Horticultural Society's Committee.
National Rose Society's Committee.

SHOW.

TUESDAY, Oct. 10. — National Chrysanthemum Society's Exhibition at Royal Aquarium (three days).

SALES.

MONDAY, Oct. 9, and the following Tuesday, Wednesday, Thursday, and Friday, Dutch Bulbs at Protheroe & Morris' Rooms.

TUESDAY, Oct. 10. — Sale of The Firm (Warwick) Collection of Established Orchids formed by the late Major Mason, J.P., by Protheroe & Morris, at 12.30 o'clock. Three days.

TUESDAY, Oct. 10. — Clearance sale of *Euonymus*, *Palma*, &c., at the Saxe-Weimar Nursery, St. Edward's Road, Southsea, by order of Mr. T. J. Short, by Protheroe & Morris, at 12.30 o'clock.

WEDNESDAY, Oct. 11. — Great Annual Sale of Fruit-trees, at the Nurseries, Perry Hill, Cliffe, near Rochester, by order of Mr. W. Horna. Two days.

FRIDAY, Oct. 13. — Clearance Sale of Greenhouse and other Plants at the Clay Hill Nurseries, Enfield, by order of Messrs. Elwell & Pitcairn, by Protheroe & Morris, at 2 o'clock.

FRIDAY, Oct. 13. — Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period September 24 to September 30, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			LOWEST TEMPERATURE ON GRASS.	
SEPTEMBER 24 TO SEPTEMBER 30.	AT 9 A.M.		DAY.	NIGHT.	At 1-foot deep.	At 2-foot deep.		At 4-foot deep.				
	Dry Bulb.								Wet Bulb.	Highest.		Lowest.
SUN. 24	W.N.W.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.		
MON. 25	W.S.W.	58.0	52.8	61.1	51.5	0.01	55.9	57.7	59.0	48.8		
TUE. 26	W.S.W.	58.1	51.9	61.7	48.4	...	57.1	58.1	58.9	40.3		
WED. 27	S.W.	54.5	50.6	60.2	47.9	0.11	55.6	58.1	58.6	40.2		
THU. 28	W.S.W.	47.5	44.3	58.8	36.6	...	53.9	57.6	58.4	28.1		
FRI. 29	S.S.W.	45.0	44.1	57.3	32.9	0.98	52.1	57.1	58.2	24.4		
SAT. 30	S.S.W.	47.2	45.9	55.8	44.9	0.02	53.9	56.3	58.1	35.6		
MEANS...	...	52.0	49.2	59.4	44.0	0.14	54.7	57.6	58.6	36.5		

Remarks.—The weather has been cold and showery, with a thunderstorm on the 27th, and a heavy fall of rain on the 29th.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—52.1°.

ACTUAL TEMPERATURES:—

LONDON.—October 4 (6 P.M.): Max. 59°; Min. 51°.

PROVINCES.—October 4 (6 P.M.): Max. 67°, Exeter; Min. 43°, Orkney.

The feeling of the meeting called together at the Crystal Palace to support, as far as possible, the horticultural department of the great exhibition to be held in Paris next year will, we hope, be fully reciprocated by the horticulturists of this country. The idea of "boycotting" the Exhibition, which was mooted in some quarters, seems to us to be extremely silly and childish; and now, at any rate, there can be no reason for the adoption of any such puerile practice. It is true that in the times of our forefathers the French boycotted us pretty severely, but we managed to survive, and are none the worse for it now. In a sense, the French still boycott us by their protectionist enactments, which they consider necessary for the welfare of their agri-

culturists and manufacturers. We could send them plenty of Grapes for one thing, of which they would be glad, but the protectionist system forbids the Frenchman from obtaining what he would like to have and pay for at market rates, and compels him to purchase from his own compatriots articles of inferior quality or of higher price. Still, anyone who travels in the north of France at this season, can judge of the magnitude of the interests involved in the cultivation of Beet, and in the manufacture of sugar from that root. Whatever may be his views on fiscal matters, everyone must admit the enormous difficulties and dangers of unsettling existing arrangements. The proper course for us is to increase the production and quality of the Sugar-cane in our West India islands, and other sugar-producing colonies. The discovery of the seedling Sugar-cane opens up great possibilities in the way of selection and cross-breeding. Capital and patience are of course indispensable, as well, probably, as improved machinery. At any rate, in the person of Dr. MORRIS, the Imperial Commissioner for Agriculture in the West Indies, the Government can rely on the application of sound, scientific principles to the practice of tropical agriculture in whatever form. This digression really leads us back to the Paris Exhibition. We shall go there not merely to exhibit our own products, but to learn what our neighbours are doing, and, where necessary and permissible, of taking a leaf out of their book. Even in the matter of sugar manufacture, which has been given up as unprofitable in this country, we are not at all sure that our failure might not be converted into success by the development of a root containing a larger percentage of sugar.

To turn to matters more within our own special department, we know that in some points, and for certain classes of plants, France has a great advantage over us in her climate. But that applies chiefly to the south. In the north the climate is little, if any, better than our own. In the centre it is worse, in that it is subjected to more violent extremes. In the west, and especially in the south, France has the advantage, and, speaking generally, she has more of that precious element, light.

With the introduction of the electric light into horticultural practice, which would have been done long ago were we not so incurably conservative and apathetic, that difference would be lessened. Those few of us who, several years since, saw the marvellous results produced by Sir WILLIAM SIEMENS in what seemed a miraculously short space of time, felt assured that in the application of the electric light the horticulturists of the future would have an enormous advantage within their grasp if they chose to avail themselves of it. Our American cousins have already adopted it for commercial purposes, and we might do the same. At the Paris Exhibition, doubtless, we shall have opportunities of seeing how this may be done.

Our horticulture on the whole, and considering the conditions under which we work, is in advance of French gardening. High-class gardening is at a much higher level here than in France; and in fruit-growing, and even in vegetable-growing (with few exceptions), we are able, we believe, to more than hold our own. At any rate, let us take the best we have, and let us go and see whether we are to be subjected to the salutary practice of having the conceit knocked out of us, or whether British gardening does not, as we believe it does, take the lead when all circumstances are considered.

CATTLEYA WARSCWICZII.—In consequence, probably, of the past torrid and bright summer, the plant which is commonly called *Cattleya gigas* is flowering exceptionally well in most gardens, and in some places it is producing most extraordinary flower-spikes. In the Rt. Hon. Lord ROTHSCHILD'S gardens, Tring Park, his lordship's gardener, Mr. E. Hill, has secured one of the finest shows of *Cattleya Warscewiczii* he has ever had, some of the flower-spikes having each six very large and handsome flowers. Plants of *C. aurea* and *C. x Hardyana* have also flowered well. A grand spike, with six fine flowers, is sent by Mr. T. W. Bond, gr. to C. L. N. INGRAM, Esq., Elstead House, Godalming, who remarks that it is the finest he has ever seen. Our illustration (fig. 95, p. 281), represents a noble spike of *Cattleya Warscewiczii*, bearing seven very finely-coloured flowers, some of them nearly 10 inches across, which was sent by Mr. R. Cairns, gr. to J. M. WHITE, Esq., Balruddery, near Dundee. The fact that these extraordinary flower-spikes have appeared in several gardens this year seems to prove that some seasons are more suitable to certain species than others.

PARIS EXHIBITION, 1900.—On Thursday last, at the Crystal Palace, there was a meeting of the Horticultural Section of the British Commission to consider the subject of a representation of British horticulture during the great International Exhibition in Paris next year. Sir TREVOR LAWRENCE occupied the chair, and explained the objects of the meeting. Mr. HARRY VERTCH and Sir W. T. THISLETON DYER also supported the Chairman in the hope that the horticulturists of the United Kingdom would be animated by a feeling of public spirit such as would show the world of what they were capable. The questions were reviewed and discussed by Mr. JOHN WRIGHT, Mr. MCINDOE, Mr. HUDSON, Mr. GEORGE MUNRO, and others. Monar. MAXIME CORNU, of Paris, was present, and spoke in high appreciation of the Fruit Show he had seen that day at the Palace, laying special stress on the quality of the Apples and the Grapes, which he thought were very fine, and assured the meeting that his countrymen would feel very pleased to have English exhibitors amongst them. Further details or schedules can be obtained at the offices of the Royal Commission Paris Exhibition, 1900, St. Stephen's House, Westminster, S.W.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Floral and Fruit Committees will be held on Tuesday, October 10, in the Drill Hall, James Street, Westminster, from 1 to 5 P.M. At 3 o'clock a lecture on "The Injurious Scale Insects of the British Isles" will be given by Mr. R. NEWSTEAD, F.E.S.

NATIONAL ROSE SOCIETY.—A meeting of the Committee will be held at the rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, the 10th inst., at 3 P.M. The agenda consists of 1, report of Catalogue Committee; 2, programme for 1900; 3, to consider any suggestions for the alteration of either bye-laws or regulations; and other business. H. HONYWOOD DUMBRAIN and EDWARD MAWLEY are the Hon. Secretaries.

NATIONAL CHRYSANTHEMUM.—Mr. R. DEAN writes:—"In your report of the meeting of the Floral Committee of the above Society on the 27th ult., which appears on p. 272, you say, 'Sufficient members of the committee were not present to form a quorum.' Six members form a quorum of the Floral Committee, and eight members were present on the 27th; but a quorum of ten members must be present to award a Certificate of Merit, and then the voting must be unanimous; and if more than ten members are present, a majority of three-fourths is necessary." It was, of course, in respect to the granting of Certificates that our remark was made. At subsequent meetings much inconvenience may be caused to country exhibitors if no steps be taken to prevent such a circumstance happening again.

HORTICULTURAL CLUB.—The first monthly dinner and *conversazione* for the season 1899-1900, will take place on Tuesday, October 10, at 6 P.M., at the Hotel Windsor, Victoria Street, S.W. The subject for discussion on this occasion will be British wild flowers suitable for garden culture, to be opened by Mr. GEORGE BUNYARD, V.M.H.

becomes a matter of importance to gardeners. The professor remarked that "with regard to buds in plants there is reason to believe that they share in the growing-old of the parent. That is to say, if we suppose the average life of the individual to be a hundred years, a bud removed at fifty, will be fifty years of age, and be able to live on the graft for fifty more years."

development and structure of the embryo; the anatomy of the seedling and adult plant; and a comparison of Ginkgo with other genera, and its place in the plant kingdom. The paper also contained a general consideration of the evidence available towards an account of the past history of Ginkgo and closely allied plants; a comparison of Ginkgo with various fossil types from Palæozoic, Mesozoic, and Tertiary strata; and the geographical distribution of Ginkgo during the Mesozoic and Tertiary epochs.

PRESENTATION.—Mr. D. JOHNSTON, who for two years past has been head gardener to H.H. Prince HATZFELDT, at Draycot Park, Chippenham, Wilts, was presented on Thursday last, by the *employés* under him and a few friends, with a very handsome Meerschaum-pipe and a portmanteau, on the occasion of his leaving the Prince's employ, as a slight recognition of their appreciation of his services. Mr. JOHNSTON suitably acknowledged the compliment, and general regret was expressed that Mr. JOHNSTON was severing his connection with the estate.

SEED GUARANTY IN FLORIDA, U.S.A.—In Florida it is now unlawful to offer for sale any garden-seeds, unless the same are in packages bearing on the outside in plain letters a guarantee certificate of when, where, and by whom the seeds were grown.

FLOWERS IN SEASON.—As showing the lingering floral beauties of a Devonshire garden, and for that matter of other gardens situated in the southern counties, Messrs. ROBT. VEITCH & SON, Royal Nursery, Exeter, send flowering shoots of *Desmodium pendulifolium*, with numerous flowers and unopened flower-buds; *D. japonicum*, with light purple-coloured flowers, more showy than the former; *Caryopteris mastacanthus*, its shoots covered with cheerful-looking, bright blue flowers; *Calycanthus occidentalis* syn. *macrophyllus*, with large fresh foliage and terminal, crimson orange-tinted flowers; some shoots of *Clerodendron trichotomum*, showing opening flowers; *Spiræa Watereri*, with deep crimson corymbs of bloom; *Ceanothus Gloire de Versailles*, one of the best and brightest varieties, colour pale blue; and *Buddleia intermedia*, with thin risps of violet flowers. Shoots bearing seed consisted of *Koeleruteria paniculata*, well furnished with its triangular-shaped green and coppery-red seed-vessels; *Euonymus latifolius*, with expanded scarlet capsules, very showy; *Sorbus aria* and *Catalpa syriacifolia*.

MR. CHARLES HERRIN.—Our old correspondent, Mr. C. HERRIN, who at the present time is furnishing the calendar for the Hardy Fruit Garden in these columns, is, as we learn, about leaving Dropmore; and we trust that so good an all-round gardener will soon meet with a suitable appointment.

THE DEVON AND EXETER GARDENERS' ASSOCIATION.—As will be seen below, an excellent syllabus has been arranged for the autumn session of this Association. On Wednesday, October 11, Mr. FLETCHER, gardener to Colonel HALFORD THOMPSON, J.P., will read a paper entitled *Dahlias*; on Wednesday, October 25, Mr. G. STILES, gardener at The Grove, Teignmouth, will give a practical lesson on dressing *Chrysanthemum* blooms for the exhibition table; on Wednesday, November 8, Mr. W. CHARLEY, Wonford House gardens, will read a paper on garden walks and drives; on Wednesday, Nov. 22, Mr. W. MACKAY, Royal Nurseries, Exeter, will discourse upon cut flowers and their arrangement; on Wednesday, December 6, Mr. J. REYNOLDS, gardener to Sir CHARLES D. CAYE, Bart., Sidbury Manor, will give a lecture on winter-flowering plants—the *Cyclamen*, the *Carnation*, and the *Euphorbia*; and on Wednesday, December 20, Mr. F. W. E. SHRIVELL, F.L.S., Thompson's Farm, Tonbridge, Kent, will read a paper on further experiments with chemical manures in kitchen and market gardening. The President of the Associa-



FIG. 95.—*CATTELEYA WARSCIEWICZII* WITH SEVEN FLOWERS UPON A SPIKE, IN THE GARDEN OF J. M. WHITE, ESQ., BALRUDDERY, NEAR DUNDEE, N.B. (SEE P. 280.)

SENILE DECAY AND REJUVENESCENCE OF ORGANISMS.—In dealing with the question of the renewal or reparative processes continually taking place in the organism, Professor SEDGWICK, in the course of his opening address on Zoology at the meeting of the British Association, stated as his opinion, that there is no reason to suppose that the reparative process of any organism is sufficiently complete to prevent senile decay. If this be so, the age of a plant from which grafts are taken

GINKGO BILOBA.—Mr. A. C. SEWARD, in conjunction with Miss J. GOWAN, contributed a paper at the meeting of the British Association, on the Maidenhair Tree (*Ginkgo biloba*, L.). The chief points dealt with in the paper were the history of our knowledge of Ginkgo; its external features and peculiarities; the variability in form and structure of the leaves; the structure and morphology of the male and female flowers; the pollination and fertilisation of the ovule; the

tion is EDWARD A. SANDERS, Esq., J.P.; Hon. Secretary, ANDREW HOPE; and Hon. Treasurer, W. MACKAY.

AFFORESTING IN IRELAND.—After repeated requests to reforest some of the denuded vales and mountains of Ireland, the Rathmines Commissioners have yielded, and are giving a slight practical impetus to this much desired question; they have recently started planting several thousand trees in the hills adjoining the suburban parts of Dublin, their labours being principally confined to their waterworks and the country contiguous; the largest number of trees are to be planted at Bohernabreena (co. Dublin); the kinds include Larch, Spruce, Scots Pines, &c. The work is under the able supervision of Mr. CRANMER, their foreman gardener.

BOTANICAL MAGAZINE.—The number for the present month contains illustrations and descriptions of the following plants:—

Lonicera Hildebrandtiana, discovered by Sir H. COLLETT, in the Shan Hills, at an elevation of 5000 feet. The flowers change with age, and have been figured and described in the *Gardeners' Chronicle* as a brilliant flame colour, and as orange-scarlet. In the Kew plant the buds are white, faintly tinged with pink; the fully-opened flowers golden-buff, passing into yellow-brown in age. A tall, woody, glabrous climber, with terete branches and branchlets. Leaves broadly ovate, broadly cuspidate, 5 to 6 inches long, bright green above, paler beneath, marked with a few brown glands. Flowers geminate on a stout terete peduncle; corolla 7 inches long; tube 4 inches; lip revolute. Fruit an inch long, ovoid.

Kalanchoe thyrsiflora.—Introduced from the Cape of Good Hope by Commendatore HANBURY, La Mortola, by whom seeds were distributed to various botanical gardens in 1891; a very stout, erect, pale glaucous-green, glabrous herb, 1 to 1½ ft. high, with an erect sessile cylindrical thyrsis of densely-flowered panicle 6 to 12 inches high and 3 inches in diameter. Flowers short pedicelled, about ¼ inch long, corolla tube ovoid-oblong, glaucous-green, lobes small, spreading and recurved, bright yellow within.

Stylidium crassifolium.—A native of south-west Australia. Plants have been raised at the Royal Gardens, Kew, from seeds received from Quartermaster-Sergeant B. T. GOADBY, of the West Australian Engineers. A greenhouse plant producing in spring racemes nearly 2 feet high. A tall, rigid, nearly glabrous herb, with radial leaves 4 to 8 inches long, and a narrow inflorescence scape, with the sub-paniculate raceme, erect or inclined; calyx tube ¾ of an inch long; corolla of four spreading oblong pink lobes in opposite spreading pairs.

Berlandiera tomentosa.—A native of the Pine barrens of N. Carolina to Florida, and westward to Arkansas and Missouri. Seeds were sent to Kew by the Rev. L. H. LIGHTHIZE, of Jacksonville, Fla., in 1898, plants from which flowered in a cool greenhouse in May and June this year. The flowers proved very persistent. A slender, sparsely-leaved perennial, 12 to 24 inches high, more or less hoary or glabrate; lower leaves oblong, obtuse, crenate, narrowed into a petiole about 2 inches long, which is winged about the middle; flower-heads few, in a terminal corymb, 1½ to 2 inches in diameter; disc flowers, enveloped in green bractioles, dark red-brown; ray flowers about eight, orange-coloured.

Rhododendron dilatatum.—Discovered early in the century in Japan in the mountains of Okayama and Hakone, in the province of Sagami, Nippon. A small, much branched, nearly glabrous bush. Branches very slender, leafy at the tips only, covered with a very dark brown bark; young branchlets red. Inflorescence terminal, flowers geminate; corolla 2 inches in diameter, deeply two-lipped, bright rose colour, fading to white at the base, tube very short; stamens five, declinate and incurved; filaments very slender, rose-red; style slender, and stigma minute.

PUBLICATIONS RECEIVED.—*The Photogram*, Vol. vi., No. 70; the number containing studies from the nude; examples of photographing flowers; notes on the fading of prints; some methods of measuring shutter speed; and a variety of technical matter.—*Bulletins Nos. 71-77*, inclusive of Vols. ix. and x., from June, 1898, to March, 1899, of the Purdue, Indiana, U.S.A. Experiment Station.—*Twenty-second Annual Report of the Connecticut Agricultural Experiment Station for 1898* (Lockwood, Brainard & Co., Harting, Conn.).—*Report of the visit of Essex Agriculturists to Holland, May and June, 1899.*—*A Nocturne. Scene, a Village Church in a broad and pleasant Valley of Dartmoor.*—*Transactions of the Massachusetts Horticultural Society, for the year 1899* (Boston, printed for the Society), Parts i., iii.—*Century Book of Gardening*, part v.—*Catalogue of the trees and shrubs in the Arboretum and Botanic Gardens of the Experimental Farm, Ottawa, Ontario, Canada* (Government Printing Bureau, Ottawa).—*Die Natürlichen Pflanzenfamilien*, parts 190 and 191 (Leipzig: Wilhelm Engelmann, Bookseller).—*Journal of Botany*, part xxxvii.—*Bulletin de la Société Botanique de France*, 30 series, tome vi.

THE BULB GARDEN.

HYACINTHS IN THE HOUSE.

Those who grow Hyacinths in glasses (and the art of doing so is a very pleasant indoor recreation), should not be in too great a hurry to place their bulbs in water. I think failures often result from this course. I would certainly say select the bulbs as soon as possible, taking care to secure sound ones, and then lay them by in a cool, dry place in the light, until the base of the bulb where the roots issue begins to swell, and a coronal of embryo root-fibres, bright and fervent, are ready for development. This can be seen by the middle or end of October, and then the bulbs can at once be placed in glasses.

As to the best type of glass, that with the broad, flat base, which G. P. Tye introduced a half century ago, is still the best, because the weight of water in the bottom of it, and its broad base, prevents any probability of its toppling over, and destroying both glass and plant, as the old chimney-glasses of our forefathers used to do, and as some of the elegant, upright glasses of the present day are apt to do.

Clean glasses are indispensable. It may appear to some to be unnecessary, but it is wise to scald the glasses well inside with water to make sure they are perfectly clean. Clear, fresh rain-water is best, but water drawn from the cistern used for domestic purposes will do. Having filled the glass, place two or three lumps of charcoal in the water, and then the Hyacinth bulbs, allowing the water just to touch the base, and then put them away in the dark to ensure a downward root-growth, which comes soon and in full measure, if the base of the bulb has the indications above-mentioned.

Failure with Hyacinths arises from various causes; one is using tainted water at the outset: some injurious quality of the water communicates itself to the roots; they perish through the water becoming offensive, and there is failure. This result will sometimes arise from bulbs which may have some wound in them, yet it is of but very rare occurrence. But the chief cause of failure is lack of attention; so many start well, then interest in the work declines, and an easy descent to neglect follows. Successful Hyacinth-culture in water means a round of little attentions constantly given, keeping the waste of water by evaporation and the necessities of the bulb supplied, shading from the hot sunshine at midday, which often comes in early spring, removing the glasses from the window at night when there is a danger of frost reaching them—a calamity which has happened to any bulbs over and over again. There is, in addition, the duties of keeping the glasses in the light, where air can circulate about them, and the occasional sponging of the leaves from dust, so that the conditions of development shall be healthy.

And for those who do not care to grow bulbs in water, there is a valuable mixture of finely-sifted Cocoa-nut fibre and powdered charcoal, in equal proportions, which is a very useful compound indeed for our purpose where good, sweet soil cannot be had. With such pots, glasses, jardinières

—all the various vessels which have been called for by some feature of indoor gardening, many bulbs may be grown, and pretty floral pictures for the house. R. D.

BELLADONNA LILIES.

We find the above-named handsome Liliaceous plant to succeed well with us in Yorkshires, and wonder sometimes that they are not more commonly grown in gardens. Their culture is simple in suitable positions. We have two rows of them, one about 90 feet in length, in front of what was once a range of Pine-pits; the other, not quite so long, in front of a plant-stove and a warm Orchid-house. Both positions face due south. This season there are, and have been, hundreds of flower-spikes, each are with from seven to twelve flowers and buds upon them. The first-named lot have been planted in their present position three years; the others were planted some fifteen years ago. When we lifted a part of this border three years since, the whole space of some 18 inches in width was quite a mass of massive bulbs. Now is a good time to plant if fresh bulbs are purchased, as soon as they have finished flowering being a good time to do this if home-grown bulbs are to be used. We usually dig out the soil to a depth of 20 inches, and 18 inches from the base of the wall outwards; then put in some broken bricks or clinkers for drainage, over this put sods grassy side downwards, and then fill up with a compost of sandy-loam, three-parts to one-part Mushroom-dung, and leaf-soil. If fresh loam is not at hand, old potting-soil from worn-out Chrysanthemums or forced Strawberries will answer very well if properly broken up and turned over once or twice.

I ought here to mention that we put an edging of pieces of thin limestone or bricks set on their ends at the outer edge of the border. This allows of the border in which the bulbs are planted to be raised up a few inches above the alley that runs in front of it. Our object in doing this is to gain an increased temperature in the soil during the early summer months, when the bulbs are forming their flower-spikes. When putting in the soil, use care in spreading it equally, not throwing it in by spadefuls; as is well known to many, the mechanical condition of the soil for outdoor subjects has quite as much to do with their success or otherwise as in, say, potting Orchids. Firm the compost either by treading if not too wet, or by using a small rammer. Do not plant the bulbs too deeply; if covered, say, 2 inches from the apex of the bulb, it is quite enough. If the soil is at all dry, afford a good soaking of water, and mulch with old Mushroom-dung to keep out frost in winter. Not many flower-spikes will come up the first year after planting; after that, they should bloom annually, and continue to do so for many years. The only after attention is to prick up a few inches of the surface of the border with a hand-fork after the flowering season, and give a good mulching of fresh soil and Mushroom-dung in equal parts. When the early part of the summer is dry and hot, two or three good soakings of diluted sewage should be afforded. Last autumn, with a view to increasing the length of the flowering season, I planted some big bulbs against the back wall of a lean-to Peach-house; and I found that they bloomed very little, if any, earlier than the outdoor-grown bulbs. I am sending you herewith some flower-spikes of Belladonna Lilies. *H. J. Clayton, Grimston, Tadcaster.* [These were very fine corymbs indeed. ED.]

PLANT PORTRAITS.

GUSTAVS DAUERAPPEL (Longkeeper).—Several large trees of this variety were discovered growing in loamy soil in the vicinity of Bodensee, near Constance. The fruit is of pyramidal form, not unlike *Manx* Codlin, of a bright crimson colour; middle size; eye open, set in a wrinkled, shallow cavity; stalk half an inch long, set in a funnel-shaped basin of the same depth, and woody; flesh firm, yellowish, juicy, flavour sweet, vinous, and the fruit keeps in good condition from December to May. It has yet to be ascertained if the variety is suitable for light or sandy soils. Supposed to have originated from the Wurtemberg Apple, *Kleinen Fleiner*; and it assumes its finest colour after being stored. *Gartenfrucht, September 16, 1899.*

CHANGE OF SEX IN BEGONIA.

SINCE Messrs. Laing and M. Lemoine began their wonderful proceedings with the Begonia, we have had all sorts of eccentric conditions arising. Some of these excited much comment in these pages many years ago, and formed the subject of comment by C. Darwin, Sir Joseph Hooker, and others. One of the most frequent changes is the change of male to female flowers, or *vice versa*. In the case before us, kindly forwarded by Mrs. Soane, the male flower, or what should have been the male flower, has assumed the characteristics of the female. The stamens, in fact, as may be seen from the illustration (fig. 96), have assumed the guise of ovaries bearing ovules. The case, then, may be classed under pistillody of the stamens.

HOME CORRESPONDENCE.

CLEMATIS GRAVEOLENS.—This climber which may be likened to a yellow-flowered Clematis flammula, is a native of the temperate Himalayas, on the borders of Thibet. I am at a loss to find how it deserves its name, for if I gather half-a-dozen flowers together, I can perceive very little scent, and that not disagreeable. Four or five years ago a plant grew, and perhaps still grows in a large mass on the terrace of the Colwyn Bay Hotel, just above the shore. Thinking it ornamental, I obtained two plants, of which one now grows over the arch of a garden-door, and spreads on to the roof of a garden-house, where its abundant yellow-flowers, with purple stamens, and elegant pendent growth, last till late in the autumn, and are succeeded by the white beads, so familiar in the Traveller's Joy. The other grows up the stem of an Apple tree, and hangs from the lower branches. I do not know what Apple growers may think of this, but in the mixed arrangements of Edge garden, where fruit-trees grow in the flower borders, I utilise their trunks in this way, planting against them not only Clematises, but Climbing Roses, and Penzance Sweet Briars, and whether the trees like it or not, they continue to bear quite enough Apples for my use. C. Wolley Dod, Edge Hall, Malpas.

PEACHES FROM A STANDARD TREE IN THE OPEN AIR.—I saw recently a fine healthy Royal George Peach growing as a standard tree in Barham Court gardens, Maidstone. Mr. Woodward, the gardener there, informed me that he had removed it from an unheated orchard-house ten years ago, because it used to suffer from mildew. It has now made a fine head, measuring about 15 feet by 9 feet, and is about 10 feet in height. Fifteen dozens of fruit were gathered from it this year; and one of the last which I ate was of excellent texture and flavour, and weighed about 8 oz. The growth of this tree is perfectly healthy, and under the excellent methods of culture adopted by Mr. Woodward, it affords a crop of fruit every year. The tree was planted temporarily in a bed of coal-ashes and rubbish, and some loam was added to the bed after the tree began to show signs of succeeding. It occupies a sheltered position between some unheated fruit-houses. W. H. Divers.

PROTECTING PEACH-TREES WHEN IN FLOWER.—Mr. Markham's note on the above subject, in your issue of September 16, p. 230, will doubtless lead to much evidence for and against the protection of Peach and other fruit-trees in the flowering season. I fear that in this regard, unless the trees during the entire period of flowering are kept under close observation, but few facts of any value will be obtained. The ordinary observations which I have been enabled to obtain seem to show that frost does destroy the reproductive organs of the Peach-blossoms, but seeing that the Peach takes about fourteen days in developing the whole of its flowers, and as it is very seldom that sharp frosts occur on as many consecutive nights, many flowers may escape injury, even when no protection is used; and again, on healthy trees fifty flowers will be produced on a spire where only one or two fruits would be left to furnish a fair crop. Therefore, a tree may produce a good crop of fruit after being left unprotected during the flowering period, notwithstanding sharp frosts may have occurred, and numerous flowers been destroyed. As far as my observations have gone, ordinary spring frosts cause no injury to the unexpanded blossoms or

young fruits, provided they are set perfectly. But I have noticed that when the pollen is ripe, and the stigma in a fit condition to receive it, a few degrees of frost are sufficient to fatally injure the flowers. The cause of this I have thought to be that the style might contain a small quantity of the viscid secretion which is found on the stigma, and when a frost is experienced during that critical period, the channel of the style, if I may so describe it, by which the pollen is conveyed to the ovules, bursts open, and is thereby unable to perform its functions. The Peach-trees in this garden are protected in the spring with a board coping, from which doubled fish-netting is suspended. The upper halves of the trees this year carry an abundant crop of fruit, but the lower portions have hardly a fruit. A coping of either wood or glass acts as a good protector against frost, and keeps the flowers dry, and consequently less liable to be injured by frost. Geo. Woodgate, Rollston Hall Gardens, Burton-on-Trent.

OUR FEATHERED FRIENDS.—I was much taken up with Mr. Harrison Weir's note on birds (pp. 237, 238), and moreover was glad to learn he can count

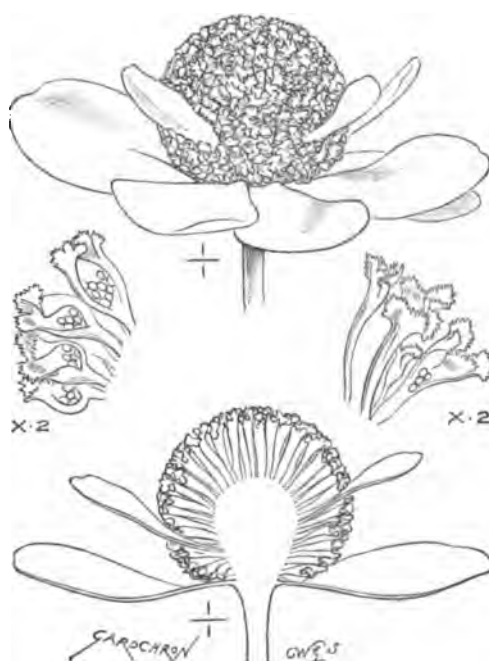


FIG. 95.—MALE FLOWER OF BEGONIA TRANSFORMED INTO A FEMALE BLOSSOM BY PISTILLODY OF THE STAMENS.

among his garden friends the nightingale; further, he does not condemn the tits, which go occasionally for his Sunflowers and Pears. This state of things "can only be" for some eight or ten weeks in the year. On what do our non-migratory feathered friends subsist for the remaining weeks, i.e., until fruit-harvest comes again? Is it not good they do in devouring countless numbers of insects of all descriptions, and seeds of pernicious weeds which, by-the-way, mature their seeds in hedgerows, shrubberies, woods, and places where the eye of man never penetrates? I notice in districts where birds are most encouraged, insect pests are least troublesome in the garden or on the farm. Has Mr. Weir taken note that the song-thrush invariably repairs to one and the same stone, if it serves well the purpose for his delicate repast? I remember seeing a good representation of the song-thrush and worm on a grass-plot as a sketch in a paper, the name of which I do not recollect, some time ago, in three acts, namely, (1) Eh? (2) Oh! (3) Ah! Mr. Weir will see the drift of the sketch when he calls to mind the attitude taken up, and satisfaction shown by the bird in the different acts. The thrush is hopping across a lawn, and spies a worm half-way out of its burrow, and exclaims (1) Eh? Tugs a little; breaks it in twain. (2) Oh! and tugs again at the other fast disappearing half; this time is successful in drawing his prize. (3) Ah! And with a self-satisfied look starts off in search for another. M. G.

CORTADERIA LAMBLEYI?—When I sent you the photograph reproduced on p. 335 of your issue for May 27, 1899, I gave it the name received with it many years ago when sent me from a London nurseryman, but as to the correctness or accuracy of which I had for some years entertained strong doubts. Having recently received from a nurseryman at Orleans a plant of a variegated-leaved Pampas-grass named Cortaderia Wesselinghi, which is now in flower, it is evident to me, that it is identical in every respect with what I have hitherto known as Cortaderia Lambleyi. I think, therefore, that the latter name should henceforth be dropped, discontinued, and forgotten, and the name by which it is known on the Continent (where nice plants of it can be obtained for a few pence) adopted as the correct name of the plant. I consider it to be a most desirable variety, being of a dwarf and compact habit of growth, perfectly hardy, and exceedingly free-blooming; as my plant, though only of medium size, is now bearing no fewer than thirty-three perfectly-developed spikes of its distinct and pretty inflorescence. Another, even whiter and more perfectly variegated variety, with pure white plumes, was sent me at the same time from France under the name of C. Stenackeri, which every lover of grasses should grow. W. E. Gumbleton, Belgrove, Cork.

THE FRUIT-PACKING CLASSES AT THE CRYSTAL PALACE.—Having been requested to act as one of the judges in connection with a portion of these packing classes, I can but express my regret that the conditions annexed to them should be of so imperfect a nature that no stress is laid on the method of transit. Indeed, no evidence that the packages have been sent by rail as ordinary consignments of fruit to a market was shown or required. That was a particularly weak feature of the case. Hence we saw fruit, and I readily grant very fine fruit indeed, sent to the Palace in ordinary London bushels and half-bushels, with just a lining of thin blue paper next the sides, or in some cases barely so much, conditions of packing that would not only be disastrous were the fruit sent per rail as an ordinary consignment, but which would cause them to be almost unsaleable in the market. It was evident that the bulk of the packages had been sent in vans to the show by the different competitors, and had not been on the rail, or else they had been brought by the exhibitors to the show as personal luggage; conditions of transit, in either case, that are no test of the methods of packing at all. That my colleagues, as metropolitan market-men, were satisfied with examples of the common method of sending fruit to market from a near area, and per van, was but natural. They especially regarded quality of fruit as thus presented as of the first importance, because of its market value. But I preferred to chiefly regard the method of packing as of the first importance, because it is in relation to fruit sent a long distance by rail to market that the late James Webber, and Mr. George Munro, our referee, unfortunately, and not fellow-judge, at the Palace, laboured so much in the past by prizes and by admonition to improve. The packing conditions which suit metropolitan market-growers who send their fruit in their own vans will not answer at all for growers, who must send by railway, and it is this class whose case and interests should be considered. The two most perfect examples of long-distance packing were found in the cross-handle baskets of Grapes, the flats or squares being the most cumbersome and unsatisfactory things; and these same squares packed with Apples or Pears in wood-wool, as presented by Mr. Basham for his method of long-distance travelling, seemed to be absolutely perfect. In the case of Mr. Tebbutt's Lady Heniker Apples referred to in your report as altogether too highly piled in the basket, quality of fruit was held to outweigh this undoubted defect. But it is of no use to complain because of what was done; it is too late. Another year I hope that whilst there may be classes for metropolitan growers or exhibitors, there will be classes specially for country growers, who shall be requested to send their fruit by railway, and have them delivered in the companies vans at the Palace as they would deliver to the market. A. D.

MARÉCHAL NIEL ROSE ON VARIOUS STOCKS.—I was pleased to read the remarks on p. 250 by "J. K.," and still more so, that we are promised more of them. With all its faults, Maréchal Niel is still our best yellow Rose, and could we only prevent or cure the swelling or canker, and strengthen its flower-stalks, it would be as near

perfection as possible. I have tried a great variety of stocks in order to cure the first two maladies—budding it on the climbing *Devoniensis* or climbing *Niphetos* on their own roots, with more or less success; but have not tried treble budding, first on the Briar, second with *Devoniensis*, and finally with *Maréchal Niel*. How the Briar stock, budded with the normal *Devoniensis*, which is by no means very robust, should have fostered such strong growth as in this case, is rather mysterious. It must be quite a remarkable experience to grow a shoot of the *Devoniensis* Rose 17 feet long, and strong enough to receive buds. Surely, "J. K." has got hold of the Climbing *Devoniensis*. By the way, *Maréchal Niel* Rose lived longer, and did well on the *Devoniensis* stock on its own roots, although it did not wholly escape its special malady. And this is the great boon your correspondent promises through double grafting! As to blooming a second time, when worked on W. A. Richardson, a second or more frequent blooming is more a matter of cultivation and of site than of double or multiple budding or grafting. For years I was seldom without *Maréchal Niel* Roses on their own roots, or on the Dog Rose stock and a great variety of other stocks, growing them on walls and in the open quarters and beds, and in all aspects, besides pruning the plants at different seasons. But I intended only to thank "J. K." and to say how eagerly many of us will await his further revelations, and how gladly we will double or treble bud, graft, or inarch to rid our favourite Rose of the disease that shortens its life in so many gardens can be kept at bay. Perhaps "J. K." would state the age of his oldest double-worked *Maréchal Niel* in his next—as even the length of their life and their freedom from disease is a very variable matter when on their own roots. The alternating of other vigorous Roses such as *Gloire de Dijon*, *Réve d'Or*, and W. A. Richardson, with *Maréchal Niel*, may enable these stocks to be better nourished, and as a consequence, better fortified against the disease. At all events, it is a charming method of giving interest and variety to Roses, and Rose-growers who may not be able to afford space for monstrous plants of *Maréchal Niel*, either under glass or out-of-doors, carrying five-hundred or one-thousand blooms. By inoculating the sap of *Maréchal Niel* itself with that of canker-proof Roses, we may, it frequently seems as if we did, enable it the better, and the longer to resist the plague of canker. D. T. Fish.

CAPE GOOSEBERRY.—With reference to the Cape Gooseberry (*Physalis pubescens*), mentioned in the *Gardeners' Chronicle* for September 23, the plant has been grown in the open air at Ewhurst Park, near Basingstoke, for the last three years, ripening a good crop of fruit each year. The roots are quite unprotected in the winter. The plants are set out against a south wall. A. C.

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

THE plants now housed in early vineries or Peach-houses will need much attention. The shoots upon the Vines should be shortened a little, and every means adopted to make these and other structures as light as possible. The plants will require an abundance of air both night and day, especially when they are first housed. Each plant should be given as much space as it is possible to afford. During bright weather, syringing the plants once or even twice daily for the first fortnight after housing them. They will seldom require to be afforded water more than once a day, as evaporation will be much less than when the plants were out-of-doors. Afford sufficient water on each occasion to thoroughly moisten all the roots, the water being applied in the morning. If the plants are standing on stone, brick, or cement floors, it is prudent to mop up all waste water from the floor.

Shading will be required when the petals commence to unfold, but it should not be applied earlier. The best system of shading is that provided by roller-blinds outside the house, which can be rolled up when not required. The use of shading preserves to a great extent the petals from damping, and improves the colour of the blooms.

Where temporary shading is not possible, then a permanent shade must be put upon the glass. Mix lime and clay in equal quantities with milk or painter's size, and coat the glass with an ordinary paint brush. By constantly removing the dead leaves from the plants and keeping all sweet and clean, the risk of damping will be much reduced. If mildew shows signs of spreading, dust the affected leaves with flowers-of-sulphur.

Continue to feed the plants until the blooms are fully three-parts expanded. Some writers advise that the use of manures be stopped directly the blooms show colour; but it is at that stage that the plants need assistance. Any plants that appear backward may be hastened by affording them weekly, sulphate of ammonia at the rate of half an ounce dissolved in one gallon of weak liquid manure. Continue the use of such manures as have been employed during the summer, as, for instance, liquid made from cow or sheep-droppings, soot, or any of the advertised ones. The main rule to observe is to apply weak doses often rather than strong ones seldom. Stand here and there in the houses among the plants, 8-inch pots filled with quicklime, to absorb the atmospheric moisture.

Plants that have been unduly fed, and grown in loose, rich soil, are much more liable to the damping of the florets when expanding than others. A lack of maturity in the wood and leaves is chiefly the cause of damping. Inexperienced cultivators think that if they produce extra strong stems and leaves, good blooms will be assured. Plants cannot be too strong if the growth is at the same time perfectly matured by proper conditions, such as a firm soil and full exposure.

Should a spell of dull, wet, or cold weather set in which would render the atmosphere damp, the hot-water pipes should be made warm both day and night, so that a little air may be admitted, which will keep the atmosphere buoyant. E. Molyneux.

WEED-KILLER AND THE SALE OF POISONS.

WE have repeatedly had to call the attention of our readers to the evils attendant on the sale of poisons by unqualified persons, and to the careless manner in which weed-killer and other poisonous preparations are stored by the users. The following letter from the solicitor to the Nursery and Seed Trade Association points out the penalties the actual seller of poisons incurs, if he be not a qualified chemist or druggist:—

"As the report of the argument and judgment in the action by the Pharmaceutical Society against Mr. White, of Worcester, has been distributed amongst members of the nursery and seed trades, it may be beneficial if their attention be drawn to the following decisions which are not mentioned in the report.

"The Pharmacy Act, 1868, makes it unlawful for any person to sell or keep open shops for retailing or dispensing, or compounding poisons, unless such person is a pharmaceutical chemist, or a chemist and druggist within the meaning of the Act, or is registered under the Act. In the report of the action by the Pharmaceutical Society v. The London & Provincial Supply Association, Limited, in which the ultimate appeal went to the House of Lords in 1890, and is reported in the *Law Reports Appeal Cases*, vol. v., p. 857, it appears that one of the shareholders in the Association was a duly registered pharmaceutical chemist, and was a salaried servant of the Association, and his especial business was that of superintending the sale of chemicals, and he personally sold the chemical containing poison, in respect of which the action was brought by the Society to recover the penalty. It was decided that, under the circumstances, the 1st and 15th sections of the statute did not apply so as to make the Association (being a company, who would not be registered under the Act) liable to the

penalty; but the actual seller must be a qualified person, which was the case in this particular case. Lord Selborne in his judgment states, 'I will add that with regard to the mischief which beyond all controversy the Act was intended to prevent, leads necessarily to the same conclusion, viz., that he who sells, whether he be master or servant, whether he be the principal or a person to whom the conduct and management of sales is delegated, is struck at by the fifteenth section, because otherwise a very wide door would be opened to the evils which the Act was intended to guard against.'

"In the case of the Pharmaceutical Society v. Wheeldon, and reported in the *Law Reports, Queen's Bench Division*, vol. xxiv., p. 683, decided in 1890, it was decided that an unregistered chemist's assistant who, in the absence of his master, sold a packet of "Battle's Vermin Killer" which contained strychnine, was liable to the penalty under the Pharmacy Act, 1868, notwithstanding that he effected such sale on behalf of his master, and that his master was a duly registered chemist.

"I submit that these two decisions show most conclusively that the actual seller, viz., the person who takes the order and accepts it, and thereby effects a sale, whether for himself or another person or a company, must be a qualified registered chemist, and that every member of the trade not being a qualified chemist who sells or accepts an order for a weed-killer containing poison is liable to be fined." Chas. Butcher, Solicitor to the Nursery and Seed Trade Association, 30, Wood Street, Cheapside, London.

BOOK NOTICE.

NATAL PLANTS.

THE second part of the first volume of this excellent work by J. Medley Wood, A.L.S., Curator of the Natal Botanic Gardens, Durban, and Maurice S. Evans, M.L.A., F.Z.S., and which is published under the auspices of the Natal Government and Durban Botanic Society, is just to hand, and proves to be in every way worthy of its predecessor. The number contains fine illustrations of fifty species, their parts drawn with the most accurate attention to detail—a circumstance which renders the work of the highest value, both to the casual observer and to the student. The greatest praise is due to the authors, draughtsmen, and publishers, for the prompt manner in which each has attended to his work, for by the records accompanying the descriptions no time has been lost, many of the illustrations having been prepared from specimens collected in May, 1899. Full and accurate descriptions are given of each of the plants illustrated, their habitats, economic value, native names, &c.; and under these headings are many particulars which are of general interest, and serve to make the work acceptable to others besides the botanist. For example, in the letter-press reference to the illustration of our old garden friend, *Leonotis leonurus* (Lion's Tail), it appears to possess purgative properties, and is used in the form of a decoction as an emmenagogue, and also in chronic skin diseases. It is also reported to enter into the composition of a patent medicine which is sold in England. By the Hottentots it is smoked like Tobacco, and by the natives in Natal it is used as a remedy for colds. The whole of the plant except the root is used in decoction as a tonic for calves, and is said to be very efficacious. The plant is boiled with water until the decoction is the colour of brown sherry, and the dose is one pint twice or thrice a week. Dr. Andrew Smith says that it is used in the Cape Colony as a remedy for snake bites; he also says, "The Kaffir name, umfinca-fincane, is taken from the sugar-birds sipping the sweets from the bottom of its long trumpet-shaped corollas. Before the mouth of the corolla opens, which it does when the stamens are mature, the

SOCIETIES.

ROYAL HORTICULTURAL.
THE SHOW OF BRITISH-GROWN FRUIT.

(SEPTEMBER 28, 29, 30.)

In our last issue a report was given of the whole of the fruit exhibition at the Crystal Palace excepting the collections of fruit shown by nurserymen, and a few miscellaneous groups of plants and flowers. Of these we now give some description. Until this year the collections of fruit from the trade were either entered in competitive classes open only to themselves, or they were non-competitive, and were awarded Medals at the discretion of the Council. On this occasion, the competitive classes, with 1st, 2nd, and 3rd prizes, were discontinued, and in their place four classes were reserved to the trade, three for fruit grown out of doors, and one for Orchard-house fruit and fruit trees. Any collections entered in these classes were subject to certain published conditions, and in cases of failure to observe these, no award was made. Exhibitors were permitted to adopt any method of staging they

appeared to be filled with fruit, for there were more than 200 dishes, and a considerable number of baskets, each of which held a large number of fruits. But the effect of the exhibit would have been more pleasing had the fruit been relieved by a few plants or other features. A row of large baskets were placed along the middle of the exhibit, and excellent Apples and Pears were displayed in them. Of fine quality, we noticed the following varieties of Pears: Duchesse d'Angoulême, Williams' Bon Chrétien, Pitmaston Duchess, Triomphe de Vienne, Marie Louise, Beurré Fouquieray, and Doyenné Boussoch. But the Pears were not of such excellent quality as the Apples. Of Peaches, we noticed Late Devonian; of Plums, Cox's Golden Drop, &c. Amongst a bewildering variety of choice Apples, we were specially struck by the fine quality of Cox's Orange-Pippin, Hanwell Souring, Peasgood's Nonsuch, Ribston Pippin, Cellini, and others.

Messrs. VEITCH & SONS, had also some capital specimen-plants fruiting very freely of the perpetual fruiting Strawberry St. Joseph.

Mr. H. BERWICK, Sidmouth Nurseries, Devon, made a nice display of gathered fruits. Apples were especially good, of the varieties Autumn Pearmain, Hollandbury, Grenadier, The Queen, Gascoigne's Scarlet, and many others (Silver-gilt Knightian Medal).

CLASS TWENTY-TWO.

(THIRTY-TWO FEET RUN OF SIX FEET TABLING.)

There were many exhibits in this class, and the highest medal awarded was a Silver-gilt Knightian, that was won by an exhibit from Jersey. There seems no good reason why the Jersey cultivators should not be permitted to exhibit in a special class in the district county section. At present, no one from Jersey may exhibit in the strictly competitive classes, yet in this professedly competitive class the highest medal awarded was one to fruit from the sunny island. This appears to be paradoxical.

THE ROYAL JERSEY AGRICULTURAL AND HORTICULTURAL SOCIETY sent a collection of fruit contributed by about a score of members of the Society. There were some extraordinary Pears, the largest fruits being of the famous Jersey kitchen variety, Belle de Jersey. Others little less in size were Callabasse, Chaumontelle, Pitmaston Duchess, Doyenné du Comice, Beurré Diel, Duchesse d'Angoulême, and very good fruits of many other varieties were shown. Of Apples there were also some fine dishes, especially of Golden Noble, Alfriston, and others. The exhibit was under the care of the Secretary to the Jersey Society, Mr. HOWELL, and included specimen bottles of dry and sweet Cider, the manufacture of Messrs. NEEL & LE QUENNE, Jersey (Silver-gilt Knightian Medal).

Mr. JNO. WATKINS' exhibit from Pomona Farm, Hereford, was one of exceptionally highly-coloured Apples. Lady Sudeley, Crimson Devonian, Beauty of Kent, Wealthy, The Queen, Gascoigne's Scarlet, Red Bietigheimer, Transparent Codlin, Peasgood's Nonsuch, Tyler's Kernel, and Hitchin Pippin had really wondrous colour (Silver Knightian Medal).

Mr. J. B. COLWILL, Sidmouth Nurseries, Devon, made a splendid exhibit of Apples, Pears, Peaches, Medlars, and Plums; the Apples being by far the most remarkable, and the popular varieties were represented by samples that did credit to the county. Plums Late Orleans and Golden Drop were also good (Silver-gilt Banksian Medal).

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, had an exhibit in this class, and obtained a Silver Banksian Medal. The exhibit consisted wholly of Apples, and a very fine general collection of the choicer varieties, especially of those that succeed best in Sussex, were shown.

Mr. GEO. MOUNT, of Canterbury, staged a fine lot of Apples, some Pears, Plums, &c. A Silver Banksian Medal was awarded to this exhibit, which contained splendid samples of such Apples as Peasgood's Nonsuch, Gascoigne's Scarlet, Mère de Ménage, Bismarck, Lane's Prince Albert, and many others.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, obtained a Silver Banksian Medal for an exhibit in this class, which showed that Hertfordshire, although some parts of the county are exposed and cold, is nevertheless capable of producing good Apples and Pears, the former especially.

CLASS TWENTY-THREE.

(SIXTEEN FEET RUN OF SIX FEET TABLING.)

That Monmouth is a first-class fruit-growing county was strikingly illustrated by an exhibit from Mr. JOHN BASHAM, Fair Oak Nurseries, Bassaleg, Newport, Monmouthshire. This excellent fruit-grower was awarded a Silver-gilt Banksian Medal. His Apples were as good or superior to any in the exhibition, many of his varieties being equal to the best from Kent. Such were Lane's Prince Albert, Peasgood's Nonsuch, Newton Wonder, Mère de Ménage, The Queen, Emperor Alexander, Tyler's Kernel, and Cox's Pomona; and equally good were the smaller varieties—Cox's Orange, Allington Pippin, Ribston Pippin, King of the Pippins, Gascoigne's Scarlet, Gravenstein, an Apple greatly prized by Mr. Basham; Adams' Pearmain, Jefferson's, &c. There were some magnificent specimens of Pears: Fertility, Williams' Bon Chrétien, Conference, Pitmaston Duchess, and Beurré d'Amanlis (extra fine).

Messrs. RIVERS & SON made a fine exhibit in this class, their table being laden with first class fruits, most of them approaching ripeness. There were large punnets of such Apples as Cellini, St. Martins, Mère de Ménage, Yellow Ingestre, Peasgood's Nonsuch, Worcester Pearmain, Cox's Orange Pippin, Emperor Alexander, Gascoigne's Scarlet, Fearn's Pippin, Lady Henniker, Marshall's Seedling, and others; also Plums Autumn Compôte (red), President, Primate, Admiral, Late Orange, Pond's Seedling, Black Orleans, and Wydale. Of Pears, there were excellent speci-

nectar is intensely bitter, but at the moment of opening the sweetness is developed. This means that nature does not wish insect marauders who cannot carry the pollen where it is required, to come and rob the nectary."

Under *Rhus longifolia*, Sonder, is the following curious statement: "The tree is known to the natives as *isi-Fuca*, and they use the gum which exudes from the bark for fixing the blade of the assegai to the shaft. As a depilatory they simply smear their fingers with the gum so as to enable them to take a firm hold of the hairs which they pluck out by the roots"—probably more efficacious if a trifle more painful than the quack preparations advertised in places considered more civilised.

The note under the scientific description of *Loranthus Kraussianus*, Meisn., says:—"It is closely allied to *Viscum*, one member of the genus, viz., *Viscum album*, is the common Mistletoe of Europe. The flowers of the above-described species are visited by the 'sun-birds,' principally by the olive sun-bird (*Cinniris olivacea*), which inserts its long bill in the slits of the unopened corolla causing it to open suddenly, bursting the anthers, and scattering the pollen, not upon the stigma of the same flower, but upon the head of the sun-birds, who carry it to other flowers. Experiments made by covering many flowers with nets show that thus protected from the birds no seeds set."

Obituary.

THE LATE JAMES MARTIN.—As announced in our last issue, Mr. Jas. Martin, an old and distinguished servant of Messrs. Sutton & Sons, Reading, died suddenly, after four hours' illness, on the morning of the 27th ult. Those who have had occasion to visit the Reading establishment frequently, know how thoroughly enthusiastic Mr. Martin was in the work in which he has been engaged so long and with such success. By his decease horticulture loses a most devoted plant-lover, and distinguished worker in the improvement of plants by cross-breeding and selection. In Cyclamens, Gloxinias, Chinese Primulas, and Calceolarias especially, Mr. Martin obtained good results, and he not only gave the world better strains of these plants, but in the Reading establishment he exhibited such cultural skill as has not been excelled. If he obtained a new type, he was as well, or better, able than anyone to show that type in its best condition. And how freely did he converse to anyone interested, of the methods by which he worked, and of the principles that guided him in seeking to obtain a particular form, colour, or other characteristic in a plant that it did not previously possess! His geniality was extended most freely to all who had sympathy with the aims of the cross-breeder, and we have heard him explain with the utmost care, and in detail, the principles that underlie such work to persons who, until meeting Mr. Martin, had never given the question any serious study.

In June, 1894, Mr. Martin was presented with a Veitchian Medal in recognition of the success that had attended his work, and we cannot do better than reproduce the following note, and the photograph which then appeared in these pages. "Gardeners will recognise the excellent cultivation of the Cyclamens, the Chinese Primulas, the Begonias, and other specialities for which the Reading firm is famous, and will feel that the raiser of Gloxinia 'Her Majesty' has indeed a claim on the admiration of his colleagues. But what is specially interesting about Mr. Martin, and what is, of course, not known to many, is the circumstance that his labours in cross-breeding and hybridising have been, to a very large extent, based upon and regulated by the teachings of Charles Darwin. Whilst other hybridisers and cross-breeders are content to follow the old fortuitous methods, Martin has sought the guidance of established principle, and the results are shown not only in the excellence of the 'strains,' for which he is responsible, but also in the relative quickness with which he obtains his results, and in their general uniformity."



THE LATE JAMES MARTIN.

wished, subject to reasonable reservations, but it is much to be regretted that there was very little attempt made to introduce novelty.

CLASS TWENTY-ONE.

The space allotted to exhibitors in this class was 48 feet run of 6 feet wide tabling.

A Gold Medal was awarded to Messrs. GEO. BUNYARD & CO., Royal Nurseries, Maidstone, for a magnificent exhibit of nearly 300 dishes and varieties of fruit. In the centre was a handsome wicker stand, about 6 feet high above the table. This stand bore eight wicker-trays, four near the base, three above, and one at the top. Most of the exposed parts of the stand was decorated with sprays of Myrsiphyllum, and a very fine effect, indeed, it made. On the stand there were approaching three dozen fruits in each cone, and such varieties of Apples as the following were given the greater prominence in the exhibit: Cox's Orange Pippin, Lady Sudeley, Barchard's Seedling, Mabbot's Pearmain, Dartmouth Crab, &c. The collection of Apples and Pears in baskets and dishes also were of high quality. Of Apples, the following were prominent: Allington Pippin, a variety distributed by Messrs. Bunyard, which is rapidly gaining popularity; New Hawthornden, Tyler's Kernel, American Mother, Crimson Queen, Yorkshire Beauty, Gascoigne's Scarlet Seedling, a great favourite with Mr. Bunyard, and a capital and handsome dessert fruit in December; Queen Caroline, Cox's Pomona, Ribston, Bismarck, Washington, Worcester Pearmain, Newton Wonder, an Apple that does well in the Midlands, but never so well as in Kent; and scores of others. Pears were good, but not of so fine quality as the Apples. Rivers' Princess, Marie Louise d'Uccle, Easter Beurré, Marguerite Marillat, Passe Grassane, Jersey Gratioli, Doyenné Boussoch, &c., were prominent.

Messrs. JAS. VEITCH & SONS, LTD., Royal Exotic Nurseries King's Road, Chelsea, obtained a Silver-gilt Knightian Medal for a magnificent lot of fruit. The space allotted to this firm

mens of Doyenné du Comice, Fondante d'Antoine, Louise Bonne de Jersey, Doyenné Boussoch, Severn Princess, Magnate, Jersey Gratioli, Beurre Hardy, Pitmaston Duchess, Souvenir du Congrès, Bergamot, and Fertility. The dishes were covered with wood-wool, and a few decorative plants were interspersed among the dishes (Silver Knightian Medal).

Messrs. S. SPOONER & SONS, Howsloew Nurseries, Middlesex, won a Bronze Banksian Medal for an exhibit of fruit, the major portion of which consisted of Apples. The varieties that showed to most advantage in this exhibit were Worcester Pearmain, Alexander, Washington, Emperor Alexander, Bismarck, Wealthy, Royal Jubilee, and Potts' Seedling.

Messrs. W. & J. BROWN, Stamford, Peterboro' and Grantham, staged a nice lot of Apples and Pears. The dishes were placed on green-baize. The margins of the tables were fringed with sprays of Myrsiphyllum, and many small decorative plants were interspersed among the fruits. Apples were shown best in this exhibit, and amongst the best of these were Barnack Beauty, Grenadier, Allington Pippin, Lord Derby, New Hawthornden, Stone's Seedling, Wadhurst Pippin, Betty Geeson, Peasegood's Nonsuch, Warner's King, Bramley's Seedling, and Blenheim Orange (Bronze Banksian Medal).

A Bronze Knightian Medal was awarded to a collection of Suffolk-grown fruit from Mr. R. C. NOTCUT, Wood's Nursery, Woodbridge. The fruits were shown upon plates, covered with Berberis foliage, Bramley's Seedling, Mère de Ménage, Lord Derby, The Queen, Stirling Castle, and other good kitchen as well as dessert varieties of Apples were noticed.

Messrs. FAWCETT BROS., The Old Nurseries, Tillington, Hereford, staged a fine lot of Herefordshire fruit, some of the Apples being of extraordinary size and colour, and a Silver Banksian Medal was awarded. Some of the more noticeable Apples were Emperor Alexander, Peasegood's Nonsuch, Lord Derby, Warner's King, Beauty of Kent, Cox's Pomona, of high colour; Blenheim Orange, rather small, but highly coloured; Tom Putt, some of the specimens of which were of a crimson colour throughout; Lane's Prince Albert, one of the finest of Apples; Stone's, Cox's Orange, Knight's Russet, a russet dessert Apple, not in commerce. This nursery is the same that was once the scene of Thomas Andrew Knight's labours in raising improved varieties of fruit.

Messrs. JOHN PEED & SONS, Roupell Park Nurseries, Norwood, Surrey, were awarded a Silver Knightian Medal for a fine lot of Apples and Pears. Some of the popular sorts were staged in large baskets, and were therefore the more displayed.

CLASS TWENTY-FOUR.

(ORCHARD-HOUSE FRUIT AND TREES.)

In this class, the space allowed each exhibitor was 32 feet run of 6 feet tabling. Messrs. T. RIVERS & SON, Sawbridgeworth, Herts, made one of their magnificent exhibits of fruit-trees in pots, each carrying an abundance of fruits. We noticed of Apples, the varieties Bismarck, Newton Wonder, and Bijou. Of Pears, Beurre Bachelier, Pitmaston Duchess, St. Luke, Conference, Louise Bonne de Jersey, Doyenné du Comice, and Durondeau; Plums, Rivers' Late Orange, President, Belgian Purple, Primate, and Monarch. Of Peaches, Lady Palmerston and Golden Eagle. In addition to these fine trees, a quantity of splendid fruit was shown in baskets and dishes, most of them of the same varieties as the trees. But in addition there were of Apples, Cox's Orange Pippin, of extraordinary size and fine colour; Mannington Pearmain, Worcester Pearmain, Emperor Alexander, Peasegood's Nonsuch (a dozen extraordinary fruits); and the Queen. Of Pears: Parrot, one of Messrs. Rivers' raising, and a good variety; Duchess d'Orléans, Lebun, Souvenir du Congrès, Beurre Superfin. Of Peaches: Sea Eagle, Golden Eagle, Princess of Wales, and Late Rivers. And of Plums: Late Prolific and Transparent (a Hogg Medal was awarded Messrs. RIVERS).

Another fine exhibit was made by Messrs. GEO. BUNYARD & CO., Maidstone, for which a Silver-gilt Knightian Medal was awarded. There were about two dozen trees of Apples, Pears, Plums, &c., in pots, all of them vigorous in appearance and well cropped. Some of the most attractive were, of Pears: Doyenné du Comice, Dr. Joubert, Durondeau, Marie Louise d'Uccle, Brownlee's Russet, &c.; of Plums, there were Pond's Seedling, Reine Claude de Bavay, Wyedale, Cox's Golden Drop, &c.; Lady Palmerston, and other Peaches, Sweet Oranges, Figs, and Apples. There were also as many as ninety dishes of gathered fruits, and these were of the finest orchard-house quality. Apples and Pears were abundant, and of the choicest varieties. Grapes, Tomatoes, Plums, Cherries, &c., helping to make this exhibit most attractive and complete.

MISCELLANEOUS.

Messrs. JOHN LAING & SON, Forest Hill Nurseries, London, S.E., made an exhibit of gathered fruit and trees in pots. Amongst the latter were a few Vines and varieties of the Apple and Pear. Gathered fruits were shown numerous, and included fine Apples and Pears, Melons, Pine-apples, Peaches, Plums, Tomatoes, Grapes, &c. Messrs. LAING & SONS had also a group of Conifers in pots.

Mr. WILL TAYLER, Osborn Nursery, Hampton, showed fruits of some of the most popular varieties of Apples, as Gracioso's Scarlet, Cox's Orange Pippin, Cellini, Worcester Pearmain, Emperor Alexander, Warner's King, &c.; and bunches of Reine Olga Grapes, grown out-of-doors.

From the HORTICULTURAL COLLEGE, Swanley, Kent, fruits were exhibited, which included Grapes, Apples, Pears, Plums, &c., of very creditable quality and size.

Messrs. RIVERS & SON, in addition to their collections of fruit in the above classes, arranged on a small table a score of wondrous fruits of Peasegood's Nonsuch Apples, and twelve superb bunches of Black Alicante Grapes. A few Golden Queen Vines in pots were included in this exhibit.

Messrs. H. CANNELL & SONS, Swanley, Kent, put up a large and splendid group of Cannas in pots. This group faced the centre path between the fruit tables, and was exceedingly attractive. A large number of varieties was represented.

Mr. H. J. JONES, Ryecroft Nursery, Hither Green, Lewisham, had a nice group of pot-grown Chrysanthemums in flower; a quantity of single and double flowers of tuberous-rooted Begonias, arranged in glasses, and relieved with Adiantums. Also a splendid group of splendidly-coloured Codæums, with a few plants of Dracena Sanderiana, and other foliage species of plants. The groups were backed with Bamboos and Palms, and altogether made a very pretty exhibit of considerable extent.

Messrs. CUTBUSH & SONS, Highgate, London, had a collection of Apples and Pears, and a group of Shrubs, in pots. THE JADOO COMPANY, LTD., Exeter, had an exhibit of fruit-trees, &c., that were grown in "Jadoo," in pots.

Messrs. A. W. YOUNG & CO., Stevenage, showed hardy flowers; as did Mr. MAURICE PRITCHARD, Christchurch, Hants; Messrs. J. CHEAL & SONS, Crawley, showed a large exhibit of Dahlias, and some fruits.

Messrs. W. PAUL & SONS, Waltham Cross, Herts, had an abundance of Roses, including many of their newer varieties, such as Corallina, that was recently given an award of merit by the Royal Horticultural Society.

Messrs. B. S. WILLIAMS & SON, Upper Holloway, London, had a pretty group of foliage plants, and some Orchids and Genesiras in bloom.

Mr. T. S. WARE, LTD., Hale Farm Nurseries, Tottenham, showed Begonias in baskets. Apparently the plants, which were full of bloom, and arranged to colour, had been lifted from the open ground.

Mr. JNO. RUSSELL, Richmond, Surrey, had a group of Ivies in pots, showing a large number of varieties.

Messrs. GAYMER & SON, Norfolk, exhibited samples of their cyder from that county.

Messrs. R. SMITH & CO., Worcester, were also exhibitors in this class. The Apples and Pears in the exhibit were of good quality, but lacking colour, and the dishes were thinly arranged over pink tissues, which between the dishes was ornamented with sprays of Ampelopsis and Berberis foliage, beside a few small decorative plants.

Messrs. C. H. GLOVER & CO., Old Kent Road, London, had some very convenient boxes for storing and packing fruits.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

SEPTEMBER 21.—The Committee ordered a letter of condolence to be written and sent to Mrs. Henry Greenwood upon the death of her husband, who was a member of the Committee from the time of the Society's formation.

T. STATTES, Esq., Stand Hall, Whitefield (gr. Mr. R. Johnson), showed two forms of Cattleya granulosa; one called "Stand Hall var." received an Award of Merit.

G. SHORLAND-BALL, Esq., Ash Field, Wilmslow (gr. Mr. Gibbons), sent a magnificent form of Cattleya Gaskelliana alba, receiving a First-class Certificate.

Mrs. HENRY GREENWOOD, Vine House, Haslingden (gr. Mr. Gill), staged Lælio-Cattleya × "Henry Greenwood," a magnificent cross between Lælia elegans and Cattleya × Hardyana, that well deserved the First-class Certificate which it obtained.

T. BAXTER, Esq., Morecambe (gr. Mr. Roberts), showed a nice form of Cattleya × Hardyana.

R. ASHWORTH, Esq., Newchurch (gr. Mr. Pidsley), sent a very fine Cattleya × Maroni, a cross between C. velutina and C. aurea, receiving a First-class Certificate.

Mr. J. CYPRER, Cheltenham, showed a Cattleya, a cross between C. bicolor and C. aurea, showing the characters of both parents (First-class Certificate). From the same nursery came a form of Dendrobium Phalaenopsis, called "Distinction," to which was given an Award of Merit.

Messrs. CHARLESWORTH & CO., Hatton, Bradford, sent a fine form of Cattleya × Hardyana, and received an Award of Merit.

An Award of Merit was made to Mr. ROBSON, Altrincham, for a variety of Cypripedium Charlesworthi var. magnificum.

BRISTOL & DISTRICT GARDENERS'.

SEPTEMBER 28.—The monthly meeting of the Association was held on the above date at St. John's Parish Room, Redland. Mr. C. LOCK presided over a good attendance.

The subject for discussion was Salads, and it was opened by Mr. E. Binfield, gr. to Francis Tagart, Esq., Old Sneed Park. The aim of the essayist was to show how a supply of the principal salads could be maintained through a greater part of the year. A short discussion, chiefly on the culture of Beet, and best means to combat the Celery-fly, followed the reading of the paper.

THE CHARLTON GRAPE.

At a venture of their reaching you in good condition, we send you this day (September 18), per American express, samples of our new Grape, the "Charlton" (Brighton × Mills), to show its quality as well as its capacity to travel long distances. It is the produce of a cross between two other crosses, the features of each parent being shown in its fruit. It is a strong grower, always ripening its

fruit, and wood also. It has perfect stamens, and always sets full bunches of fruit; a merit not conspicuous in one of its parents, and which failing we strived to overcome, and have succeeded perfectly in doing.

Our object in sending over these Grapes is to learn if it would meet with recognition in the English markets. We ourselves, think it a long step forward in quality over all other American Grapes at present grown here.

In western New York we have suffered much this summer from lack of rain, it being the driest season we have experienced in twenty-six years. John Charlton & Sons, Rochester, New York. [The Grapes came over to this side in an ordinary cross-handled trug or basket made of thin wood and fitted with a cover, quite uninjured, excepting that about one-sixth of the berries had dropped from the bunches. The bloom was perfect, although the bunches had been simply wrapped in soft paper, and there was no other packing material used. The colour is purple with a reddish tinge; the pulp far less viscid than that of some other American varieties we have tasted, and the flavour very pleasant and sugary, reminiscent of the Strawberry and Black Currant. The skin is tough, and the variety should keep a long time after ripening. Not a berry had decayed upon arrival. ED.]

BRITISH ASSOCIATION.

GENETIC VARIATION.—Asexual reproduction is a phenomenon comparatively rare in the animal kingdom, and when it does occur it is exceedingly difficult to investigate from this particular point of view. In the vegetable kingdom, on the other hand, it is quite common. All, or almost all, plants possess this power, and in a very great many of them, the result of its exercise can be fully followed out, and contrasted with that of sexual reproduction. Let us follow it out in the Potato-plant. The Potato can, and does, normally propagate itself asexually by means of its underground tubers. As you will know, if you take one of these and plant it, it gives rise to a plant exactly resembling the parent. If the tuber (seed, as it is sometimes erroneously called) be that of the Magnum Bonum, it gives rise to a plant with foliage, flowers, and tubers of the Magnum Bonum variety; if it be of the Snow-drop, the foliage, flowers, habit, and tubers are totally different from the Magnum Bonum, and are easily identified as Snowdrops. In this way, a favourable variety of Potato can be reproduced to almost any extent with all its peculiarities of earliness or lateness, pastiness or mealiness, power of resisting disease, and so forth. By asexual reproduction, the exact facsimile of the parent may always be obtained, provided the conditions remain the same.

Now let us turn to the results of sexual reproduction—the seeds, i.e., the real seeds, which, as you know, are produced in the flowers, are the means by which sexual reproduction is effected. They are produced in great quantity by most plants, and when placed in the ground under the proper conditions they germinate and produce plants. But these plants do not resemble the parent. Try the seed of the Magnum Bonum Potato, and raise plants from it. Do you think that any of them will be the Magnum Bonum, with all its properties of keeping, resisting disease, and so forth? Not a bit of it. The probability is, that not one of your seedling plants will exactly reproduce the parents; they will all be different. Again, take the Apple; if you sow the seed of the Blenheim Orange and raise young Apple-trees, you will not get a Blenheim Orange. All your plants will be different, and probably not one will give you Apples with the peculiar excellence of the parent. If you want to propagate your Blenheim Orange, and increase the number of your trees, you must proceed by grafting or by striking cuttings, which are the methods by which such a tree may be asexually reproduced; and so on. Examples

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. a. d.		s. d. a. d.
Artichokes, Globe, per doz.	2 8-30	Marrows, Veg., doz.	1 0-20
Aubergines, p. doz.	1 6-	— tally	5 0-60
Beans, English, Dwarf, per bush.	4 0-	Marrows, in pads or potts.	3 6-40
— Scarlet Runners, per bush.	2 6-36	Mint, per dozen bunches	2 0-30
Beetroot, new, doz.	0 6-09	Mushrooms, house, per lb.	0 8-10
— in bush.	1 6-20	— outdoor, per lb.	0 2-03
Brussels Sprouts	2 6-30	Onions, bags	4 0-46
Cabbage, tally	4 0-80	— Onions, picklers, in bags	2 6-
— dozen	1 0-19	— Oporto and Valencia, cases	5 6-60
Colewort, p. bush.	1 3-	— new, bunches	3 0-
Carrots, new English, doz. bun.	1 0-24	Parley, per dozen bunches	1 0-80
— good, cwt. bags, washed	8 0-36	— per sieve	1 0-
Cauliflowers, dozen	1 6-26	Potatoes, Hebrons, Snowdrops, &c.	55 0-80 0
— tally	7 0-100	— per ton	55 0-80 0
Celery, red, p. roll	1 0-14	Radishes, round, breakfast, per dozen bunches	1 6-
— white, do.	1 0-	Salad, small, punnets, per dozen	1 8-
Oress, per dozen punnets	1 6-	Shallots, per sieve	8 0-
Onions, doz.	1 6-26	— per cwt.	18 0-
Endive, new French, per dozen	1 6-	Spinach, New Zealand, per peck	1 0-
— English, p. score	1 6-	— sieve	2 0-
— Batavian, doz.	1 6-	Tomatoes, English, per lb.	0 3-05
Garlic, new, per lb.	0 2-	— Channel Islands, p. lb.	0 3-03 3/4
— per cwt.	14 0-	— French, crate, of 20 lb.	3 6-
Horseradish, English, bundle	2 6-	Turnips, dozen bun.	2 6-40
— loose, doz.	2 0-	— cwt. bags	8 0-40
— foreign, per bundle	1 0-13	Watercress, p. doz. bunches	0 4-06
Leeks, new, per doz. bunches	1 6-20		
Lettuce, French, Cabbage, dozen	1 0-13		
— Cos, Eng., score	1 6-		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. a. d.		s. d. a. d.
Apples, per bushel:		Grapes, White, Mercia, boxes	8 6-
— Kings	4 0-60	— Alameda, bls.	9 0-12 0
— Ribstonas	6 0-70	Lemons, Naples, per case of 420	22 6-28 0
— Blenheim	4 0-60	— Palermo, case of 300	12 0-
— Nova Scotia		— Malaga, case of 200	10 0-
Gravensteins, per barrel	14 0-18 0	Lyches, Chinese, new, pkt., 1 lb.	1 0-12
— Keswick, bush.	2 0-8 6	Melons, in cases, 48	7 6-
— Cox's Orange Pippin, bushel	8 0-90	— English, each	0 9-16
— Warner's King, bushel	4 0-50	Oranges, Teneriffe, case of 80 to 100	8 0-
— Wellingtons, bsh.	4 0-50	— Peaches, A. doz.	12 0-18 0
— Various Cooking, per bushel	1 6-30	— B., per dozen	4 0-80
Bananas, per bunch	8 0-100	Pears, Californian, cases	7 6-8 6
Blackberries, 12 lb.	1 6-20	— Catillac, Dutch, basket	3 6-
— sieve of 24 lb.	3 0-40	— Doyenne du Comice, 108	12 0-
Cobnuts, per lb.	0 7-	Pines, each	2 0-50
Cranberries, case	13 0-	Plums, English, Prune, p. sieve	6 0-70
Figs, per dozen	0 9-10	Pomegranates, case of 120	9 0-
— Italian, in boxes	2 6-	Dansons, per sieve	4 6-60
Grapes, English, Hamburg, lb.	0 10-16	Walnuts, Grenoble, shelled, p. bag	8 0-9 6
— Alicante, per lb.	0 9-12	— English, in green shells, p. bush.	3 0-40
— Gros Colmar, per lb.	1 6-		
— Muscats, A., per lb.	1 6-26		
— B., per lb.	0 9-10		
— Belgian, per lb.	0 4-10		
— Channel Islands	0 6-10		
— Lisbon, boxes	7 0-		

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

	s. d. a. d.		s. d. a. d.
Adiantum, p. doz.	5 0-70	Ferns, small, per 100	4 0-60
Arborvitae, var., doz.	6 0-36 0	Ficus elastica, each	1 6-7 6
Aspidistra, p. doz.	18 0-36 0	Foliage plants, var., each	1 0-50
— specimen	5 0-10 6	Heliconias, each	15 0-105 0
Crotons, per doz.	18 0-30 0	Lilium Harrisii, doz.	30 0-40 0
Dracenas, var., doz.	12 0-30 0	Lycopodiums, doz.	8 0-40
— viridis, per doz.	9 0-18 0	Marguerite Daisy, per dozen	6 0-90
Ericas, var., per doz.	18 0-36 0	Myrtles, per dozen	6 0-90
Eucynymus, various, per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var., per dozen	4 0-18 0	— specimens, each	21 0-63 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, scarlet, per dozen	6 0-80

POTATOES.

Hebrons, Puritans, Main Crop, Up-to-Date, &c., 55s. to 80s.; Blacklands, 40s. to 50s. John Bath, 32 & 34, Wellington Street.

REMARKS.—The frost in the Thames Valley on Friday morning last seriously injured the Dwarf and Runner Beans; also Vegetable-Marrows. The late rains in the same district have been most beneficial to Brussel Sprouts, Savoy, &c. English Endive and Lettuces are invariably sold by the score of twenty-two. Those imported are usually sold by the dozen.

SEEDS.

LONDON: October 4.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that notwithstanding the thin attendance on to-day's market, Clover-seeds all round were exceedingly firm, with an active inquiry in progress. Higher prices are asked, meantime, for Italian Rye-grass. Winter Tares and Seed Bye keep slow in demand, at unchanged rates. The trade for Bird-seed is quiet just now; sowing Rape-seed, however, owing to some heavy export orders, is dearer, as also is Mustard. Blue Peas and Haricot Beans are held for more money.

FRUIT AND VEGETABLES.

GLASGOW: October 4.—The following are the prices realised since our last, but here we may note that some Apples from County Meath—one lot grown on Dutch trees—realised 17s. per cwt., or about double the price of ordinary Irish Apples. Apples: Canadian, Kings, 20s. to 24s. per barrel; Gravensteins, 15s. to 20s. do.; various sorts, 14s. to 18s. do.; Americans, Kings, 15s. to 18s. per barrel; selected, 18s. to 24s. do.; Greenings, Fall Pippins, Cranberry Pippins, &c., 12s. to 17s. per barrel; Pears, French Duchesse, 38s. to 48s. 3s. to 3s. 3d. per case; Bonne Louise, 4s. 6d. to 6s. per case; Lemons, Malaga, 14s. to 20s. do.; do., Palermo, 6s. to 8s. do.; Pomegranates, Malaga, 9s. to 12s. do.; do., Valencia, 120s. 6s. 6d. to 7s. do.; 180s. 7s. to 8s. do.; 240s. 8s. to 9s. do.; 300s. 8s. 6d. to 9s. 6d. do.; 360s. 9s. to 9s. 6d. do.; Bananas, extra, 12s. 6d. to 14s. 6d. per bunch; do., No. 1's, 11s. to 12s. do.; do., No. 2's, 9s. to 10s. do.; Grapes, Almeida, 12s. to 20s. per barrel; do., English, 9d. to 1s. 9d. per lb.; Mushrooms, 10d. to 1s. 3d. do.; Tomatoes, English, 3d. to 5d. do.; do., Scotch, 4d. to 8d. do.; Onions, Valencias, 5 in a row, 5s. 6d. to 6s. 6d. per case; do., 4 in a row, 4s. to 4s. 6d. do.; Turnips, 7d. to 9d. per doz. bunches; Carrots, 7d. to 9d. do.; Parsley, 6d. to 8d. do.; Cucumbers, 1s. to 2s. 3d. per doz.; Cauliflowers, 10d. to 1s. do.; Cabbages, 9d. to 1s. do.; Celery, 9d. to 1s. do.; Mushrooms, 1s. per lb.

BULBS, PLANTS AND FLOWERS: October 4.—The following are some of the prices realised at sales since our last notice:—Dracena indivisa, 1s. 6d.; do. D. discolor, 3d. and 6d.; D. rubra, 6d.; D. amabilis, 1s.; D. B. uanti, 6d. and 1s.; D. canifolia, 2s.; Asparagus tenuis-lima, 1s. 2d.; do. small, 6d.; Maranta Kerchoveli, 6d.; Ficus elastica, 8d. and 1s.; Latania borbonica, 2s.; Phoenix reclinata, small, 9d. each. Bulbs: Hyacinths, 1s. to 2s. per dozen; Tulips, 1s. to 2s. per 100; Crocus, 2d. to 9d. do.; Polyanthus Narcissus, 6d. to 4s. do.; Narcissus, 3d. to 2s. do.; Scilla sibirica, 8d. to 1s. do.; Snowdrop, single, 2s. 2d. do.; Crown Imperials, 6d. to 1s. 6d. per dozen; Iris, 3d. to 1s. per 100; Sparaxis and Ixias, 3d. do.; Arum draconculis, 8d. per dozen; Hyacinthus candicans, 8d. do.; Lilium pomponium, 2s. do.; L. umbellatum, 6s. do.; Gladiolus Colvillei alba, 6d. per 100; G. byzantinus, 1s. per 100. Flowers: Lilium Harrisii, 2s. to 3s. 6d. per dozen blooms; Orchids, 1s. to 10s. do.; Carnations, 6d. to 1s. 6d. per bunch; Roses, white, 6d. to 2s. 6d. per dozen; do., red, 1s. 2d. do.; do., pink, 1s. 2d. do.; boxes, 2s. to 4s. each; Lilium lancifolium, 9d. to 1s. 6d. per dozen; Chrysanthemums, 3d. to 1s. 2d. per bunch; Lily of the Valley, 9d. to 1s. 6d. do.; Maidenhair Fern, 3s. to 6s. per dozen; Gardenias, 9d. to 1s. do.; Marguerites, 2s. 6d. do.; boxes of mixed flowers, 6d. to 3s. per box; Asparagus Fern, 6d. to 2s. per bunch.

LIVERPOOL: October 4.—Wholesale Vegetable Market. Potatoes, per cwt.: Sutton's Abundance, 2s. to 3s. 10d.; Giants, 2s. 6d. to 2s. 10d.; Main Crop, 3s. 6d. to 4s. 6d.; Bruce, 2s. 9d. to 3s. 6d.; Turnips, 6d. to 8d. per dozen bunches; Swedes, 1s. 6d. to 1s. 10d. per cwt.; Carrots, 8d. to 1s. per dozen bunches, and 3s. 9d. to 4s. per cwt.; Parsley, 6d. to 8d. doz.; Cucumbers, 1s. to 2s. per dozen; Cauliflowers, 10d. to 1s. do.; Cabbages, 10d. to 1s. do.; Onions, English, 5s. to 6s. per cwt.; do., foreign, 4s. to 4s. 3d. do.; Celery, 8d. to 1s. per dozen. St. John's.—Potatoes, 10d. to 1s. 2d. per peck; Grapes, English, 1s. to 3s. per lb.; do., foreign, 4d. to 8d. do.; Pines, English, 4s. to 6s. each; Pampsons, 3d. per lb.; Cobnuts, 10d. do.; Cucumbers, 8d. to 4d. each; Mushrooms, 1s. per lb., and basket. Birkhead.—Potatoes, 10d. to 1s. per peck; Cucumbers, 2d. to 4d. each; Filberts, 10d. per lb.; Grapes, English, 1s. 6d. to 3s. per lb.; do., foreign, 4d. to 10d. do.; Mushrooms, 10d. to 1s. per lb.

CORN.

AVERAGE PRICES OF BRITISH CORN (per imperial qr.), for the week ending September 30, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	25 9	25 6	- 0 3
Barley	27 0	26 11	- 0 1
Oats	16 7	16 5	- 0 2

GARDENING APPOINTMENTS.

MR. J. HAMMOND, late Gardener at Tugrith Manor, Woburn, Bedfordshire, as Head Gardener to H. J. TORRE, Esq., Norton Curlew, Warwick.

MR. A. JEFFERIES, formerly of Hatherop Castle, and Warren House, Stanmore, &c., and for the past five years Foreman at King's Walden Bury, near Hitchin, Herts, has been appointed Head Gardener to JOHN BALFOUR, Esq., Moor Hall, Harlow, Essex.

MR. A. EMPSON, for the last eleven years Head Gardener at The Quinta, Brobury, Hereford, has removed to Holme Chase, Bletchley, with the same employer, P. B. GILES, Esq.

MR. THOS. KIPPING, for the last two-and-a-half years Foreman at Apley Park Gardens, Bridgnorth, as Gardener to J. STRANGE, Esq., Denham Court, Winchester.

MR. J. P. CONNOR, late Second Gardener for three-and-a-half years at Dalnair, Drymen, N.B., as Gardener to Mrs. WILSON, Blairness House, Kilsarn, Stirlingshire.

MR. J. T. DICKSON, late Foreman Dover House Gardens, as Head Gardener to J. J. SMITH, Esq., Southwood House, Eltham, Kent.

MR. G. BARRELL, for the past two years Foreman in the Gardens, Adare Manor, county Limerick, Ireland, as Gardener to the Earl of DUNRAVEN, Dunraven Castle, Bridgend, Glamorganshire.

MR. C. S. JONES, late Foreman at Orleans House Gardens Twickenham, as Head Gardener to C. W. PERRYMAN, Esq., Bifrons, Farnborough, Hants.

MR. T. BYZ, for the past five years Foreman to the late L. T. GAY, Esq., at Ditcham Park Gardens, Petersfield as Head Gardener to CHARLES J. P. GAY, Esq., at the same place.

MR. G. W. LYDDIARD, for the past three years Foreman at Tutton Park Gardens, Knutsford, Cheshire, as Head Gardener to JAMES DIXON, Esq., Edenhurst, Sevenoaks, Kent.

MR. D. S. LOUDON, for the past eighteen months as Outside Foreman in the Gardens, Hallyburton, Coupar-Angus, N.B., as Gardener to Miss RONALDSON, Howick Grange, Leabury, R.S.O., Northumberland.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
	Above (+) or below (-) the Mean for the week ending September 30.	Above 45° for the Week.	Below 45° for the Week.	Above 45° difference from Mean since January 1, 1899.				
0	4-	32	7	+ 314	8	166	34.8	19
1	5-	37	8	+ 157	24	13	24.5	24
2	3-	50	0	+ 307	98	7	183	17.9
3	3-	62	0	+ 373	196	6	120	15.9
4	3-	52	0	+ 374	142	4	119	18.8
5	2-	76	0	+ 504	183	8	103	16.6
6	3-	39	1	+ 217	48	6	162	35.5
7	3-	53	0	+ 379	146	5	145	26.5
8	2-	69	0	+ 559	121	8	130	27.2
9	3-	44	2	+ 296	70	6	170	27.3
10	3-	54	0	+ 427	55	1	141	29.7
* 1	-	101	0	+ 764	67	19	123	19.7

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E. 4, Midland Counties; 5, England, including London. Principal Graining, &c. Districts—6, Scotland, W. 7, England, N.W.; 8, England, S.W.; 9, Ireland, N. 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending September 30, is furnished from the Meteorological Office:—

"The weather during this week was extremely unsettled and much rain fell in all parts of the kingdom, accompanied at times by thunder and lightning. In many parts of England, however, there were frequent intervals of bright sunshine.

"The temperature was below the mean, the deficit ranging from 1° in the Channel Islands, to 4° in Scotland, N., and 5° in Scotland, E. The highest of the maxima were registered, as a rule, on the 25th, and ranged from 69° in England, S., to 57° in Scotland, N., and 57° in Scotland, W. The lowest of the minima were recorded during the latter half of the period, and ranged from 29° in the Irish districts, 20° in England, N.E., and Scotland, W., and 31° in several other districts, to 37° in England, S., and to 47° in the Channel Islands.

The rainfall exceeded the mean in all districts, the fall in most cases being more than twice as much as the normal value.

"The bright sunshine exceeded the mean amount in England, E., the Midland Counties, and England, S., and just equalled it in several northern districts; elsewhere there was a deficiency, that in Scotland, N., and the Channel Islands being large. The percentage of the possible duration ranged from 46 in England, E., and 41 in England, S., to 21 in England, N.E., and to 19 in Scotland, N."



THE

Gardeners' Chronicle

No. 668.—SATURDAY, OCT. 14, 1899.

FROM THE LAKE OF GENEVA TO THE ALPS BY TRAIN.

STARTING from the moist, warm shores of the Lake of Geneva, the waters of which are of a tint of blue, that to describe would involve a charge of exaggeration, the traveller may in the course of two or three hours pass from climate and scenery which are Italian in character, to the grandeur of alpine rock and precipice. The journey is effected by a combination of hauling and pushing up a slope as steep in some parts as 1 inch to 1½ inches. This is a convenient way of making ascents—it saves time and fatigue; and, in spite of Mr. Ruskin, it does not materially disfigure the landscape, being quite insignificant in relation to the colossal masses of rock it scales and perforates, whilst it allows many appreciative folk to study and admire what otherwise they would be unable to do. The way up lies through the vineyards, where the vintage is just commencing, and the leaves to put on their autumnal robes of splendour. Lizards bask on the terrace-walls supporting the Vines; big snails, and bigger slugs, suggest that the pasturage is good. And then we come to the Chestnut woods, with their dark green foliage, and their dense masses of bristly capsules, which one thinks must puzzle even the lithe squirrels which bound and leap across the track. Beyond the Chestnuts, the line passes through pastures studded just now with the flowers of the Colchicum, and then it plunges into the woods; at first, mainly of deciduous trees, the colours of the Beech contrasting vividly with the dull, black-green of the Spruce.

The colour of the Aspen Poplar is also noteworthy, the leaves being of a rich purplish or puce colour. Up—up, always up! among the Spruces, with here and there a Silver Fir in association. The Spruces are heavily laden with cones, but not a cone is to be seen on the Silver Fir. By-the-by, is it not unusual to find Silver and Spruce growing together in this way? We have not our Pliny at hand, but memory recalls the substance of a passage wherein he says that the Spruce grows on the loftier elevations, and the Silver Fir at the lower levels; and this holds good in most cases. May not the absence of cones indicate that the tree is not quite at home at these great elevations?

Presently we get above the level of the trees into a stony wilderness, with the boldest and grandest of rocks and cliffs—some stout, thick, rounded, as if nothing could wear them down; others thin, and pointed to a degree that they actually suggest the cardboard rocks one sometimes sees on the stage! Frost, ice, water, and other agencies have weathered the rocks into pinnacles and serratures, and every streamlet that follows on a rain-shower, or on the melting

of the snow, deepens and widens the gully, which now becomes a watercourse, and is destined in due time (but not computable) to form a lateral valley! The alpine pasture at the base of these rocks is doubtless a vast flower-garden in spring. Just now there is only a belated Gentian or two (*G. campestris* and *G. pneumonanthe*); but if floral colour is lacking, that of the foliage forms no inadequate compensation.

Some of the "Alps" are flecked with the bold, broad, decaying leaves of *Gentiana lutea*, like so many pieces of cloth of gold spread out upon the grass; whilst the rocks are often glowing with the brilliantly golden colour of the two alpine Willows, relieved here and there by patches of purple *Cotoneaster*, and the grey-green of *Juniperus nana*. The colouring of the Willows is indeed magnificent in the sun, and the rocks gleam with a colour which is oriental rather than alpine. We are not going to say a word about the distant view of mountains and lakes, the peaks, passes, and glaciers, they are beyond the limitations of pen and ink, and are not horticultural in character. This latter statement requires some modification, for, see, a sign-post points to the "Jardin Alpin"! This is too tempting to be resisted, and so I clamber up a path which runs round a deep, bowl-shaped "combe," and there, between two huge projecting rocks, we pass from the north to the south side through a chasm, which leads to a ravine facing due south, and reminding one (with a difference *bien entendu*) of the cliffs at the Warren between Folkestone and Dover, and especially of a rock-cleft known at Lydden Spout. In this gully M. Correvon has planned an alpine garden—indeed, the plan is partially carried out; well-stocked beds and pockets for the reception of alpine plants may be seen lining the sides of the ravine, and the vertical clefts are filled with Saxifrages, Sedums, *Dianthus*, Iceland Poppies, and we know not what beside, for on October 5 we do not expect to find much in bloom at this elevation, 7000 feet. Moreover, sheep and chamois find the herbage toothsome, and many plants are nibbled down to the core. We saw some indications of means being taken to prevent these incursions, but if they can keep out the sheep, it is not so easy to prevent the chamois from leaping the fence, and enjoying the salad provided for their use, as they think!

It is easy to see the intention of the designer of this unique garden, and as funds increase, a devious way, flower-lined on either side, will lead the visitor down the face of the rock to the "Alp" below. At every turn there will be something attractive, so that the visitor will be puzzled in which direction to look. In front of him there is an enchanting Alpine panorama; behind him rocks, wonderful rocks; and on all sides flowers—and yet more flowers. As has been said, this was not the season for flowers, and the chamois prove bad gardeners. Nevertheless, the active creatures are not so troublesome as some students who amuse themselves by removing or transposing labels, for they are good enough not to uproot the plants, and these tallies serve in a measure to indicate the richness of the collection.

Perhaps at some other time we may be enabled to give an illustration of a garden which, though not of long-standing, is well placed, well designed, and well stocked. The reader who cares to know more of its whereabouts may be told that it is at the Rochers de Naye, and that it is easily accessible by mountain railway from Montreux.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM HARRYANUM HYBRID.

M. C. VUYLSTEKE, of Loochristi, Ghent, has kindly forwarded two flowers as examples of his success as a raiser of hybrid *Odontoglossums*, an honour which even many of our keenest hybridists are still lacking. The beautiful hybrid is doubtless of the same parentage as *Odontoglossum* × *Rolfes* (*Pescatorei* × *Harryanum*), though in this instance it may be the result of the inverse cross to the original, both having been crossed and raised by M. Vuylsteke. The finely-formed flowers are 3 inches across, their ground colour a cream-white, the apical end of each of the sepals and petals being heavily stained with purple, which shows through at the front. Inside the margins of both sepals and petals are some rich purple blotches, with clusters of blotches of the same colour in the middle of each. The lip is yellowish-white, spotted with dark-red at the base, the front being unspotted. The spiny yellow crest bears pandurate lips, which are well intermediate between the parents suggested.

THE FINE FLOWERING OF CATTLEYA WARSEWICZII.

Probably the fine bright autumn of last year had something to do with the extraordinary flowering of the *Cattleya Warszewiczii* this year, by getting the growths well ripened. We had good strong breaks, and the sunny weather finished them off well, making the flowering of the plants this season quite out of the common. We had 96 per cent. of our plants in flower, and many with seven blooms on a spike, a great many with five and six, very few having less than four large blooms. *H. Red, Cassi bury, Watford.*

PROTECTING PEACH BLOOM.

THE greatest diversity of opinion would appear to prevail among gardeners as to the need for defence against frost in the flowering period.

Apart from purely local circumstances, as, for example, a damp low-lying situation, the presence of water at no great depth, a heavy clayey soil, or shade from tall trees, I am inclined to attribute success or non-success to latitude, and the influence of the Gulf-stream. My gardening experiences were gained in Gloucestershire, Warwickshire, Surrey, Dorsetshire, Hants, and Northumberland; and in three only of these counties was there any need to afford protection, viz., Surrey, Warwickshire, and Northumberland; i.e., in those the farthest removed from the influence of the Gulf-stream. Northumberland has a notoriously inclement spring climate, frosts commonly occurring at night during the greater part of the flowering season, with very cold bright days, that help to forward the bloom on wall-trees very rapidly. In gardens in this county at a distance from the ameliorating influences of the sea, it is seldom that the Peach ripens its wood thoroughly, unless the walls are provided with flues, when no difficulty in this respect need arise; and is equally rare to secure a good, or even a fair, crop of Peaches or Apricots if no protection be used. In some years the wood is so immature that no blooms are produced.

In Surrey and Warwickshire there is no difficulty in getting the wood matured, but spring frosts being often severe renders the protection of the flowers very necessary. In Surrey the summer warmth is sufficient to ripen Nectarines and Peaches on walls facing east and west; in fact, these fruits are the better in some hot, dry localities for being planted on these aspects than on a southern aspect, the fruits on the last-named often getting scalded by sun-heat when much exposed.

In Dorsetshire, Gloucestershire, and Hampshire, the Peach ripens its wood perfectly, except perhaps in a few gardens situated at great elevation, and there is but little need to afford spring protection. The chief difficulty that I had with

Peach-trees in two of these counties, was the controlling of the growth, any failure to effect this invariably resulting in a few years in the utter unfruitfulness of the trees. This state of things is mostly due to an abundant rainfall, the frequent occurrence of sea-fogs, and the mildness of the climate. The only cure was triennial lifting and root-pruning, shallow planting, and a restricted use of manures, either solid or liquid. I do not remember ever having occasion to afford water or manure-water to any Peach-border during a residence of ten years in these three counties.

In a garden in Dorset, of which I had charge for about six years, I was informed by the out-going gardener that he had had no fruit from his Peach and Nectarine trees for many years! And yet they were in point of training and in general appearance perfect; but a close inspection showed that what should have been the bearing-wood was gross sappy, almost wholly green, and destitute of flower-buds. The causes and the remedy were evident, and by transplantation, root-pruning, and shallow planting, fruitfulness returned to all of the trees in a couple of years. That occurred many years ago, before the practices referred to had had time, as I may suppose, to travel so far South. It would, therefore, appear certain that no one formula can be made to fit all the climatic conditions of this little island, and that gardeners must be guided, in his as in other matters connected with their business, by the climatic conditions prevailing in that particular part of the country in which the garden is situated, and not by that which others in different parts of the country find appropriate in theirs. *A Traveller.*

TERREGLES, DUMFRIES, N.B.

THE name of Terregles is not unknown to readers of Scottish history. Its owner, Sir John Maxwell, was one of the faithful followers of the ill-fated Mary, Queen of Scots, and it was at Terregles Tower that she passed a night before embarking for England after the disastrous battle of Langside. It was from Terregles, too, that the brave Countess of Nithsdale set out for London in her daring and successful attempt to effect the escape of her husband from the Tower. The place is still pointed out in the garden where, tradition says, the title-deeds of the estate were concealed before she departed on her hazardous errand. More might be told of the associations of Terregles were it not that one seeks to tell of it from the horticultural and not from the historical point of view.

Like many other gardens, those of Terregles have suffered from several causes. One of the most potent of these has been the changes caused by death, through which the place has been let, and occupied by different tenants. At present, Terregles is the property of Mr. Maxwell-Stuart of Traquair, and is occupied by Mr. C. E. Galbraith, who, until recently, lived at Ayton Castle, Berwickshire. Mr. John McKinnon, the head-gardener, came with his employer from Ayton, and to him I am indebted for much courtesy on the occasion of a visit in the beginning of September.

Terregles possess many natural beauties. Some of these have been utilised, but others, on account of the changes already alluded to, remain partially undeveloped. Among the latter are several lakes, which would add greatly to the charms of the estate were they tastefully planted with aquatics and margined with moisture-loving plants. It is not improbable that this may be taken in hand.

One of the most conspicuous features is the Italian garden, which occupies a broad terrace close to an apparently artificial ravine. The plan of this garden is more simple than many of the Italian gardens one sees, and it is planted in a suitable manner. Zonal Pelargoniums are largely used, the dry soil and position making them more suitable than Begonias. The whole effect is very good, though slightly marred by the presence of some large specimens of *Rhus typhina*, which appear to have been in the position for several years. The terrace-garden is connected with the other side of

the ravine by a rockwork bridge of a picturesque character. The high, clipped Yew hedges are quite in consonance with the style of a terrace-garden.

The greater number of the flowers needed are grown in and about the kitchen garden. Here a considerable space is taken up with flowers of value for cutting, but at the same time regard is had to the general effect of the garden. One cannot without trespassing too much upon space, detail the plants grown in the borders. Herbaceous flowers are cultivated in considerable quantity. Great use is made of early Chrysanthemums and Dahlias. Violas do well at Terregles, and Mr. McKinnon is happy in being the possessor of several of Dr. Stuart's new varieties, not yet available to the flower-grower in general. The beauty and fragrance of the Sweet Pea is fully recognised, and some sixty varieties are grown. Other annuals are cultivated in great numbers. Carnations are much in request, and seedlings are preferred because of their greater floriferousness. One must not omit the Violets, which are exceptionally well done. The variety California, in particular, was remarkably fine for the district. One or two other varieties of the same type are being tried, and several of the older Violets of proved worth are equally well cultivated.

In the glass structures, which are numerous, although not too many for the requirements, decorative plants for the mansion and flowering-plants for cut bloom are finely grown. The conservatory, at the time of my visit, was brilliant with a varied collection of flowers. Some plants of the old *Heliotropium peruvianum* filled the atmosphere with its delicious perfume, and Lilliums, Fuchsias, Hydrangeas, Pelargoniums, and many others added their charms to the display. The Fernery contains a nice collection of exotic Ferns. One also observed a capital lot of Eucharis, as healthy as any one could wish to see; with a number of fine Crotons, Marantas, Palms, and other plants decorative either in flower or leaf. Good Grapes, Peaches, and Tomatos, also showed that indoor fruits receive due attention.

Outdoor fruits, as Mr. McKinnon reported in the *Gardeners' Chronicle*, are not an average crop, but many a gardener would be glad to have such a crop of Apples in the gardens under his charge.

With the exception of the Brassica family, vegetables were generally good. Carrots were very fine, and this is attributed to a dressing of soot, lime, and mustard refuse, applied soon after the seedlings appeared.

About 900 Chrysanthemums are grown, including a good proportion of single-flowered varieties.

The mansion of Terregles is a large building, but its exterior has not an ornate appearance. Its chief interest lies in its having been referred to in one of Robert Burns' poems. In the grounds adjoining there are some fine Conifers and deciduous trees. Among the most noteworthy of these are a fine Douglas Fir, a good *Pinus sylvestris*, a fine *Abies Menziesii*, and a Spanish Chestnut of great age, and of magnificent proportions. *S. Arnott.*

THE ARABIAN DATE-TREE IN INDIA.

AFTER all the supposed failures regarding the introduction of the Arabian Date Palm to India, and after all the adverse criticisms regarding the unsuitability of the climate of India for the successful cultivation of this tree, it is gratifying to read in the *Indian Gardening*, September 7, 1899, the following. In a review of the annual report of the Saharunpur Gardens, for the year ending March 31, 1899, it says:—

"Strange as it may appear, the Arabian Date Palm has at last consented to bear fruit plentifully, and of good quality, at Saharunpur, and Dr. Bonavia may yet be able to point with pride to the realisation of his idea of the Arabian Date Palm being naturalised in this country."

I never had any doubt that this Palm could be successfully and advantageously grown in some part or other of India, from what I had seen of its progress in Lucknow.

Many people perhaps might suppose that India is about as big as the five letters of which its name consists! while in reality it is about as big as Europe without Russia, and with a great variety of climates and soils. As a matter of fact, it has been naturalised for centuries in Mooltan, where it contributes to the people's food.

The Date-tree is not like Apple and Pear-trees, which come to a bearing age in a few years. It takes many years of cultivation before it displays its worth; and it is hoped that the Government of India will persevere in this important experiment, which should have for one of its objects the discovery of the most suitable tracts of country for the cultivation of this most useful tree. When once it "consents to bear fruit plentifully and of good quality," it may go on doing so perhaps for a century or more. If it can give a successful crop in Saharunpur, there can be no reasonable grounds for doubting that it would do better in more favourable localities. As it is not a wildling—although the wild Date-tree grows all over India—it would require some attention and cultivation to enable it to do its duty well, even under the best conditions of soil and climate.

If some of the native chiefs were to employ a Date-grower from the Persian Gulf, there is good reason to suppose that its proper cultivation, and the proper curing of its fruits, would be readily taught to the natives, and in time this important tree would spread. It can be readily propagated both by offsets and by seeds. The latter might in time produce varieties which would be perfectly suited to the soils and climates of various localities. *E. Bonavia, M.D.*

LILIUM HARRISII FOR MARKET PURPOSES.

THIS season's crop of bulbs of this beautiful Lily is now on the market, and if required for flowering at Christmas and New Year, the bulbs should be procured at once. What I have seen this year, are in good condition. They are put on the market in three sizes, 5 to 7, 7 to 9, and 9 to 11 ins. in circumference. The two latter sizes are the best for growing, either for private or market growers. If growing for market, it is as well so to manage as to have them in bloom at Christmas and Easter, and as at these seasons the flowers fetch the highest prices, I am of the opinion that it does not pay to have them in bloom unless a grower has a retail connection. The bulbs should first be inspected, and the decayed scale removed, and when they are potted, some sand should be put at the base of the bulb, or a little sulphur dusted over them. A good compost will consist of three-parts fibrous loam, leaf-mould and rotten manure, with enough sand as will give porosity. The bulbs should be put into 5-inch pots, and should be placed about 1½ inch below the rim, so as to allow of a top-dressing being afforded when required, but leaving the crown of the bulb above the soil. They should then be placed in a cold frame and afforded water, and when this has thoroughly drained away, cover them with a layer of Cocoa-nut fibre refuse, about 5 inches thick. When the bulbs are well rooted and growth is observed coming through the refuse, the latter should be removed, and the plants placed in the greenhouse. As soon as the upper roots begin to grow, a top-dressing and a small quantity of Clay's fertiliser may be afforded. Each plant should then be staked, and placed on the stage. They may then be syringed twice daily, care at all times being very necessary in applying water, too much being very injurious, soon causing the roots to rot. It is better to raise the temperature of the house gradually than to place them in a high temperature all at once. Keep a good look out for green-fly, and if any are observed fumigate forthwith. When the buds are observed some weak manure-water may be afforded. As fast as the flowers open, the anthers should be removed in the morning, as the pollen is apt to spoil the look of the flower. *X. Y. Z.*

A FUNGUS PARASITE ON ALOE.

A VERY remarkable parasitic fungus has just been forwarded to the *Gardeners' Chronicle* for determination (fig. 98). It was communicated by Mr. Thos. Rogers, Manchester, who states that it occurs on the leaves of an Aloe that is common on the hill-sides in Cape Colony, S. Africa. As only small portions of leaves were received, the host-plant cannot be determined with certainty, although the material at command suggests Aloe platylepis, Baker.

When fully developed the fungus forms black, convex circular patches, varying from 1 in. to 1½ in.

usually rupture, and appear on the surface; hence, in a developing patch the central portion is quite black, whereas at the circumference the patch is silvery-white, due to the dead epidermis not yet being ruptured, while between these two points the stroma may be seen just bursting through the epidermis.

This method of extending from a central point in concentric circles is similar in origin to the formation of fairy-rings in pastures by the fairy-ring Mushroom or Chantrelle—*Marasmius oreades*; only in the latter instance a single ring is formed each season by the extending mycelium present in the soil, and this ring disappears before the forma-

tion, superficie tuberculata, atra, 4–5 cent. lat., 6–8 cm. alt., epidermide diu velata; loculis semierectis, parvulis; ascis obovatis vel subglobois, 60 × 40–45μ, octosporis; sporis tristictis, cylindraceo-fusiformis, utrinque obtusatis, medio 1 septatis, ad septum constrictis, demum triseptatis, 30–32 × 6–8μ, e hyalino fusciculis. *Geo. Massee.*

NOTES FROM A SCOTTISH MANSE.

OUR gardens undergo a considerable change at this period of the year. Autumn is gradually receding into winter; we almost feel, in moments of saddening anticipation, as if we were already standing beside the death-bed of Nature's bloom. Many of our fairest garden treasures that flowered so luxuriantly during the summer and early autumn are disappearing by imperceptible gradations from our gaze. One by one the flowers of the Viola, so precious for their fragrance not less than for their capability of floral effectiveness, are passing away; only a very few blooms of Violetta remain to charm us still. Phloxes and Delphiniums, whose season has this year been of marvellous duration, in this region at least, have at last reached the confines of their well-won repose. Here the latter, whose shades of purple and deep blue are especially valuable, in association with other beauties, for artistic effect, have bloomed twice in succession during the autumnal months, thereby revealing a perpetual tendency which I have hitherto regarded as being in such instances exceedingly rare. But the term "perpetual" is quite a misnomer as applied to hardy flowers; it might in some special cases be sufficiently expressive had we, like Michael Bruce's cuckoo, no winter in our year. But our flowers would have to be translated during that rigorous and exacting season, like the cheerful bird in question, to summer climes, to accomplish this; so that the term, if literally interpreted, is hardly admissible. The French word *remontantes*, as applied to

Roses,

is much more intelligible, and many of them are, unquestionably, worthy of the name. The atmospheric influences to which during the last month our Hybrid Perpetuals, Teas, and Hybrid Teas are subjected have been abnormally severe; day after day they have been assailed by severe tempests, strong enough to blow down branches from the surrounding trees; and desolating rains often mingled with fierce hail. Yet in their strongly-protected enclosures many of them have survived the shock, and with wonderful facility—I had almost said equanimity—are blooming still. Conspicuous among these are Margaret Dickson, an extremely strong-growing and grandly productive Rose, which should be included by the cultivator in every collection that is worthy of the name; her fair Irish sister, Mrs. Sharman Crawford, a dangerous rival of Mrs. John Laing; though the latter fine variety, even more valuable for exhibition by reason of its somewhat more imposing dimensions, still maintains its popularity.

Among Tea Roses that continue to flower surprisingly at this season of transition are Marie Van Houtte, recently eulogised by Dean Hole in a letter to myself, written from Cauntton Manor in Nottinghamshire, his ancestral home, where he still cultivates with his olden love for its beauty, his favourite flower. Madame Lambert, whose buds are produced with almost equal freedom, and by reason of their substance, last longer when in bloom; Madame Hoste, the most refined in aspect, and most reliable of the pale yellow Teas; though Medea, raised by Mr. Paul, of Waltham Cross, is, while not achieving so much in late autumn, a Rose of stronger petals, and richer hue; Innocente Pirola, an almost pure white variety, of exquisite texture, and, though of small stature when compared with some of its statelier contemporaries, a most attractive Rose. Of the Hybrid Perpetuals that have of late been conspicuous among their less active companions,

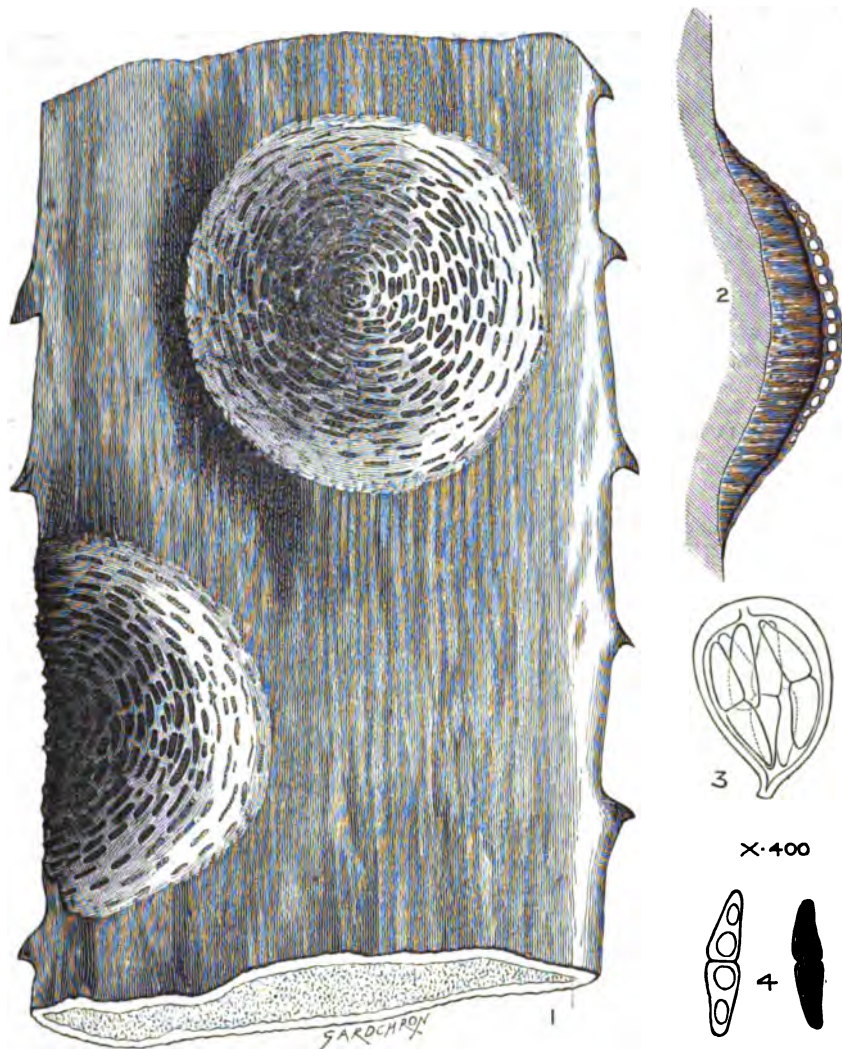


FIG. 98.—FUNGUS PARASITE ON ALOE.

1, Portion of an Aloe-leaf showing two patches of the fungus, nat. size; 2, Section through the fungus, nat. size; 3, Ascus containing spores, magn. 400; 4, Free spores, magn. 400.

in diameter. In some instances the fungus occupies a corresponding position on both surfaces of the leaf; in others it is present on one surface only, a corresponding depression forming on the opposite side of the leaf.

The stroma, or fruit-bearing portion of the fungus, first shows on the surface of the leaf at the central portion of the diseased patch, under the form of detached but closely packed black spots, the increase of the patch being due to the continued growth of the black spots grouped in concentric rings round the oldest central portion. The rings spring from the mycelium of the fungus, which radiates in the tissues of the leaf equally on every side from the point of infection. The black patches of the stroma of the parasite are developed below the epidermis of the leaf, which they even-

tion of the succeeding ring of next season; whereas in the Aloe fungus the rings are persistent, and consequently at maturity the patch consists of a considerable number of crowded concentric rings, the central one of which is the oldest, and the external one the youngest. The external surface of the stroma is minutely warted, each wart covering a cavity containing a cluster of asci, each ascus in turn containing eight spores. A solution of potassium hydrate extracts a deep purple colouring matter from the stroma of the fungus.

An allied fungus, *Montagnella uberata*, Sacc., is parasitic on leaves of Aloe abyssinica, in Abyssinia. As the fungus proves to be a hitherto undescribed form, the following diagnosis is appended:—

Montagnella maxima.—Stromata epiphylla vel amphigena, innato-erumpentia, pulvinata, orbicu-

are Cheshunt Scarlet, A. K. Williams, Captain Hayward, and Marquis of Salisbury; though, by reason of the weather they have recently experienced, their achievements have not been equal to those in previous years. The Hybrid Teas, under the conditions to which I have already alluded, are much more reliable. Almost the only Noisette varieties that bloom in my own garden at this late season of the year, are Bouquet d'Or, which has already exhausted its resources; and the picture-resquely-clustering Aimée Vibert, which is flowering profusely still, at a height of 15 feet. An occasional fine bloom of splendid colour may still be discovered on that venerable climber, Gloire de Dijon, and its beautiful daughter, Belle Lyonnaise.

ORIENTAL LILIES.

Of oriental Lilies, whose somewhat late appearance always give them, in my estimation, a peculiar value, like that which the last of the Cactus and decorative Dahlias possess, are *Lilium auratum* platyphyllum, the grandest representative of the gorgeously-coloured family of *Lilium* to which it belongs (and which I have sometimes seen at Logan House, in this parish, towering amid enviroing Cedars and Larches to a height of 9 feet); and the white and red *L. speciosum*, *L. album*, *L. rubrum*, and *L. Kraetzleri*, all of which are delicately fragrant, and richly decorative, but of which the variety last-mentioned is undoubtedly the loveliest, with its snowy-white flowers, and tender green shading at the base of the petals, so exquisite in effect. The majority of Japanese Lilies are too tropical in their perfume to be perfectly appreciable; but here is a species whose fragrance is fascinating, because it is refined. *David R. Williamson*, *Kirkmaiden*, *N.B.*

THE WHEAT CROP OF 1899.

In my report on the Rothamsted experimental Wheat crop of 1898, published in the *Gardeners' Chronicle*, November 5, I stated that owing to very unfavourable weather, which laid the crops of many of the plots about the time of blooming, the results could not be taken as representing the average yield of the country, as in all but very abnormal seasons they had done so remarkably for many years past. It was further stated that, if the estimate given in the *Times*, of 35 bushels per acre (of indefinite weight?), and said to be founded to some extent on the yields of the thrashing-machine, were confirmed, the requirements from stocks and imports for the harvest year would amount to from 21 to 22 million quarters. The actual amount of net imports was, according to the "Trade and Navigation Returns," 22,800,148 quarters; and as it is estimated that the increase of stocks amounted at the end of the harvest year to about 1½ million quarters, this would bring the amount of foreign grain consumed to something over 21 million quarters. The subsequent estimate of the Board of Agriculture was 34.75 bushels of indefinite weight, for the United Kingdom, which, adopting the probable average of 61½ lb. per bushel for the home crop, would be equivalent to 35.6 bushels per acre at the official weight of 60 lb. per bushel; and calculation shows that the available home produce so reckoned, together with the actual imports, less the increase of stocks, would supply the population with almost exactly 6 bushels per head at 60 lb. per bushel—that is, assuming that the consumption of home produced Wheat, old and new, approximately represented the available home crop.

Turning now to the Wheat crop of the present year, let us first consider the characters of the season. There was a great deficiency of rain in September (1898), and some deficiency in both October and November; but an excess in December, January, and February. The autumn was therefore very favourable for working the land and sowing the seed; but the seed-bed was rather too light. In each of the six months—September, 1898, to February, 1899—the temperature was considerably higher than the average; and with this, and more

than average rainfall in December, January, and February, fear was entertained that the Wheat would be what is called "winter-proud." In March there was a considerable deficiency of rain, with great fluctuations of temperature, which was, upon the whole, lower than the average. In April and May, however, there was again an excess of rain, with fluctuating temperatures, but, upon the whole, lower than the average.

The general characters of the season so far were, therefore, conducive to over-luxuriance during the winter, and to a continuation of vegetation with little maturing tendency in the spring. In each of the months of June, July, and August, there was a great deficiency of rain, with considerably over average temperature, especially in July and August; whilst in each of the three months, the number of hours of bright sunshine was much in excess of the average of the preceding seven years. The period was, in fact, generally very favourable for the ripening of Wheat; though, in some cases, spring-sown corn crops ripened too quickly. Farmers may also be congratulated on having had harvest-weather as nearly perfect as they could desire, and if the yield does not reach that of the remarkable crop of 1898, they may still consider that they have a Wheat-crop which is over average in both quantity and quality of grain, and also an abundance of straw.

The following table shows in the usual form, the produce on the selected plots in the experimental Wheat-field at Rothamsted in 1899, which is the fifty-sixth year of the successive growth of the crop on the same land. It also gives, for comparison, the average produce of the same plots over the preceding 10, 37, and 47 years, 1852–98, inclusive.

Years.	Unmanured Plot 3.		Artificial Manures.					Mean of Plots 3, 4, and 7, 8, 9 (or 10)
	Farmyard Manure, Plot 2.	Plot 1.	Plot 8.	Plot 9 (or 10)	Mean.			
BUSHEL OF DRESSED GRAIN, PER ACRE.								
Present year, 1899	12	42½	31½	39½	37½	36	30½*	
Averages :—								
10 years, 1880-98	12½	40½	33½	37½	32½	34½	29½	
37 years, 1852-88	13	84	32½	30½	36½	35½	26½	
47 years, 1852-98	12½	35½	33	6½	35½	35½	27½	
WEIGHT PER BUSHEL OF DRESSED GRAIN IN POUNDS.								
Present year, 1899	61½	61½	61½	61	61½	61½	61½	
Averages :—								
10 years, 1889-98	60½	61½	61½	61½	60½	61½	61	
37 years, 1852-88	58½	60½	59½	59½	59	59½	59½	
47 years, 1852-98	58½	60½	60½	59½	59½	59½	59½	
TOTAL STRAW, CHAFF, &c., PER ACRE, CWTs.								
Present year, 1899	9½	52½	40½	50½	44½	48½	36½	
Averages :—								
10 years, 1889-98	9½	39½	33	41½	35½	36½	28½	
37 years, 1852-88	10½	31½	33½	40½	41½	38½	27	
47 years, 1852-98	10½	33½	33½	40½	40½	38	27½	

* Equal to 31 bushels at 60 lb. per bushel.

† Equal to 29½ bushels at 60 lb. per bushel.

‡ Equal to 27½ bushels at 60 lb. per bushel.

§ Equal to 27½ bushels at 60 lb. per bushel.

The continuously unmanured plot gave in 1899 a produce of 12 bushels per acre, at 61½ lb. per bushel, an amount which is slightly below the average of the preceding ten years. The farmyard manure gave 42½ bushels, which is above the average of either the ten, the thirty-seven, or the forty-seven years. The mean of the three artificially-manured plots is 36 bushels, the highest of the three reaching 39½ bushels. Referring to the quality of the grain as shown by the weight per bushel, it is seen that there was great uniformity among the five experiments, all showing 61 lb. or more, and none reaching 62 lb. The unmanured and the farmyard-manured produce show, however,

the highest weight per bushel; and in the case of each of the five plots the weight is, with one trifling exception, higher in 1899 than over the ten, the thirty-seven, or the forty-seven years.

All the manured crops were characterized by large and much more than average produce of straw. On one of the artificially-manured plots (8), the amount of straw was within a few pounds of 3 tons per acre; on the dunged plot it was more than 2½ tons, and in each of the other cases it was much more than the average of the ten, the thirty-seven, or the forty-seven years.

Calculating the average produce of the selected plots in the usual way, that is, taking the average of plot 3, plot 2, and the mean of the three artificially-manured plots, the result is a produce of 30½ bushels, at 61½ lb. per bushel; which, reckoned at the official weight of 60 lb. per bushel, gives an average of 31 bushels. Assuming this fairly to represent the average produce of the country at large, the result would be as follows:—The area under Wheat in the United Kingdom was rather over two million acres (2,052,840), which at 31 bushels per acre (of 60 lb. per bushel), gives a gross produce of rather under eight million quarters (7,954,755). Deducting from this 2 bushels per acre for seed, the estimated available home produce is rather less than seven and a half million quarters (7,441,545), or not far from one and a half million quarters less than last year. The average population for the current harvest-year is estimated at 40,807,717; and taking the consumption per head at 6 bushels, of 60 lb. per bushel, the total requirement for the harvest-year will be 30,605,788 quarters. Deducting from this the available home produce of rather less than seven and a half million quarters, there remain rather more than twenty-three million quarters (23,164,243) to be provided from stocks and imports.

Wheat has this year been grown in two other experimental fields at Rothamsted. In one case no cereal crop has been grown on the land for many years, it having been devoted to the continuous growth of various leguminous crops; and during the last few years seven different descriptions have been so grown side by side. The land under this treatment having become foul, it was decided to summer-fallow it, and then to take a crop of Wheat. As might be expected, some of the leguminous crops left more manurial residue in the land than others. Indeed, in some cases the Wheat was so luxuriant that it was laid flat quite early, whilst in others it stood up well. In two of the seven cases the produce was between 39 and 40 bushels, but in the others it ranged from 42½ to more than 45 bushels; whilst the weights per bushel of the grain ranged from 63.6 to 64.4 lb.; and the amount of straw was in only one case as low as 2½ tons, and in the other six it averaged about 2½ tons. The other field has been devoted to experiments on the ordinary four-course rotation of roots, Barley, Clover (or Beans), and Wheat, both without manure, and with different descriptions of manure.

The experiments were commenced in 1848, so that 1899 is the fifty-second year of their continuance, and the Wheat just grown is the fourth crop of the thirteenth four-yearly course. Taking for illustration the results obtained on the plot, which has been unmanured from the commencement, and from which the whole of the crops have been removed from the land, the general result (omitting that of the first course), is as follows: Under this exhausting treatment, the Turnips gave practically no crop at all after the first course. The produce of Barley has also declined very much, the crops averaging considerably less than half as much over the last four as over the preceding eight courses. On the other hand, the yield of Wheat was in this favourable season 30½ bushels at 63.2 lb. per bushel, which is about 4 bushels more than the average of the preceding eleven courses. These results illustrate the remarkable capability of Wheat to collect its food from what is, agriculturally speaking, exhausted soil, provided that the land is well-cultivated and kept clean. This

capability is, in fact, of great importance to bear in mind when we consider the increasing number of the world's population consuming this grain. *J. B. Lawes, Rothamsted, October 5, 1899.*

BULBOPHYLLUM MANDIBULARE.

BULBOPHYLLUMS are a curious race of Orchids, and as a rule they do not find great favour in the eyes of gardeners. So far as singularity is concerned, the subject (fig. 99) of the present note is no exception to the rule, but the large size of its flowers entitle it to some attention. It is a native of North Borneo, where it was discovered by Mr. F. W. Burbidge; and it first flowered with Messrs. Veitch & Sons, of the Royal Exotic Nursery, Chelsea, in 1882. It again appeared in the collection of Sir Trevor Lawrence, Bart., M.P., and received a Botanical Certificate from the Royal Horticultural Society.

The sepals and petals (the latter being much smaller) are greenish-yellow, striped with brown, and the curious lip has a mass of purple hairs or prickles on a pale ground. *J. W.*

MARKET GARDENING.

MARGUERITES.

THERE are few more profitable plants than Marguerites to grow out-of-doors for supplying cut-flowers during the summer and autumn months; the beautiful golden-yellow flowers, and undeveloped buds of Feu d'Or, and of the white-flowered type, always command a ready and remunerative sale. No time should now be lost before putting in the necessary batch of cuttings of both yellow and white varieties. Take cuttings of about 4 inches long, and insert them at a distance apart of 3 or 4 inches in a cold frame or pit. The bed should be only 10 or 12 inches from the glass, and the soil will need to be made fairly firm about the cuttings. All the trimming the cuttings need is the removal of the bottom pair of leaves with a sharp knife before inserting them in the soil, which should be light rather than heavy. The sashes should be put over the cuttings until they have emitted roots, after which they may be drawn off on every favourable occasion in the daytime so as to ensure a sturdy, dwarf growth in the plants, replacing them, however, at night. The plants are fairly hardy, but require slight protection from frost by means of mats, rough grass, straw, or bracken. The Marguerite may be struck and wintered in much the same way as the bedding *Calceolarias*.

CARNATIONS AND PINKS.

The present month is a good time to make plantations of select varieties of Carnations and Pinks for the production of flowers next summer. The ground may be given a dressing of short manure, which should be dug or ploughed into it prior to planting. The land must be harrowed and rolled, in order to pulverise the soil before setting the layered plants therein in rows 15 inches apart, and at the same distance from plant to plant in the rows. Insert each plant well down to the foliage, and make the soil firm about the roots. Of varieties, *Germania*, soft yellow colour, and strong growing; *Yellow Queen*, a yellow, and beautifully-scented variety, the flowers being well formed, full, and of good substance; *Mrs. Turner*, fine pure white; *Raby Castle*, clear soft salmon-pink, with a serrated edge; *Ketton Rose*, Sandringham Scarlet, a very bright scarlet, fine full flower, and very free growing, are six good all-round Carnations. It is true *Germania* has no scent, but it deserves a place on account of its lovely colour. *Mrs. Sinkins* and *Albino* are two of the best Pinks to grow, the flowers of both being of good size, fine form, pure white, and deliciously scented. Bunches or individual flowers of Carnations and Pinks, garnished with their own foliage, always sell easily. The process of disbudding the

flowers repays for the trouble involved, owing to the flowers thus obtained being so much larger and finer in every respect than unthinned flowers. *H. W. Ward.*

PACKING AND GRADING OF TOMATOS, CUCUMBERS, AND GRAPES FOR MARKET.

Generally complaints are heard throughout the season from growers of the bad prices that are obtained for their produce, but it is not always the fault of the commission-agent, as it sometimes rests with the growers, viz., in not grading and packing their produce to the best advantage. Growers



FIG. 99.—BULBOPHYLLUM MANDIBULARE.

should not top their baskets, that is, place good fruit at the top and smaller and indifferent fruit below, as by doing this the custom of the best buyers, who are generally willing to pay a higher price for fruit that can be depended on, is forfeited. It does not matter whether the price is high or low, the same care should be exercised in packing and grading the fruit, and there will always be a demand for it when it is in the market.

Tomatos.—These are generally put on the market in strikes, that is, baskets containing 12 lb. of fruit. Strips of brown paper should be placed round the inside of the basket, and a little hay or wood-wool in the bottom, and two half-sheets of

tissue-paper (the colour of which indicates the quality of the fruit) placed so that when the fruit is packed it may be folded over it. Where large quantities are grown, the fruit can be graded into extra best, best, extra seconds, seconds, and thirds. Different coloured tissue-paper is used to denote the quality, pink for extra best, blue for best, pink and blue extra seconds, white for seconds, and blue and white for thirds. *Extra best* should be fruit of the best shape and colour, averaging four or five fruits to the lb.; *best*, good fruit, but which is not of such a good shape; *extra seconds*, small fruit, but of good colour and shape, averaging about eight or nine to the lb.—these very often fetch as much as *extra best*; *seconds*, large and medium-sized fruit that are marked or disfigured in any way; *thirds*, all very small fruits that have not been properly fertilised. Before packing the three first sorts, they should have their stalks clipped right close to the calyx, as by so doing there is no fear of the fruit being damaged by the stalks penetrating the fruits below when placed in the baskets. They will then be ready for market, if travelling by road; but if they travel by rail the baskets will need a lid, or a covering of hay laced with twine, and in this case a piece of tissue-paper, indicating the quality packed, so that it can be seen without disturbing the fruit.

Cucumbers.—With regard to winter Cucumbers, and when they are fetching a high price, it is best to pack them in trays containing one dozen fruits, as at these periods large quantities, as a rule, are not required by buyers, but as they get cheaper, and the demand is greater, they may be packed in flats. In packing winter Cucumbers, it is best to take the trays and pack the fruit in the house in which it is grown, as if the fruit is taken through the cold air into the packing-shed it will soon become soft, and this will militate against good prices being obtained for it. The trays should have a small quantity of hay placed in the bottom, this being covered with a sheet of tissue-paper, and the fruit placed on the paper, covering with another sheet and some hay. They should then be tied in lots of three trays together, and are then ready for market. In packing the fruits in flats, hay should be placed in the bottom, a sheet of tissue, a layer of fruit, then tissue and hay, and so on, till the flat is full. Each flat will take four layers of fruit, and the quality is determined by the amount of fruit in each flat, namely, 2 dozen, 2½ dozen, 3 dozen, 3½ dozen, and 4 dozen; or as some growers grade, special, best, firsts and seconds. When packing in flats, which should be done in the packing-shed, it is best to cut the fruit and lay it in trays in single layers, a method which is much better than piling the fruit one on top of another, which only does damage to the fruit. But in each case the fruit should, as near as possible, be of the same length, colour, and thickness as they can be got. In handling the fruit, lift them by the collar, taking care not to knock the bloom off, as the better condition the fruit is put on the market, so much better will be the returns for it.

Grapes.—These are graded into three sorts—special, best, and seconds, and can be packed either in shallows (or, as they are generally called, baby-baskets), or in cross-handle baskets. In packing in shallows, the baskets should first be lined with fine wool and this covered with soft tissue-paper. Before placing the bunches in the basket, all shanked and bad-coloured berries should be removed, taking care to place the fruit at once in the position it is to occupy in the baskets, as moving it about removes the bloom and spoils its appearance. Each bunch should be tied with twine to the sides of the basket. Before placing the bunches in the flat, they should be gone over with the bellows, which will remove any dust, &c., that may have rested on the berries. The lids of the flats should be covered with a sheet of paper, which will protect the fruit from rain, &c. The shallow should be tied to the flat. In sending the fruit in cross-handle baskets, they should be lined similar, and the fruit tied in securely, taking care that the shoulders of the

bunches are just below the rim of the basket, and not to fill the centre of the basket, as this tends to remove the bloom. The baskets should then be laced with twine on two or three light pieces of cane placed across the top, placing some tissue next, and covering the whole top with newspaper, tying down securely and taking care that each basket is labelled "Grapes with Care." In grading, always choose your bunches as near as possible of one size, and as near to one another in colour as they can be got. X. Y. Z.

COLOUR-TREES.

As it will soon be the time for transplanting trees and shrubs, perhaps a few notes on bright and dark-foliaged trees may not be out of place, the more so as most are singularly ornamental, producing some pictorial effects that are very nearly, if not quite, charming, and in this sense they are neglected, or but one or two, perhaps more, selected, and doing duty almost everywhere, with and without combination with their green-leaved brethren. Of these, the *Acer fraxinifolia* (Negundo) albo-variegata, though very beautiful, is becoming so common in place and out of place, that now only too often, instead of pleasing, it absolutely affronts the eye; and are mostly planted in such manner, that one is rather uncertain whether he has not strayed into a shrub nursery rather than a garden or "pleasure-land." These "foliage" trees are like jewels, which show to better advantage when well, skilfully, and artistically set, and thus the "setting" enhances the value, at least to the eye of the beholder, if not intrinsically and commercially. As it is said there is wisdom in "looking before you leap," so it is wise to be sure that you are beautifying before you plant your trees.

On a ground-plan of the garden the stations might be dotted in their proper colours, always of course having due regard to the height, sturdiness, habit, or other manner of growth. A small-leaved tree looks smaller when in front of a large-leaved one; and it must also be borne in mind that some, though at first they are somewhat of a light red hue, change to a deeper or greener tint, while others grow in intensity. Of trees, the Purple Beech is bright in the bud, then comes to a rich deep purple; but towards autumn the normal colour asserts itself, and before "the fall" it is a dull and heavy green. Of a lesser growth is the purple Filbert, fine in foliage, that at some periods is perfectly rich and brilliant; but now, with me, there is a sort of sullen dulness, that almost offends. Many others are of this character, such as the purple Birch, which now is of a deep green, though the wood is brownish-crimson; but of all the most reliable is the purplish red-foliaged Plum, *Prunus Pissardi*. In the spring it is lovely, when decked with its light roseate blooms; further on it is dressed in such vivid colouring as to again charm the eye. And now, with the cold nights, the heavy rains, the boisterous winds, it holds its own, and more than its own, in beauty, having leaves of red-brown, and others of purple tints; thus it is, for certain positions, unsurpassed. Then how seldom we see *Acer platanoides* Schwedleri, yet at some seasons how lovely it is, with its brilliant carmine branch and shoot tips!—my small one has been much admired this year, and so showy was it that at a distance the orange-red leafage told like inflorescences. The crimson, purple and brown-tinted Japanese Acers have all "gone green;" yet still alone in its comely loveliness, my *Prunus Pissardi* attracts, takes, and keeps the admiration that its superiority not only demands, but merits. Perhaps, if thought useful, at a future time I may call attention to some of our golden, silver, and variegated foliage trees. [Yes, do please. ED.] It is these, perhaps, more than the foregoing that light up our border shrubberies, and give a living brightness and a charm, when our floral beauties have done their best, and left but their legacy of fruits and berries to gladden and feast our well-beloved feathered friends, when "winter old brings frost and cold." Harrison Weir, *Ildestleigh, Sevenoaks*.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart. Clare Lawn, East Sheen.

Laelia anceps and its Varieties are now fast developing their flowering-spikes, and as leaf and bulb growth has practically finished, less water must be afforded the roots, but until the flowers are past, the plants should not be permitted to become excessively dry between each time that water is afforded. Most varieties of the white-flowering section have done well this season. Other Mexican *Laelias*, such as *L. albida*, *L. autumnalis*, *L. Gouldiana*, &c., are likewise showing their spikes, and should be treated as described above.

Laelia Perrini is a useful autumn-flowering species that generally succeeds under ordinary cultivation. The most suitable time to repot any plants that require more root-room is soon after they have flowered, allowing them a week or so to recover from the weakening effects of flowering. Whether the plants be disturbed or not, they will need much less water after flowering until the following season's growth has commenced, and they should be exposed to as much light as possible, and as much heat as is obtainable in the Cattleya-house. The white varieties *L. P. nivea* and *L. P. alba*, also the blue one, *L. P. leucophæa*, are not so robust, and, being very valuable, should be given even greater care. If the plants are small, as it is probable they are, they will succeed best if put into pans and suspended from the roof. There are several good cheap and useful hybrids of which *L. Perrini* has been one of the parents, as *Laelio-Cattleyas* Decia, Lady Rothschild, and Statteriana. These need the same sort of cultivation as that just described.

Laelia majalis.—Plants of this lovely species have now completed their growth, and should be given a position near the roof-glass at the cool end of the Cattleya or Mexican-house. No water need be given them, unless to prevent the pseudo-bulbs shrivelling. Failure with this species is generally owing to the using of too much rooting material about the base of the plant, or to over-watering during its natural period of rest in the winter.

Odontoglossum grande.—As the plants pass out of bloom, they should be encouraged to rest, affording them only sufficient water to prevent the young pseudo-bulbs from shrivelling. *O. Inaleayi* and *O. Schlieperianum* may be treated similarly.

Oncidium tigrinum may not produce flower-spikes so freely as the vigour of the plants would seem to promise. In most cases this is due to not giving them a sufficiently long period of rest by withholding water. If proper treatment has been given the plants, they will now be in or about to flower. A moderate supply of water may be given them until the flowers are past, but afterwards a long period of drought will be necessary. Repotting and resurfacing may be done when new roots commence to appear at the base of the new pseudo-bulbs. A large quantity of drainage material is necessary, and a small quantity of peat and sphagnum-moss. Make the compost moderately firm. A light position in an intermediate-house generally suits the plants so far as temperature is concerned.

Cymbidium giganteum, *Hookerianum*, and *Tracyanum*, which are now in a cool moist house, and developing their flower-spikes, should be removed to another position where there is more light and heat, otherwise development will be slow and unsatisfactory. A weak stimulant, in the form of diluted farmyard drainings, should still be afforded the plants until the flowers are about to expand.

PLANTS UNDER GLASS.

By O. R. FIELDER, Gardener, North Myms Park, Hatfield.

Primula obconica.—The earliest plants raised from seed sown in the spring months should now be strong ones, and established in 5-inch and 6 inch pots. Any of them that may be exhibiting flower-spikes will require to be kept in a house having a temperature of 45° to 50°, in which they will flower throughout the winter.

Primula sinensis.—These plants should not be left in cold frames except in the warmest counties after this date, but should be removed to a cool, airy house, protecting them from damp and frost. A shelf in the greenhouse, vinery, or Peach-house, will suit them. The flower-stems will be pushing

upwards in the earliest plants, and it will be well to afford the plants some weak manure-water occasionally. Plants intended for spring flowering, which are established in 3-inch pots, if well rooted may be transferred to pots 2 inches larger in diameter. If required for any purpose, some of the plants may remain in 3-inch pots, in which, if afforded manure-water they will prove very useful for many decorative purposes.

Double-flowered Primulas.—These should be afforded a position near the glass in a house, the night temperature of which is 50° to 55°, and the atmosphere rather dry. With suitable attention the plants will produce a succession of bloom throughout the winter.

Mignonette.—Plants intended for flowering during the winter which have been standing outside should now be placed under glass. *Mignonette* plants should at all times be kept as close to the glass as possible, and for the present a position in a cool pit or upon a shelf in an early vinery, or Peach-house where the leaves have fallen from the Vines, &c., will be a suitable place. Later, in order to keep the plants growing, afford a little more warmth, such as that found at the warmer part of a cold greenhouse.

THE HARDY FRUIT GARDEN.

By C. HERRAIR, Gardener to J. R. FORTESCUE, Esq., Drogheda, Maidenhead.

Preparations for Trapping the Winter Moth.—The caterpillars of the winter moth (*Chimatobia brumata*) are among the most injurious insects infesting fruit trees, and pre-eminently the Apple, and next to that tree the Plum and Pear. The past spring being throughout somewhat cold and damp, the eggs of this moth did not hatch out in such numbers as in the two preceding years, when the spring weather was warm and dry, and of a nature favourable to the increase of pests of this kind. With a view to prevent the spread of the caterpillars in spring and summer, it is now generally recognised that any measures to be effective must be taken from about the middle of the present month, extending over November and December (and occasionally a late development of the moth in spring has been known), to prevent the female moth ascending the trees to deposit her eggs from which the caterpillars are hatched in spring and summer. The female being wingless, or merely furnished with wings too small to be of any service in flying, the plan of banding the stems of the trees near the base with some sticky substance, on which the moths are captured when creeping up the boles, has been adopted with much success, and is now invariably carried out in the Evesham and many other large fruit-growing districts. As the moths are known to emerge from the chrysalis-cases, in the ground or crevices beneath the trees soon after this date, and commence to creep up the stems of the trees to lay their eggs in the crevices of the bark, and on the buds and twigs, the banding of the trees should be taken in hand forthwith. Several substances have been used for this purpose of a more or less greasy or sticky nature, Horne's fruit-tree dressing, as advertised in these columns, being a good preparation for this purpose, and instructions for applying are furnished with it. A mixture known as "Evesham Grease," a kind of preparation very similar to cart or axle-grease, of which tallow forms the base, is also used in the district bearing that name. Old orchard-trees, with thick, corky bark, may be smeared with these substances close to the ground, and of a width of 6 to 9 inches all round the stem. If the constituent parts of the sticky or greasy banding are suspected of being of an injurious nature, it will be safer to first place a band of grease-proof or Willesden-paper round the tree, and over this place the smeared band; young trees must always be so treated. See that the paper fits closely to the bark; and if the bark be corrugated, shave it down smoothly, securing the band round it with one strand of masting, allowing the edges of the paper to overlap an inch or so before placing the smeared paper on it. The moths in creeping up the stems are caught on these sticky bands; but care must be taken to keep them sticky, for if allowed to become dry, the insects crawl over them, and so on into the crown. Young trees that are supported by stakes, should have the latter coated with tar or the sticky substance, otherwise these will afford a ready means for the moth to pass over the protected part of the stem, and thence into the crown of the trees.

Gathering Pears.—Most varieties of Pear are now fit for gathering, except the latest, and these may remain a week or two longer on the trees if the weather is mild, their keeping qualities being generally improved thereby. In gathering Pears, lift them in an upward direction, and if matured, they will part easily from the spurs; place them carefully in single layers in the basket, and carry them by hand, or on a hand-barrow, to the fruit-room, storing them in single layers. Very fine examples may be suspended in the fruit-room by their stalks.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Endive.—The best developed plants should be tied up in quantity sufficient to meet the requirements of the place, doing this when they are dry. Frost must be guarded against, as the tender inner leaves are readily injured by a few degrees of frost. Do not tie them up too tightly, but merely collect the outer leaves and secure them with a strip or two of bast, folding them loosely over the heart. In ten days to a fortnight afterwards the plants are will be for use, when another batch may be similarly treated. Endive, when in a half-grown stage, may be dug up with a good ball of earth, and planted in frames for late uses. [The moss-curl variety is readily blanched under pieces of roofing-tile or slates, the tips of the outer leaves just showing beyond the edge of the tile, &c. ED.]

Lettuce.—Cos and Cabbage varieties of Lettuce being nearly always in demand, strong plants of various ages and sizes should be lifted and planted in cold frames, Peach, and orchard-houses, affording them full ventilation, and keeping the leaves dry. Lettuces may be used in a quite young state if seeds be sown thickly in boxes or on beds of soil in a warmth of 60°. Raised in this manner, the leaves when cut close to the ground are useful as salad at times when blanched Lettuces are not plentiful.

Mustard and Cress.—Seeds should be sown frequently in shallow boxes in quantity according to the demand, rich soil being used, pressing it firmly before the sowing is made, gently pressing the seeds into the soil. Although almost any kind of soil may be used to fill the boxes or coat the seed-beds, I have always found that fresh soil without sand is best. Not any water should be afforded till the soil has got dry, nor should the boxes be stood in a house or pit, the air of which is very humid.

Potatoes.—Late varieties should now be taken up and stored or pitted, after removing all decayed tubers from the bulk. As the ordinary Potato disease is prevalent this year amongst late varieties, careful inspection should be made. Any tubers taken up some time since, should also be examined for diseased ones. Let all tubers required for sets another year be stored separately in a cool dry place that is safe from frost, or which can be made safe.

Globe Artichokes.—The latest heads should now be removed from the plants, and placed in a cool damp position. Having done this, the flower-stalks may be cut down and removed to the rubbish-heap. In the case of young seedlings which have borne heads, the best should be marked with a label or a stake, and all that are inferior removed forthwith to the rubbish heap. Let the whole of the plants be mulched with rich farmyard manure, packing it in well about the roots. The Globe Artichoke cannot well receive too much manure at this season, and nothing is more productive of large succulent heads in due season.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLYORD, Westonbirt, Tetbury, Gloucester.

Planting Evergreens.—Now that sufficient rain has fallen to moisten the ground, no further time need be lost before lifting and planting evergreen trees and shrubs. It is decidedly advantageous to plant them as early as possible, so that they may form new roots, and become semi-established before severe weather occurs. In the case of large specimens, afford the roots water copiously two days before it is intended to remove them, the soil will then the better adhere to the roots. Before moving the trees, sufficiently large holes should be dug out, so that a good-sized ball of earth may be removed with the tree. All fibrous roots should be carefully preserved, and in cases where

the branches are numerous and long, a few may be cut away or shortened, to make removal easier, and tax the roots less. The stem or collar of the tree should be placed slightly above the level of the ground, and the roots laid carefully out and covered with some fine leaf-mould and soil; then fill up with the coarser particles of earth, and after treading this down firmly, lighten the surface with a fork, and complete the job by staking firmly to prevent the trees being loosened by wind.

Tigridias.—As the leaves of *T. pavonia*, *conchiflora*, *alba*, and others, die down, the bulbs will be sufficiently ripened to lift; and though in some light sandy soils they prove hardy, it is always the safer plan to lift and remove the bulbs to a cool, airy place till they have thoroughly dried, when they may be stored away in Cocoa-nut fibre refuse or silver-sand until spring.

Wallflowers.—If plants of these were raised in the manner advised in a previous Calendar, they may now be planted out into the beds or borders intended for them. They are very effective when planted in masses of one colour. Though the strains of Wallflowers have been greatly improved in size and richness of colour in the flowers, the broader leaves contain more moisture, and as a rule they are not so hardy as the older kinds. It is therefore inadvisable to add manure to the soil, but the plants may be liberally fed with liquid-manure when growth commences in the spring.

Dahlias should now be properly labelled and named before they are cut down by the frost, and as new and improved varieties of the Cactus type are raised annually, it would be well to discard the inferior ones in order to make room for the best. Night and Ranjare among improved dark varieties; Alfred Vasey is very choice and pretty; Capetan, brick-red, tinted apricot, very distinct; Standard-bearer, bright, fiery-scarlet; Daffodil, yellow; E. J. Deal, scarlet, are all worth planting. When the stems of Dahlias have become blackened by the frost, they should be cut away, but the roots may be allowed to remain a fortnight longer before they are lifted, to be thoroughly dried and stored away.

Michaelmas Daisies (Asters).—These beautiful autumnal-flowering plants well repay one for the little cultural care they require. They resist early frosts, form fine masses of colour, and are most useful and pretty for cutting purposes. Space cannot always be given to a large selection of them, and those who may be forming a collection will find the following varieties very distinct:—*alpinus*, with large pale blue flowers; *amellus bessarabicus*, large, Marguerite-shaped blue flowers; *corymbosa*, white, with yellow centre; *Chapmani*, azure-blue; *discolor*, rose; *ericoides*, the most graceful of all, with small white flowers; *lævis*, tall, pale blue flowers, yellow centre, very fine; and *Mrs. Peters*, white, very large. Small pieces taken from the plants at this time of year, or early in spring, will soon form fine clumps; or propagated by cuttings, they will produce fine spikes of bloom. If Asters be planted with the white Japan Anemones, they make a very pretty display.

FRUITS UNDER GLASS.

By W. STRAUENEL, Gardener to Lieut.-Col. RALPH VIVIAN, Road Ashton, Trowbridge.

Ripe Grapes.—Houses that are not proof against drip will need to be very carefully watched, or the Grapes still hanging on the Vines will soon show signs of decay, particularly in the case of large bunches, and of thin-skinned varieties. Where there is a Grape-room, the fruit can be more easily kept in this structure than upon the Vine after they have become fully ripe, particularly the varieties Black Hamburg, Foster's Seedling, Early Alicante, and Gros Maroc. This is the more necessary should the houses be required for autumn and winter flowering-plants, the moisture arising from the soil being most injurious to them. A genial atmosphere must be obtained by the moderate use of fire-heat, and a careful watch set upon the ventilators in order to prevent the deposition of moisture on the bunches. It is a mistake to allow the temperature to drop at night; the berries then become cold, and in the morning when the temperature within the house rapidly rises, moisture condenses on the skins, and this, permitted only for a brief period, will spoil the fruit. A tendency to dryness in the border will both help to keep the atmosphere dryer and warmer, and the berries will remain sounder. If there is not a Grape-

room proper in which to store ripe Grapes, a dry and cool fruit-room or room in the dwelling may serve the purpose, the latter being often the better adapted. Damp and cold are most to be guarded against in the preserving of ripe Grapes. When required for immediate use, the bottles may be simply filled with clear water, being careful in the insertion of the stems that the water does not overflow, and pass into the centre of the bunches of fruit. The same care must be taken not to spill water on the floor, and a box of fresh lime is an excellent means for arresting any excess of atmospheric moisture, but it should be changed as soon as it is slaked and moisture-charged.

The Orchard House.—If Plums, Pears, or Apples are still ungathered, the ventilation of the house must be carefully attended to, and nets put across all air-inlets, in order to keep out the tits, thrushes, and blackbirds. Plums are liable to spoil with damp, and a little artificial warmth in rainy or damp weather should be applied at night. By day the ventilators should be opened widely when there is sunshine, and wholly or partly closed at night, in accordance with the weather. As fast as trees in pots become cleared of their fruit, they should be stood out of doors on a bed of coal ashes. Water at the root will seldom be required by these trees, the rain sufficing to keep the soil moist. If, however, the rain should keep off for a week or two, water must be applied, if any green leaves remain on them.

The Re-potting of the Trees.—Trees which may have occupied the same pots for a year or two should be afforded a top dressing, or re-potting into larger-sized pots, according to the state of the soil and the roots. If the soil has got into an unwholesome condition, or is much exhausted of its fertilising properties, or if the roots are much matted together, then re-pot. In treating the first-named case, clear away as much of the soil as can be got at, remove unhealthy roots, and re-pot in the same sized pot; and in the second case, shave off an inch or thereabouts from the ball of roots and soil all round, or prick away the soil only, and re-pot into the same size or a larger one, as may seem advisable. A small, double drag-hook is a very suitable tool wherewith to disentangle the roots and loosen the soil. The soil used in potting and surfacing must be firmly rammed, and the top finished off smoothly. It should be rather dry than wet when used—a wet soil being liable to be rendered impervious to water if much compacted. Those trees in small pots will require to be afforded a small shift, slightly disentangling the roots before putting the tree into the new pot. Drainage materials should be sufficient without being excessive in quantity; one fairly large crock, with the concave side downward, will always afford a free exit for water if broken clinkers, smaller crocks, and coarse particles of charred siftings be placed over these. Too much drainage dries the soil too rapidly, and renders the application of water a very burdensome task in the season of growth.

THE APIARY

By EXPERT.

Extracting Boxes of combs after the honey is extracted must be given to the bees to clean up before being stored away till next year; some care is needed in getting this job completed without disturbance, and a little trouble will be well repaid. The combs should be given to a few stocks only, two or three colonies doing all the cleaning up for the whole apiary. Give the wet combs after nightfall, taking special care that no strange bees get at the combs from the outside. Full instructions for removing surplus honey will be found in *Gardeners' Chronicle*, page 129.

Robbing.—The great thing to be guarded against is what Americans call a "robbing-boom," and although so much mischief may arise if this occurs, it is nearly always brought about by carelessness. Avoiding beginning to rob, is the main point, and to do this feed only in the evening; keep entrances reduced in width; see that no syrup is within reach of flying bees; if hives are threatened with special attack, smear carbolic acid round the entrances; do not open hives oftener than can be helped, and do it in the evening if possible; pay special attention to weak stocks, and join two together before feeding up; finally, feed, and feed well. It will pay to do so.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY, Oct. 16, and the following Tuesday, Wednesday, Thursday, and Friday.—Dutch Bulbs, at Protheroe & Morris' Rooms.

MONDAY, Oct. 16.—Clearance Sale of Glass erections, Utensils, and Stock, at the Cumberland Park Nurseries, Willesden Junction, by order of Messrs. Collins & Collins, by Protheroe & Morris, at 12 o'clock.

TUESDAY, Oct. 17.—Clearance Sale of Stove and Greenhouse Plants, Orchids, &c., at Cricklewood House, Cricklewood, by order of Madame Roper, by Protheroe & Morris, at 1 o'clock.

TUESDAY, Oct. 17.—Important Sale of well-grown Nursery Stock, at the Sunningdale Nurseries, Sunningdale, Berks (late Charles Noble's), by Protheroe & Morris, at 12.30 o'clock.

WEDNESDAY, Oct. 18.—First Trade Sale of Stove and Greenhouse Plants at The Cambridge Nurseries, Northcourt Road, Worthing, by order of Mr. W. Goodlife, by Protheroe & Morris, at 12 o'clock.

THURSDAY, Oct. 19.—Unreserved Sale of Stove and Greenhouse Plants, Euonymus, &c., at Welford's Nurseries, South Lambeth, by order of Protheroe & Morris, at 12 o'clock.

FRIDAY, Oct. 20.—Sale of the Leasehold Nursery, Lawrence Road, Enfield Highway, by Protheroe & Morris, at the Mart, E.C., at 2 o'clock.

FRIDAY, Oct. 20.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period October 1 to October 7, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.				LOWEST TEMPERATURE ON GRASS.
OCTOBER 1 TO OCTOBER 7	AT 9 A.M.		DAY.	NIGHT.	At 1-foot deep.	At 2-foot deep.		At 4-foot deep.				
	Dry Bulb.								Wet Bulb.			
										Highest.	Lowest.	
SUN. 1	E.N.E.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.		
		51.9	53.0	68.2	42.5	0.17	52.1	55.8	57.8	32.4		
MON. 2	W.S.W.	51.8	50.7	52.7	50.8	..	53.2	55.6	57.5	42.1		
TUE. 3	W.S.W.	52.9	49.1	61.6	37.4	0.06	51.2	55.3	57.2	27.1		
WED. 4	N.N.E.	51.2	50.6	51.9	50.9	0.15	54.1	55.1	56.9	50.4		
THU. 5	E.N.E.	51.1	47.0	52.6	47.5	...	53.5	55.3	56.9	47.5		
FRI. 6	E.N.E.	53.0	45.4	53.3	37.5	...	51.8	55.1	56.9	27.5		
SAT. 7	S.S.E.	45.6	44.0	56.1	34.9	...	50.2	54.6	56.7	26.2		
MEANS...	...	51.2	49.1	55.9	43.1	0.37	52.3	55.3	57.1	36.2		

Remarks.—Dull, cold, misty weather, with frequent showers, and frost on the grass on several mornings.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—50°.

ACTUAL TEMPERATURES.—

LONDON.—October 11 (6 P.M.): Max. 65°; Min. 32°.

PROVINCE.—October 11 (6 P.M.): Max. 66°; Bath; Min. 53°, Cromer.

AMONG the troubles that harass what would otherwise be the almost idyllic existence of the gardener, not the least are the difficulties he experiences in connection with the application of water to the plants under his charge. No zealous and attentive gardener can rest in contentment whilst his plants are oscillating in different degrees between shabbiness and mediocrity, the average standard of ordinary plant-culture in these days having been gradually raised greatly above the point of, say, a quarter of a century ago; and though the present degree of excellence is not impossible of attainment by anyone who possesses intelligence and industry, at the same time it cannot be reached without these qualities. True it is that the majority of plants now largely cultivated in pots call for less skill in the cultivator than the Cape Heaths of a former period; still, it should not be forgotten that the subjects of the planter's care to-day are largely increased alike in

variety and in quantity, and perhaps the difference in the amount of skill necessary is not really so very great after all. Now, as then, the proper application of water has a most important bearing on successful cultivation.

Broadly speaking, there are three types of workmen who alike render success impossible. The one errs in invariably affording too little water, another in applying too much, and the third saturates the soil, and then allows it to become over-dry before the next application, passing by doughty subjects over and over again. In the case of the first two, there is room to hope for an adjustment of their ideas, and a recognition on their part of the true value of a plant's requirements. The last is truly hopeless, and no one need expect plants to thrive under the care, or to speak more correctly, the lack of care, of such a one. One of the distinguishing marks of a true gardener, be he professionally trained or an amateur, is to be found in the consideration bestowed upon the proper application of water. Mistakes are undoubtedly made even in the case of these, but it is almost always an initial mistake soon rectified and never again perpetrated.

The teaching of the art of applying water is almost beyond human capacity. Hints may be given, but like the arranging of cut flowers, the individual will accept the hints, and work them out according to the bent of his own tastes. There are, however, a few broad facts or reasons connected with affording water to plants which are worth recapitulation. It may be sufficient therefore to mention the necessity of moisture in soil as indispensable to the life of most plants, that an insufficient quantity at certain periods of growth checks nutrition, and too great a quantity either deprives the soil of its fertilising constituents; or, if water be afforded too frequently, the soil is rendered inert, cold, and incapable of sustaining healthy roots.

The happy medium for the gardener to hit upon is not to abstain from affording water till its absence affects root-action injuriously, and to mete out the quantity afforded so as to just moisten the soil throughout. The first-named condition is the least hurtful to plants immediately after repotting; and in the same way the latter practice exhibits its most baneful effects at the same conjunction. But at all stages of plant life they are to be taken into account and avoided; the immediate effect of over-dryness, and which, by the way, it is impossible absolutely to overcome, being a loss either of root-hairs or root-fibres, quickly renewed no doubt, but not so rapidly as to hinder an upset to the plant, and afford an opening for the attack of injurious insects. Excessive watering, a common mistake, is followed by roots making their way into the drainage, and thence outside the pot altogether before the soil itself has been occupied by them. This is an invariable result of soil saturation brought about almost always by applying more than the requisite amount of water at one time. It seems to be a result of a desire to "soak" the soil and save labour. If a soaking were equivalent to a moistening of the soil, no harm would ensue; but it is accepted as meaning to render the soil wet, which is a condition that ought to be guarded against rather than to be sought for. But were wetness innocuous as a condition of the soil, it would exert a deleterious effect, because the roots produced in it are lacking in vigour, and more easily destroyed than those produced under more careful treatment. Some plants

sooner resent this excessive application of water, and more particularly those whose roots are very minute, or which produce root-hairs abundantly. Heaths and Azaleas may be cited as examples of the former, and Carnations and Cinerarias of the latter. On this account, root-coolness, as tending to reduce the frequency that water must be applied, is always beneficial to these plants. Another class of plants which are not so prolific of fine roots, and which coil, and cross, and intercross the whole mass of soil, and of which the Chrysanthemum is a good example, may be watered more copiously. But even in the case of these, experience has proved that a careful application of water always yields the best results in the size and quality of the flowers. Most plants possess great adaptability to varying circumstances; hence the possibility of being able to treat soil in such a manner as not to damage the plant it supports.

Plants, whether flowering or foliage, for employment during the winter season require to have water carefully afforded during the autumn months. No one, we imagine, will gainsay the fact that *Codiaeums* grow more rapidly if the soil is kept continually in a condition approaching wetness; but the leaves of these plants neither colour so well, nor are they as capable of passing through a course of "decorative" handling during the winter with so little damage as those which, while getting sufficient water, get no more. The quality, as distinct from mere size, of Chrysanthemum flowers is largely influenced by the treatment as regards watering accorded to the plants. And the many plants, Pelargoniums, Marguerites, Carnations, &c., which are expected to keep on flowering during the months of winter succeed in accordance with the amount of water applied and correctly gauged.

Gardeners who have had experience in widely separated localities know how greatly treatment differs from this cause alone. But it is a difference of degree only. In cold districts water must be applied less often than in those having greater warmth, but the quantity afforded at any given time need not vary. Hard-water is condemned by all, and it is the most harmful when applied cold. Water, whether from a spring, river, soft, or rain, is always best when well aerated, but stagnant water should be shunned. It requires a larger quantity of cold than warm water to moisten soil. Water much colder than the air of a house is usually bad for the health of plants, and the practice of warming the water used in hot plant-houses is one to be commended. The warmer the water, the more quickly it moistens the soil; hence, any valuable plant that has been allowed to get very dry at the root should be afforded water at 120° Fahr. By this means the soil is moistened forthwith, and without any need of applying more than is requisite for the purpose. House-plants, either singly in vases, or grouped for effect, should also be afforded water in the same manner, and largely for the reason that the least possible quantity is required to moisten the soil.

Manure-water may sometimes be superseded with advantage by a dressing of mineral-manure. The former exerts a beneficial influence, however, in the case of some plants, such for example as *Richardias*, and such foliage-plants as *Alocasias*; but in many instances where it is still largely employed, as in Strawberry culture, as good results are obtainable by two or three slight applications of a suitable artificial manure.

VERONICA COOKIANA (*Armstrong*).—For the opportunity of illustrating this New Zealand shrubby species (fig. 100), we are indebted to Mr. LYNCH, of the Cambridge Botanic Garden. The leaves ($3\frac{1}{2}$ by 2 inches) are nearly sessile, slightly puberulous; the flower-stalks are axillary, about $\frac{1}{2}$ inch long, puberulous, and bear dense, elongated (3 to 4 inches) pyramidal racemes of small, white flowers. It has been confounded with *V. Macroura*, which differs materially in the size and form of the leaves.

to *Coccoloba uvifera*, shown by M. L. DE SMET-DUVIVIER (à l'unanimité); honourable recognition for good cultivation to *Kentia Fosteriana robusta*, shown by M. A. VAN BEERLEER. Stands of decorative varieties of Dahlias were shown by M. A. GALLETT.

THE GROCERS' EXHIBITION, which terminated on Saturday last at the Agricultural Hall, Islington, is the means each year of bringing together a great number of novelties in foods. The gardener

that the grocers should take up the sale of English-grown Grapes in the place of the comparatively worthless ones imported in barrels. This would be a gain to the consumer as well as to the market-gardener. Of the new proprietary foods was one called "Shredded wholemeal Wheat-biscuit," a preparation imported to this country by a firm at Worcester, Mass., U.S.A. These biscuits take something of the shape of a soone, and are already sufficiently cooked. They are very light and crisp, and if immersed in hot milk for a few seconds are ready for



FIG. 100.—*VERONICA COOKIANA*, FROM THE CAMBRIDGE BOTANIC GARDEN.

ROYAL BELGIAN HORTICULTURAL SOCIETY.—At the meeting of this Society on Sunday, October 1, at the Casino, Ghent, Certificates of Merit were awarded to Cactus Dahlias of the year 1898-99, shown by M. GALLETT (à l'unanimité); to *Begonia Président Bruneel*, raised from seed this year, shown by MM. F. & C. DE COCK BROS. (à l'unanimité). Certificate of Merit for a variety of *Cattleya B. wrightiana*, shown by M. le Marquis DE WAVRIN. Certificate of Merit for good cultivation to *Ixora Morsei*, shown by M. L. DE SMET-DUVIVIER (by acclamation); a Certificate of Merit

would be interested in the great variety of bottled and dried fruits exhibited by many of the best-known fruit-preservers; but the only collection shown of fresh fruits produced in England was one from Mr. GEO. MONRO, of Covent Garden, agent for the English Grape-Growers' Association. There were fine Grapes in this exhibit from such growers as Mr. THOS. ROCHFORD, Mr. JOS. ROCHFORD, Mr. PETER KAY, and others, which included excellent bunches of Canon Hall Muscat, Black Alicante, and other varieties; Tomatoes, Nuts, and Melons were also displayed. Mr. MONRO is evidently desirous

consumption. They are very palatable, and there are many purposes for which they might be used; but a trial is the best recommendation of this or any other machine-made food.

THE SURVEYORS' INSTITUTION.—The Council, acting on powers conferred on them by By-law 55, have extended the Session 1898-99 by fixing an ordinary general meeting to be held on Friday, October 20, 1899, at 3.45 P.M., for the special purpose (and no other) of reading a balloting list for the election of new members. The first

ordinary general meeting of the Session 1899-1900 will be held on Monday, November 13, 1899, when the President, Mr. THOMAS MILLER RICKMAN, will deliver an opening address. The chair will be taken at 8 o'clock. The first of four meetings of examinees and students authorised (subject to certain conditions) by the Council to be held during the present Session, will take place on Monday, November 20, 1899. The chair to be taken at 7 o'clock. All inquiries with reference to the junior meetings should be addressed to Mr. A. NORMAN GARRARD, 8, Frederick's Place, Old Jewry, E.C.

THE DEVON AND EXETER GARDENERS' ASSOCIATION held its annual meeting last week in the Guildhall, Exeter, and a very satisfactory event it was. The report showed that the Society by means of a series of useful lectures, and in other ways, has entered upon a course of steady, unpretentious work that cannot fail to be of great value to horticulture in the Exeter district. Most of the officers were re-elected, and their enthusiasm for the interest of the Society is unabated. Mr. ANDREW HOPE is the Hon. Sec.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual dinner of members of this deserving Institution was held at the Holborn Restaurant on Thursday evening, the 5th inst., and was presided over by Mr. W. Y. BAKER, proprietor of the Thames Bank Iron Company, and Chairman of the management of the Gardeners' Royal Benevolent Institution. There was a capital company present, and the proceedings were markedly enthusiastic, most of the speeches, including those of visitors, being full of appreciation of the worthy aims the Society has set itself, and of the manner in which the management has carried on the Society's business. Through the kindness of many friends who contributed fruits and flowers, the tables were very prettily decorated. The Chairman, in proposing the toast of "Continued Success to the Society," explained the work that was being done, with special reference to the sectional funds, and congratulated the Society upon the satisfactory state of the finances of each. The convalescent fund was warmly praised, and Mr. N. N. SHERWOOD's and Mr. VEITCH's handsome donations to it from time to time suitably acknowledged. The exceeding small cost incurred in the management of the Society, details of which were given in these columns, March 18 last, p. 175, is a striking feature of the Institution, and was the subject of the Chairman's highest praise. Mr. JAS. HUDSON, the popular treasurer, responded, and incidentally remarked that 96 per cent. of the Society's funds were subscribed by the ordinary members, and only 4 per cent. by honorary members. The toast of the honorary and life members was given by Mr. THOS. WINTER, and was responded to by Mr. GEO. BUNYARD, who suggested that nursery and seedsmen might help the Society by publishing the name and objects of the Society in their catalogues. Mr. R. DEAN proposed the toast of "The Craft," and made a very sympathetic speech, which was responded to by Mr. S. T. WRIGHT, Superintendent of the Chiswick Gardens. Other toasts included that of "The Chairman," proposed by Mr. W. ICKTON, of the Granard Nursery, Putney; and "The Secretary," moved by the Chairman. The subscription-list for the evening amounted to £40 18s. 6d., including 15 guineas given by the Chairman. Any information respecting the Society can be obtained from the secretary, Mr. W. COLLINS, 9, Martindale Road, Balham, S.W.

QUEENSLAND.—We have received from the Queensland Government some interesting items of information in regard to the industrial development and general progress of the colony, says the *Times* of Sept. 26. Of these it may be noted that no less than 644 artesian bores are now supplying water throughout western Queensland, the maximum quantity from any one bore being 4,000,000 gallons a day. The discovery of these artesian resources is said to have thrown open to grazing a vast area of some 460,000 square miles, consisting chiefly of

undulating downs covered in good seasons with rich pasture. The developments of fruit-growing in the colony are noticed, and the advantages of the Orange, Pine-apple, and the Olive, especially dwelt upon.

STOCKTAKING: SEPTEMBER.—To such of those who observed the signs of the times in the world of industry by the aid of such publications as the monthly issues of the *Trade and Navigation Returns*, it came with no sudden shock of pleasant surprise that the Chancellor of the Exchequer's stocktaking for the first half of the financial year was a wonderful revelation of financial progress. But that is now history. To-day we have to deal briefly with the last issued part of the trade table, that for the month of September. And here we find that the imports of all kinds show an increase of £3,163,591 over those for September, 1898. The total for the past month was £38,721,079 against £35,557,488 for the same period in 1898. Here are a few extracts from the summary table:—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	35,557,488	38,721,079	+3,163,591
(A.) Articles of food and drink—duty free ...	12,187,428	13,454,951	+1,267,523
(B.) Articles of food & drink—dutiable	2,668,844	2,575,331	—93,513
Raw materials for textile manufactures ...	2,617,186	2,750,820	+133,634
Raw materials for sundry industries and manufactures	5,706,649	5,826,760	+120,111
(A.) Miscellaneous articles ...	1,261,901	1,322,978	+60,987
(B.) Parcel Post ...	84,573	80,769	—3,804

In all the sections there are but two very small decreases; but still, bread is rising in price. The largest items of increase are to be found in those recorded above, and in metals, manufactured articles, raw materials for textile manufactures, and sundry other industries and manufactures. As to the figures for the nine months just ended, we find an increase of £11,424,473, the figures being, for the past nine months, £356,019,390, against £344,594,917 for the corresponding period in 1898. And now we come to the returns relating to—

FRUITS, ROOTS, AND VEGETABLES.

IMPORTS.	1898.	1899.	Difference.
Fruits, raw:—			
Almonds ... bush.	20,440	20,340	—100
Apples	248,136	263,449	+15,323
Cherries ... ..	...	...	...
Grapes	274,835	280,108	+5,273
Lemons	68,410	92,538	+24,128
Oranges	37,255	4,312	—32,943
Pears	109,064	179,568	+70,504
Plums	257,492	143,236	—114,256
Unenumerated ...	828,793	301,788	—527,005
Roots and Vegetables:—			
Onions bush.	664,376	718,062	+53,686
Potatoes cwt.	77,721	117,105	+39,384
Vegetables, raw, unenumerated ... value	£162,987	£144,989	—£17,998

There has been a glut of Melons, Bananas, Apples, out-of-doors Grapes, Pomegranates, Tomatoes, nearly all of excellent quality, and cheap. We fancy that our Canadian friends could find as good a market for their Grapes here as at home, though it is difficult to move trade out of old grooves. The concluding items of interest to be noted here are those connected with—

EXPORTS,

and here again an excess has to be recorded over those for September of last year, amounting to £2,429,722, the total being £22,374,807, against £19,945,085 for the corresponding period in 1898. The above relates to articles of British and Irish

manufacture. There was a large export of foreign goods, but they do not count. The nine months' report shows an excess of £21,622,039 over the total for the same period of last year—£194,351,197 for the past nine months, against £172,729,158 for the nine months of 1898.

PUTNEY AND WANDSWORTH CHRYSANTHEMUM SOCIETY.—The special "tradesman's prizes" to be offered this year at the Putney show, will be for the best collection of thirty-six blooms. The first prize will be £10, and the fourth, £3. No challenge cup is for competition in place of that won last year by Mr. Hunt.

BEGONIAS AT THE CRYSTAL PALACE.—In addition to the non-competitive exhibits at the Crystal Palace Fruit Show, described in last week's issue, Messrs. JOHN LAING & SONS, Forest Hill Nurseries, London, S.E., had a collection of cut blooms of double-flowering tuberous-rooted Begonias of excellent quality for so late a date of the season.

CHRYSANTHEMUMS IN THE LONDON PARKS.—We have received information from the London County Council that the annual Chrysanthemum shows in Southwark and Finsbury Parks have already been opened to the inspection of the public. Those at Victoria and Waterlow are to be opened to-day (Saturday), and that at Battersea on the 25th inst. These fine shows of the autumn queen provided by the Council for the free use of the public are deservedly popular.

PUBLICATIONS RECEIVED.—*More Pot-Pourri from a Surrey Garden.* By Mrs. C. W. Earle (London: Smith, Elder & Co., 15, Waterloo Place).—*The Teaching Botanist, together with Outlines and Directions for a Comprehensive Elementary Course.* By W. F. Ganong, Ph.D. (London: Macmillan & Co., Ltd.; and New York: The Macmillan Co.).—*Ornamental Shrubs, for Garden, Lawn, and Park Planting.* By Lucius D. Davis (G. P. Putnam's Sons, New York; and London: The Knickerbocker Press).—*Botany for Beginners.* By Ernest Davis (London: Macmillan & Co., Ltd.).—*Vegetables for Exhibition and Home Consumption.* By Edwin Beckett (London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd.) (Price 3s. 6d.).—*Handbuch der Blüten-Biologie.* By Dr. Paul Knuth, vol. ii., part ii., Lobeliaceae to Gnetaceae (Leipzig: Wilhelm Engelmann).—*Report on the Botanic Gardens and Domains, Sydney, N. South Wales, for the year 1898.* By J. H. Maiden, Director.—*Century Book of Gardening, part vi.—Report on the injury to Agricultural Land on the Coast of Essex by the Inundation of Sea-water on November 29, 1897.* By T. S. Dymond, F.I.C.; and F. Hughes, The Essex County Council.—*Journal of Botany*, No. 442, October, 1899.—*Orchid Review*, vol. vii., No. 82.—*Agricultural Journal* (Cape of Good Hope), No. 6, vol. xv. (Cape Town: Townshend, Taylor & Snaresall).—*Le Mois Scientifique*, published by M. J. B. Baillière et Fils, 19, Rue Hauteville, Paris.—*Deux Points de nomenclature. Ranunculus, acer and Sonchus oleraceus.* By Auguste Le Jolis.—*The Students' Flora of New Zealand, &c.* By Thomas Kirk, F.L.S., Wellington, N.Z. (John Mackay, Government Printers; and Eyre, Spottiswoode & Co., Fleet Street, London).—*Twenty-fourth Annual Report of the Board of Commissioners, City of Boston, U.S.A., Department of Parks.*—*Boletim do Museu Paraense de Historia Natural Ethnographia* (Para, Brazil: Typographia de Alfredo Silva & Co. Praco Visconde Rio Branco, No. 12).—*Annales des Sciences Naturelles, Septième Série, Librairie de L'Académie et Médecine*, 120, Boulevard Saint-Germain, Paris.—*Sitzungsberichte und Abhandlungen, Genossenschaft "Flora."* Edited by Franz Ledien. (Dresden: Meissner, Warnatz & Lehmann, Kgl. Sachsische Buchhandler).—*Annale della Regia Scuola Superiore di Agricoltura in Portici, Naples* (Pierro & Veraldi, Institute Casanova).—*Ueber den habitus der Coniferen.* By Dr. Arthur H. Burt (Published by Franz Pietzcker, Tübingen).

THE STRUCTURE OF THE CUCUMBER.

THE quantity of ink that has been expended in explaining the conformation of the fruits of the Cucurbitaceae is somewhat considerable. It is, however, now generally admitted that the outer portion of the fruit belongs to the axis: that it is, in fact, a dilatation or swelling of the flower-bearing branch surrounding and partly incorporated with the carpels. This view is confirmed by the curious specimen forwarded to us by the courtesy of the Director at Kew from Dr. Groen of Windsor. The two long-stalked leaves must necessarily arise from a branch. In the specimen (fig. 101) before us the sepals have also assumed the form and consistence of leaves.

HOME CORRESPONDENCE.

ROSES, MARÉCHAL NIEL AND DEVONIENSIS.—

Having written on p. 250 respecting budding Maréchal Niel on Devoniensis, I will now give my experience of "inarching." The plants of which I write are planted in a span-roofed Peach-house 60 feet long and 14 feet wide, running east to west. Three plants of Maréchal Niel and one of Devoniensis alternate with the Peach-trees on the south side, to fill up the space until the Peaches are over. But the Roses have proved to be by far the most valuable crop. Each grew vigorously and yielded good blooms; the four plants covered the whole south front in three years, and two of them covered part of the north side. These were layered in the border after cutting the bark through at a joint; but only one, after seven years, is to-day free from canker, and it covers nearly half of the house. One of them showed canker at the end of two years, but from what cause I cannot conceive. Knowing what would follow, and not wishing to lose all the good flowers from this plant another year (cankered plants always produce small flowers), I inarched the end of a long shoot into the main stem of a

are M. Niel and Devoniensis. Unite them when and how you will in the growing season, vigorous growths will result. For instance, a long length of Devoniensis growing from the right, and carrying different coloured flowers, and a M. Niel from the left are united where they meet. When the union is complete, the stem of M. Niel is severed above the canker, and inarched on another growing length of Devoniensis; the sap flows freely through M. Niel and Devoniensis alike, as if its course was not altered. Now M. Niel inarched on W. A. Richardson is very different. Two plants are growing opposite to each other in a span-roofed house, each makes for the ridge; the M. Niel grows the quicker, and meets the other about half way up the rafter on the other side. By inarching they are united; but instead of flowers increasing in size, they are smaller for the union; nor is the growth so sturdy. The Maréchal Niel roots are cankered, but with the assistance of W. A. Richardson it affords a good many dozens of blooms of a good tint in the spring-time, and flowers a second time in August. The Gloire de Dijon Rose, good as it is to bloom, is of no use for sale. This variety has been worked upon and with different Roses, but with little success,

makes a water-tight joint. Any man may repair a broken square, and from the inside. No outside painting is necessary, neither is putty. The first cost is much less than that incurred by the putty system. *G. G. Taylor.* [The method seems feasible, and if it be water-tight and safe against heavy winds, it is one that might be generally adopted, especially by the trade. *Ed.*]

WISTARIA CHINENSIS.—A Wistaria on a south wall here by the end of the glass-houses has been in flower for the past two weeks, this being the second batch of blooms the plant has produced this season. We have had the most peculiar season I remember. There have been periods of three weeks or a month of either cold, or wet, or excessive heat, and now we have one of the wettest harvests experienced for years. *J. Fraser Smith, Cullen House Gardens, Cullen, N.B., October 3.*

PERENNIAL ASTERS FROM SEED.—Your information that Mr. C. Herrin is leaving Dropmore reminds me of a very good "hit" recently made by that able gardener. Many of the species and varieties of Aster, we know, are highly ornamental for garden and room decoration, and for these

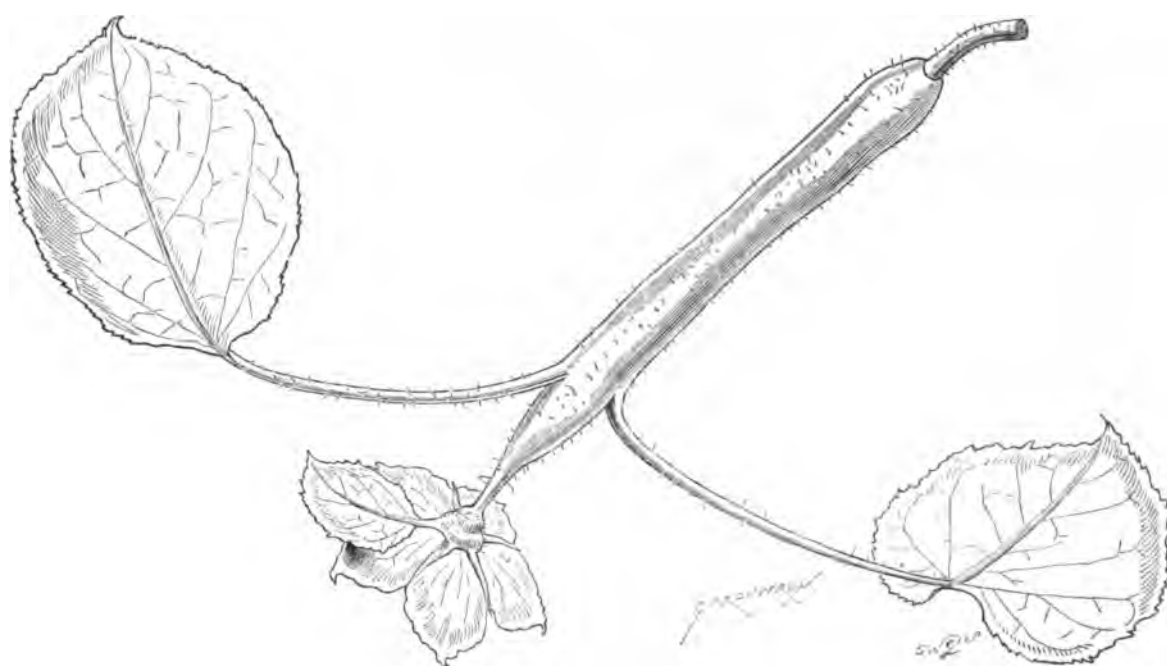


FIG. 101.—ABNORMAL GROWTH OF THE CUCUMBER. (SEE P. 298.)

plant of the Devoniensis Rose, and in April it was in bloom. The method of procedure with the stock is the same as that of budding; a T-shaped cut is made in the bark, and the scion cut sloping and slipped in this cut. These were merely tied with strong matting. The sloping cut of the scion must, of course, be made immediately under an eye, or, as with me, a flowering bud. Union was soon complete, and on cutting back the flowering shoot, a long growth as thick as one's little finger was produced the same year, followed next season by one as thick as one's thumb, and 15 feet in length, which produced the largest blooms of Maréchal Niel I have ever placed on the market. But to return to the long growth inarched. After the blooms were cut and each shoot pruned close to the stem, it broke again freely and strongly; the shoots were thinned out, leaving only one, as is done in Vines. It soon became evident from what source the extra strength came, as the wounds caused by bruising healed over from the side next the Devoniensis, and all growths drew away from the point inarched. This led me to sever the whole length from the cankered plant, and mother Devoniensis never even allowed it to flag. The vigorous growth to-day shows there is no canker or lack of vitality. This one plant, by means of inarching and budding, now covers a great deal of space, and is doing the work of three plants, so thoroughly in harmony

except in the case of M. Niel, which grows liberally, and produces fair blooms. But it requires to be cut severely after flowering each year, or the flowers are small. Duke of Edinburgh upon Gloire de Dijon has not moved at all, though it is as fresh as when inserted five years ago. The old variety of Niphetos does well on this variety at Parkstone Nurseries near here. Let me tell "Growler" this may not be new to him and many others, but I have been persuaded to write the above for the benefit of a few Rose-growers, who, like myself, have had canker destroy their Maréchal Niels just when they have covered the space allotted to them. *K. W.*

A SYSTEM OF GLAZING.—I beg to send you a sample of my system of glazing, for which I am seeking a patent, and I shall be pleased to hear what you think of the same. The house may be made any desired shape, and the vertical work also may be glazed on this principle. Rafters or principals are fixed at proper distances, and these support purlines, which run in parallel lines. The whole may be of wood or iron. The glass is recessed or slotted, and when laid on, forms an aperture, through which a pin or clip is passed, and this is secured on the inside of the purline by a screw or nail, thus holding the glass firmly. The clip is cork or rubber-lined, and when fastened to the purline

purposes they are invariably increased from named kinds. It struck Mr. Herrin, however, that very good results might be got from seed, and in this view he proves that he is fully justified. He has a long row of seedlings, which vary from white to various shades of colour, and the effect of the mixture, in line, is most charming. Not only so, but the forms themselves are good, and provide considerable variety for the purposes for which they are grown. Some of the seed was gathered from a form called Nancy; but the point of the matter is, that the seed was produced by a good deal of natural crossing, and thus gave rise to a progeny of great variety and interest. The experiment has not, perhaps, been made before; but sooner or later most of our floral improvements, as they become fixed, are raised from seed, so that we no longer rely exclusively upon the propagation of known individuals, and this experiment is one certainly well worth repeating. Given a few good and distinct varieties, and no bad ones, the result is sure to be good. In this case the seedling plants were apparently much more graceful than those propagated by division. *Peregrinator.* [A very charming lot of plants, as we ourselves can testify. *Ed.*]

AWARDS AT THE GREAT FRUIT-SHOW.—I notice in the report of this show in last week's issue of the *Gardeners' Chronicle* that in Class 22 you

state there were many exhibits. I would like to ask those who were responsible for the awards in this class if it was fair to the other exhibitors in the class, and who adhered to the rules of the schedule, that the Jersey exhibit should have been awarded first place, seeing that it was a collection from some twenty members of the Royal Jersey Agricultural and Horticultural Society? That, and the fact of their showing duplicate dishes to the extent of seven and eight, really disqualified them according to the Society's schedule, which plainly states, "No duplicate baskets or dishes of fruit, and no awards of any sort will be made to nurserymen who do not conform to the regulations;" but whilst admitting that the Jersey collection deserved recognition, perhaps to the extent of a gold medal, as much as some of those that got such an award, I must take exception to the action of the Council or judges in not upholding the rules and regulations as published in the schedule. The Council of the Royal Horticultural Society can hardly shut their eyes to the fact that it is the nurserymen who make the show; for, take them away, where is the great fruit show? Nurserymen are but human; and all they ask is a fair field, and no favour. *Critic.*

NURSERY NOTES.

MESSRS. JAS. VEITCH AND SONS' FRUIT-TREE NURSERY.

In an indifferent fruit season, it is some satisfaction to find that there are cases in which the local conditions and circumstances have been of such a nature as to neutralise to a large degree the influences that have, over the greater part of the country, tended to produce an unsatisfactory result. The year 1899 has been a poor Apple, Pear, and Plum season, chiefly from the injury to the fruit blossoms, inflicted by frost in May. Yet how many exceptions there are! In the London district especially, regarding the London district in the widest sense, there have been numerous instances where the Apple crop has been very much above average. And so in Messrs. Veitch & Sons' nursery at Langley, near Slough, the Apples escaped the May frosts sufficiently to produce a fine crop of fruits. This circumstance, and others akin to it, are doubtless capable of explanation; but this would be beyond our present purpose. The prolonged drought also, has had prejudicial effects upon fruit-trees this season, but many localities have escaped without suffering severely. At Langley, Messrs. Veitch have a piece of land where there is a very good depth of soil, and in the sub-soil there is much clay, but we were, nevertheless, greatly surprised upon a recent visit to find that the fruit-trees, forest and ornamental trees, and most of the other plants in this nursery, so little reflected the chief characteristics of the season now at its close. From the nurseryman's point of view, there is, doubtless, some little cause for regret that the "maiden" trees of Apples, Pears, and Plums, have not made such a long growth as generally characterises a more genial summer; but even in this direction, the falling off is by no means so much as might have been expected, or as is actually the case in many districts. From the buyer's point of view, that is not any disadvantage; he will get trees with a moderate current season's growth upon them, hard, well-ripened, and preferable to trees with willow-like, less perfectly matured shoots that are produced by a damp, growth-hastening season. The Langley nurseries include from seventy to eighty acres of land, a good part of which is occupied with young fruit-trees, the remaining portions being devoted to the seed trials, herbaceous plants, and ornamental trees and shrubs.

APPLES.

A visitor, after a careful inspection of the stock, could hardly fail to agree with the remarks made above. He would probably first turn his attention to some "brakes" or "drifts" of Apple-trees near the entrance to the nursery, where there are grand batches of two-year-old trees upon the Paradise

stock. The growth these have made this season, in our opinion, is satisfactory, if not remarkable. Cox's Orange Pippin, and Lane's Prince Albert, the one the acknowledged king of dessert Apples, and the other hardly less valuable as a kitchen fruit, are particularly noticeable amongst these two-year-old trees. But proceeding, the visitor would next see a large number of four-year-old trees, also upon the Paradise, and including such excellent varieties as Bismarck, Blenheim Orange Pippin, Wadhurst Pippin, Sandringham, King of Tomkins County, Hoary Morning, Rymer (not so good this season), Lamb Abbey Pearmain, Baumann's Red Reinette, Barnack Beauty, and Schoolmaster. The two varieties last-mentioned are worth special attention; Barnack Beauty is a good grower, a free cropper, and a long keeper, the fruits are highly coloured, and it is less well known, or at any rate planted, than it deserves to be; Schoolmaster is a capital keeper right on into late spring, and it will succeed in certain districts in which Dumelow's Seedling gives considerable trouble, and is liable to canker.

It was the batch of three-year-old Apple-trees, however, that were the most remarkable for the extraordinary growth they have made in that time, and never have we seen better specimens. Such free-growing varieties as Ecklinville Seedling, Bramley's Seedling, and Blenheim Orange were the most conspicuous; and it was interesting to compare these with the slower-growing King of the Pippins, and the still slower Gladstones. Anyone unacquainted with the habits of the varieties would find it difficult to believe that they are all of the same age, and were, in fact, budded upon the same day. Lane's Prince Albert was again noticeable in the three years' old, and Newton Wonder, of which it is almost impossible to speak too highly. Trees of the last-named variety were well cropped with their fine solid fruits, and they make also a good sturdy growth.

Of newer or little known Apples, Royal Late Cooking is so far fulfilling the promises the variety gave several seasons ago, when it was recognised by the Fruit Committee of the Royal Horticultural Society. Messrs. Veitch believe that it will supersede Alfriston, itself a good Apple; but Royal Late Cooking, while resembling in some measure Alfriston, is a much better grower, and the large, fine fruits will keep in excellent condition until May. There are two good dessert Apples that have done well this season, and are less known than is desirable. Lord Burghley one of these is sometimes deficient in size, but they are not this season, and being a pretty and highly coloured fruit that keeps well until late spring, they will be valuable. Jonathan is another late dessert that can be given an unqualified recommendation, although a little weak in growth. In flavour, colour, and size, the fruits are perfect, and the tree is a good cropper. St. Edwin's Pippin, and King Harry are good dessert Apples also, and some fine fruits of these, as of many other excellent sorts, were shown us in a covered shed in the nursery. Most of the Apple-trees are trained for forming bushes and standards, but cordon trees are also kept for particular purposes.

In a border containing stock-trees of 310 varieties of Apples, the following were jotted down as being most fully cropped at the time:—Norfolk and Hereford Beefings, Beauty of Stoke, Beauty of Kent, Barnack Beauty, Blenheim Orange, Woodstock, Cornish Aromatic, Court Pendu Plat, Court of Wick, Dutch Mignonne, Farleigh Pippin, Fearn's Pippin, Gascoigne's Scarlet Seedling, Sandringham, and Sturmer Pippin.

PEARS AND PLUMS.

There is a fine collection of Pear-trees, and the remarks above upon the growth made by Apples this season are in most part applicable to Pears. Bush and pyramidal trees of various ages, from maidens up to six and even eight years old, and standards, were all looking well. In the case of Pears, however, there is a large demand for trained trees for walls, arches, trellis, &c., and for all these

purposes there are trees exactly suitable. The double and treble cordons are excellent systems of training, and are apparently becoming more popular than single cordons. Some two-year-old cordons, with growths 6 feet high, were admirable. Apart from the trees for sale there is a collection of stock trees of about 180 varieties, and looking over this collection, we took the following names of varieties that have fruited most freely this season, and the fruits still remained ungathered—Beurré Bachelier, Beurré Diel, Beurré de Rance, Comte de Lamy, Emile d'Heyat, Glout Morceau, Marie Guise, Napoleon, Nouveau Poiteau, Prince Consort, Alexandre Lambra, Zephirin Gregoire, and Forella.

Of Plums, we saw some splendid standard trees, especially of the first-rate variety, Early Rivers—clean-stemmed, vigorous-growing trees, that should give most satisfactory returns when transplanted to other gardens or orchards. There is a fine lot of espalier-trained trees of Plums, and they have made very remarkable growths in the two and three years they have been budded.

PEACHES, CHERRIES, GOOSEBERRIES.

Of Peaches, the stock naturally consists of trees trained for planting against walls, fences, or trellises. Probably when the new nursery at Feltham is thoroughly established, the Peaches and other of the stone-fruits will be cultivated there.

Cherries succeed splendidly in the deep, stiff loam at Langley, and there are some magnificent trees of various shapes. The espaliers and the standards alike make clean, vigorous growth, indicative of the best possible health. Fan-trained trees, three years old, and twice trained, were magnificent.

Gooseberries are also done grandly. They are trained as cordons, cup-shaped, or gridiron, all of them good systems, and illustrations of which were given in *Gardeners' Chronicle*, July 31, 1897, p. 73. The two newest varieties in the collection are Langley Gage and Langley Beauty, both of which were raised on the place. An illustration of the latter was given in *Gardeners' Chronicle*, August 8, 1896, p. 155. They are both choice dessert fruits.

SOCIETIES.

ROYAL HORTICULTURAL.

OCTOBER 10.—The first meeting of the Committees of this Society after the great Fruit Show, was not a very large one. Not only was it held less than a fortnight after the Crystal Palace Show, but upon the same day the National Chrysanthemum Society opened its first exhibition for the present season in the Royal Aquarium, Westminster.

At the Drill Hall Show, the Orchid Committee recommended Awards to three novelties, and had before them a few collections of plants and blooms.

The Floral Committee awarded only two Awards of Merit and no First-class Certificate. The two Awards were to varieties of the perennial Aster, which were included in a magnificent exhibit of Michaelmas Daisies, from the gardens of F. A. BEVAN, Esq., Trent Park, Barnet. Messrs. JAS. VEITCH & SONS exhibited a group of Chrysanthemums in pots; and Mr. W. WELLS, Earlswood, made a capital exhibit of border varieties of Chrysanthemums.

The Fruit and Vegetable Committee recommended the award of a First-class Certificate to the new Apple raised by Mr. ROSS, and that recently was given an Award of Merit. The Committee also recommended an Award of Merit to Pear Marguerite Marillat, a variety of fine quality that has been in commerce for some seasons.

There were several fine collections of fruits shown by amateurs, including first-class exhibits from ROGER LEIGH, Esq., Maidstone; MARTIN R. SMITH, Esq., Hayes, Kent; and F. A. BEVAN, Esq., Trent Park, Barnet.

Floral Committee.

Present: Chas. E. Shea, Esq., Chairman, and Messrs. Owen Thomas, H. B. May, W. Howe, Jas. Hudson, Jno. Jennings, Thos. Peed, J. T. Bennett Poi, J. D. Pawle, E. H. Jenkins, Chas. Blick, Harry Turner, Chas. Jeffries, and W. Marshall.

CHRYSANTHEMUMS.

MESSRS. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, put up a group of Chrysanthemums in pots. There were such varieties as Louise, Soleil d'Octobre, Mutual Friend, Eastman Bell, Madame Gustave Henry, A. H. Fewkes, James Bidenscope, Reginald Godfrey, a very valuable early-

blooming Japanese variety with dull red flowers. The group was edged with *Adiantum Ferns*, and was very good for the date of season.

Messrs. JAS. VEITCH & SONS, also showed cut blooms of their *Rhododendron Javanico* x *Jasminiflorum* hybrids, that seem to appear more attractive and bright as the days are less sunny. From the Coombe Nurseries of Messrs. VEITCH, an exhibit was made of sprays of hardy shrubs showing autumn tints (Silver Flora Medal).

Mr. W. WELLS, Earlswood Nurseries, Redhill, Surrey, contributed a magnificent display of *Chrysanthemums*. The bunches of flowers were exceedingly good, and they were staged tastefully, and with good effect. Two dozen or so trusses of each variety were stuck into globular balls of moss enclosed in wire, each truss thus forming a huge bouquet. Some of the more attractive of the varieties included were *Ambrose Thomas*, red; *Edmund Duval*, white; *Sam Barlow*, pink; *Coral Queen*, De la Guille, yellow and orange-yellow; *Jeannie Guillemot*, crimson; *Madame E. Lefort*, a magnificent yellow and reddish Pompon; *Mytchett Beauty*, yellow; *Fibria*, small yellow Pompon; *Mrs. Hawkins*, yellow, &c. There were also some good blooms of large-flowering varieties, including *Rayonnante*, *R. Hooper Pearson*, *Kathleen Rogers*, &c. (Silver-gilt Banksian Medal).

HARDY FLOWERS.

Messrs. BARR & SONS, King Street, Covent Garden, London, made an exhibit of hardy flowers, the greater part of the display consisting of a collection of varieties of perennial *Asters*. There were nearly fifty varieties of these; a variety named *Mrs. J. F. Bryner*, had pretty rosy-purple flowers. The brightest flowers in the exhibit were several varieties of *Kniphofias*, and a number of varieties of border *Chrysanthemums* were included, as were sprays of *Phyallis Francheti*. There were several small, well-flowered plants of *Caryopteris mastacanthus*, hardy *Cyclamens*, *Colchicums*, &c.

SHRUBS IN POTS.

"London Shrubs" was written on the label attached to a group of hardy evergreens in pots, shown by Messrs. J. PEARCE & SONS, Roupell Park Nurseries, Norwood, London, S.E. It included varieties of *Euonymus*, tree and climbing *Ivies*, green and golden-leaved *Privets*, *Hollis*, evergreen *Oaks*, *Cedrus Deodara*, *Portugal* and Common *Laurels*, *Veronicas Hendersonii* and *Traversii*, *Buxus*, *Ceanothus dentatus*, *Aucuba Japonica*, *English Yew*, *Berberis aquifolia*, *Yucca recurva*, &c. The specimens were good ones (Silver Banksian Medal).

ROSES.

Roses were shown by Messrs. PAUL & SONS, The Old Nurseries, Cheshunt, who had quite a nice display of varieties that linger in bloom to the last. There were *Madame A. Chateau*, *Paul Neron*, *Maman Cochet*, *Madame P. Ducher*, *Mrs. W. Grant*, *Viscountess Folkestone*, *Kaiserin A. Victoria*, *W. A. Richardson*, *Mrs. John Laing*, *La France*, *Caroline Testout*, *Victor Hugo*, &c. Some of the species of *Rosa* that produce ornamental berries were shown also (Silver Flora Medal).

MISCELLANEOUS EXHIBITS.

Two *Acalyphas* were shown by Mr. WELLS, Wingfield, Berks. One of these was named *Wellsiana*, the other *Novelty*. The former had large ovate-acuminate leaves, variegated or mottled, of two shades of green and yellow. *Novelty* had smaller leaves, less regular in outline, harder, and in appearance a good variety for withstanding the ill effects of cold and draughts.

Messrs. F. SANDER & Co., St. Albans, showed plants of *Dracena Sanderiana* variety *viride*, the leaves of which are intense green; and a few plants of the pretty little *Palm Calamagrostis*. The *Dracena* has the same habit as *D. Sanderiana*, but the variegated form will probably be the more highly prized.

One of the most representative collections of perennial *Asters* ever staged in the Drill Hall was exhibited by F. A. BEVAN, Esq., Trent Park, Barnet (gr., Mr. W. H. Lees). There were nearly one hundred varieties staged, and each was represented by very fine bunches of flowers. The exhibit offered a splendid opportunity for visitors not familiar with the varieties to compare them one with the other, and to choose the best (Silver-gilt Flora Medal).

Mr. H. B. MAX, Dyson's Road Nurseries, Upper Edmonton, showed a group of plants, in which *Salvia splendens* was a conspicuous feature. There were also choice *Ferns*, *Bouvardias*, &c. (Silver Banksian Medal).

Messrs. W. CUTBUSH & SON, Highgate Nurseries, showed a group of plants, in which were fine specimens in flower of *Erica caffra*, *E. gracilis*, *Nerine Fothergillii majus*, a new variety of *Malmesdon* Carnation named *Lady Ulrica*; and such foliage-plants as *Analis elegantissima*, *Araucaria excelsa*, *A. compacta*, &c. (Silver Banksian Medal).

Miss ARMITAGE, Dadnor, Ross, showed sprays of a *Gypsophylla*, said to be a hybrid between *G. paniculata* and *G. elegans*, the former a perennial, the latter an annual species.

Awards.

Aster Amellus "Distinction."—A fine showy variety, with flowers about 2 inches across, violet or violet-purple in colour. From F. A. BEVAN, Esq., Trent Park, Barnet: gr., Mr. W. H. Lees (Award of Merit).

Aster N. B. Robert Parker var. *nanus*.—A valuable variety, as it is said to grow 2 feet high only. The flowers are of moderate size, and of a pale lilac-purple colour. From F. A. BEVAN, Esq. (Award of Merit).

Orchid Committee.

Present: J. Gurney Fowler, Esq. (in the Chair), and Messrs. JAS. O'BRIEN (Hon. Sec.), T. B. Haywood, E. Hill, J. Jacques, J. Douglas, J. Colman, A. H. Smees, H. Little, H. J. Chapman, W. H. Young, and T. W. Bond.

J. BRADSHAW, Esq., The Grange, Southgate, was awarded a Silver Banksian Medal for a bright group, in which was a finely-grown plant of *Cattleya* x *Mantini nobilior* (*Bowringiana* ♀, *Dowiana aurea*), with two spikes each of seven richly-coloured flowers; *Cattleya* x *Maroni* (*velutina* x *aurea*), with flowers of a remarkable shade of yellow, with the front lobe of the lip effectively veined with crimson; a fine *Odontoglossum crispum guttatum*, and another good, unspotted form; a handsome dark-coloured *Cattleya labiata*, *Cynoches chlorochilon*, with three fine flowers, &c.

Messrs. HUGH LOW & Co., Enfield, showed a group composed of *Cymbidium Tracynum*, *Cattleya* x *Mantini*, *C. Gaskelliana* alba, *C. labiata*, &c., there being in the centre a plant of the singular hybrid *Cypripedium* x *Olivia* (*niveum* x *tonsum*), together with plan's of each of the parents in flower. The hybrid had well-formed flowers, somewhat resembling those of *C. x T. B. Haywood*, cream-white, tinged with pale rose.

W. THOMPSON, Esq., Walton Grange, Stone, Staffordshire (gr., Mr. W. Stevens), sent *Odontoglossum crispum Katee*, with strong spikes of rather narrow petalled white flowers, profusely spotted with purple; *O. crispum Queen Empress*, a grand flower of large size and fine substance, white, with a clear pink flush; and *O. c. Daphne* (see awards).

HENRY LITTLE, Esq., Baronshalt, Twickenham (gr., Mr. Howard), showed a fine inflorescence of the originally certificated *Cattleya* x *Mantini nobilior*, still the most brilliantly-coloured form of that hybrid. The sepals were bright amethyst-crimson, the showy lip was of a dark ruby-purple with golden lines. With regard to this form, the problem is how the introduction of the yellow-petalled *C. aurea* could intensify and make darker the purplish-crimson colour to be expected from *C. Bowringiana*. Mr. LITTLE also showed *Cattleya granulosa* Little's variety, in which the purple-tinted blade of the lip bore a broad frimbriated white margin; also *Cattleya Dowiana aurea*, Little's variety.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, showed their new hybrid, *Cattleya* x *Minerva* (*Bowringiana* ♀, *Loddigesii* ♂). The plant had much of the habit of *C. Bowringiana*, the flowers in form more nearly resembling those of *C. Loddigesii*; sepals and petals dark, bright lilac-rose; lip with a bluish-purple veining in the centre, and a light yellow disk. Two plants were shown, the one much lighter in colour than the other.

FRED HARDY, Esq., Tyntesfield, Ashton-on-Mersey (gr., Mr. T. Stafford), showed a pan of three plants of the pretty *Sophro-Cattleya* x *George Hardy* (*Sophonitis grandiflora* x *Cattleya Acklandiae*), all the plants varying in tint, the prevailing colour being reddish-scarlet. Mr. HARDY also showed *Laelia* x *Euterpe*, Tyntesfield variety, *L. Dayana* x *L. crispata*, with bright lilac sepals and petals, and rich, dark purple lip, with claret-coloured veining.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed *Cattleya* x *Hardyana*, *Crawshay's* variety, a very distinct light form, in which the sepals and petals are cream-white, the petals faintly freckled with lavender colour. The showy lip was glowing crimson-purple, the base yellow, with red lines, the sides of the middle portion of the lip having each a fine blotch of bright yellow. Mr. CRAWSHAY also showed *Laelia pumila* Lionel Crawshay, a very large and richly-coloured form.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), showed the singular *Bulbophyllum grandiflorum* and *Saccobolium calceolare*.

Messrs. F. SANDER & Co., St. Albans, showed a small group of the pretty *Natal* terrestrial *Orchid*, *Stenoglossis longifolia*, each with five or six elegant spikes of pale rose flowers; also a plant of the singular *Bulbophyllum grandiflorum* with two flowers and a bud.

F. W. MOORE, Esq., Royal Botanic Gardens, Glasnevin, Dublin, sent *Epidenium Laucheanum*, the long raceme having numerous brownish flowers.

Awards.

Cattleya Dowiana aurea, Little's variety.—From HENRY LITTLE, Esq., Baronshalt, Twickenham (gr., Mr. Howard). A large and finely-formed flower with clear yellow sepals and petals, and very broad labellum of a rich, claret-purple colour, closely veined with orange almost to the margin (Award of Merit).

Odontoglossum crispum "Daphne."—From W. THOMPSON, Esq., Walton Grange, Stone (gr., Mr. W. Stevens). A very remarkable and distinct variety, in which the sepals are almost entirely tinted bright light purple, the tips and margin only being white, which contrasts curiously with the white petals, which only bear a few purple blotches; and the labellum, which has a large cinnamon-brown disc (Award of Merit).

Odontoglossum grande, Pitt's variety.—From H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood). A handsome variety, in which the brown colour usually seen in the species is suppressed, the sepals and petals being of two tints of yellow, the lip white, with two or three yellow blotches.

Spathoglottis Fortunei.—From the Royal Botanic Gardens, Glasnevin, Dublin. Several sprays of pretty yellow flowers were sent of this well known species (Botanical Certificate).

Fruit Committee.

Present: Philip Crowley, Esq., chairman; and Messrs. JAS. H. VETICH, W. Poupard, A. H. Pearson, A. F. Barron, W. Wilks, J. Wright, Alex. Dean, S. Mortimer, J. W. Bates, Geo. Woodward, Geo. Wythes, C. Harrin, W. J. Empson, F. Q. Lane, Geo. Reynolds, Jas. Smith, Robt. Fife, J. Willard, Geo. Bunyard, H. Balderson, W. Pope, and Jas. Cheal.

Mr. Geo. Woodward, gr. to ROGER LEIGH, Esq., Barham Court, Maidstone, made a grand exhibit of Apples and Pears. Together there were upwards of 120 dishes. Kitchen and dessert varieties of Apples were equally good. The Pears were very fine; some of them unusually large. Of these the most remarkable were *Marguerite Marillat*, a newer Pear, of excellent quality, and of French origin; *Durondeau*, *Gansell's Bergamot*, *Brockworth Park Beurre Superfin*, *Fondante de Thirriott*, *Conference*, *Doyenné de Merode*, *Duchesse d'Angoulême*, *Pitmasdon Duchess*, *General Tottleben*, *Emily d'Heyst*, *Bergamot d'Esperen*, *Prince Consort*, &c. A Silver-gilt Knightian Medal was awarded this splendid collection of fruit.

A very fine exhibit of thirty-six dishes of Pears was made by MARTIN R. SMITH, Esq., Hayes, Kent (gr., Mr. C. Blick). The fruits were very fine in quality and size. Some of the more attractive being *Loise Bonne de Jersey*, *Souvenir du Congrès*, *Marguerite Marillat*, *Pitmasdon Duchess*, *Beurre Superfin*, *Conference*, *Buerré Brown*, *Fondante d'Automne*, *Parrot*, *Marie Louise d'Uccle*, *Magnate*, *Conference*, *Duchesse d'Angoulême*, *Doyenne Bou-soch*, &c. (Silver-gilt Banksian Medal).

Ten dishes of fine kitchen and dessert Apples were sent by J. KEY ALLEN, Esq., Bitterne Park, Southampton (Bronze Banksian Medal).

Another very admirable exhibit of hardy fruits, consisting of Apples and Pears in nearly eighty dishes, was shown by F. A. BEVAN, Esq., Trent Park, Barnet (gr., Mr. J. Lees). Dessert and culinary Apples as well as Pears were exceedingly good, especially for a district so near to London (Silver Knightian Medal).

A magnificent collection of Potato tubers was exhibited by Mr. R. W. GREEN, Wisbech. The collection included about fifty popular varieties, and all of them were exceedingly clean, bright-looking tubers, of a moderate size—indeed, perfect specimens for the table (Silver Knightian Medal).

Mr. O. THOMAS, gr. to HER MAJESTY, Royal Gardens, Frogmore, brought a fine lot of fruits and stems bearing fruits of *Tomato Epicure*, a smooth, moderate-sized fruit, very free in bearing, and the result of a cross between *Frogmore Selected* and *Suttons' Dessert*.

Eight fine fruits of a new Melon, named *Salmon Queen*, were shown by Mr. W. BESWICK, Walton-on-Thames. It is a handsomely netted fruit, with scarlet flesh, but the flavour was not sufficient to induce the committee to grant an Award.

Mr. W. J. EMMSON, Amptill House Gardens, Amptill, also showed a seedling Melon, named *B.auty of Amptill*, a white-fleshed variety. Both of these Melons and one from Mr. Wythes are to be shown again in the spring. There were three seedling Apples shown, but none of them gained Awards.

Awards.

Apple Chas. Ross (Thomas Andrew Knight).—This excellent Apple, raised by Mr. CHAS. ROSS, from a cross between *Cox's Orange Pippin* and *Peasgood's Nonsuch*, and figured and described in our issue for September 30, p. 259, was recommended a First-class Certificate. Since the fruits were shown and recommended an Award of Merit, it has been decided to alter the name of the variety from *Thos. Andrew Knight* to *Charles Ross*.

Pear Marguerite Marillat.—An excellent variety of French origin, and pretty generally known. It is very large, colour yellow and brown, flavour distinct.—From Mr. Geo. Woodward (Award of Merit).

Lecture by Mr. R. Newstead, F.E.S.

In the afternoon a lecture upon "Injurious Scale Insects of the British Isles" was delivered by Mr. R. NEWSTEAD, of the Grosvenor Museum, Chester, and one of the greatest authorities upon this subject. The lecture was illustrated with nearly eighty lantern-slides, and Mr. Newstead gave a few words of explanation upon a large number of species. The lecture will be a most valuable one when printed in the *Royal Horticultural Society's Journal*, but on Tuesday the limits of time prevented Mr. Newstead from reading one of the most practically useful portions of his paper, that upon "Insecticides and their Application." Sufficient was said, we hope, to induce those present to spare the natural enemies of these scale insects, among them being the common and Golden-crested Wren, the long-tailed and other Tits. The chair was taken by R. McLachlan, Esq.

CRYPTOGAMIC SOCIETY OF SCOTLAND.

SEPTEMBER 26, 27, 28.—The twenty-fifth annual conference of this Society was held at Helensburgh on the above dates.

There was a good attendance of those who take the greatest interest in the Society's work; and the members had the pleasure of welcoming Dr. Plowright, President, and Mr. Carleton Rea, Secretary, of the British Mycological Society; Mrs. Rea accompanied the party. Excursions were made on the several days to Rosneath, the seat of the Marquis of Lorne; to Rosdhu, the property of Sir James Colquhoun; and to Buchanan Castle, the seat of the Duke of Montrose. The grounds and woods, amid the beautiful scenery of the Gareloch and Loch Lomond, were generously thrown open to search.

At Roseneath, two magnificent specimens of Silver Fir "Adam and Eve," attracted special attention. "Adam," at 3 feet from the ground, measures 22 feet in circumference. Both are in perfect vigour of branch. Buchanan Castle boasts of the largest specimens of Abies Douglasii to be met with in Scotland. They have not been thinned with age, and are grand in their proportions.

At the business meeting, Mr. Carleton Rea was elected a corresponding member of the Society. Dr. Plowright gave the original corresponding members. Dr. Plowright gave an interesting account of *Mileia polypodii*, B. White, which he considered identical with *Uredinopsis Scolopendri*, Roel., and pointed out that Buchanan White's generic name, *Mileia*, had the priority of *Magnus medinops*.

The weather was peculiarly favourable, three fine days having occurred between two storms of wind and rain. Owing, however, to the heat and drought of the summer, fungi were not so plentiful as could be desired. A few good things were met with: notably *Naucoria erinacea*, Fr., on Beech-sticks; *Tornelia capitata*, Tul., on *Elaphomyces granulatus*; *Hypocrea delicatula*, Tul.; *Geoglossum viride*, P.; *Agaricus algidus*, Fr., var. *atro-ceruleus* on Willow; *Nidularia pisiformis*, Tul.; *Sphaeria mutabilis*, P.; and *Puccinia valeriana*, Carst., on *Valeriana officinalis*, which last is new to our flora. The curious *Chroolepus Arnotti*, Hook., of the English flora, was also found on the trunks of Yew-trees. The meeting was in every respect a most enjoyable one.

The next Annual Conference will take place at Rothiemurchus, or Banchach, as may be arranged. We hope again to welcome our friends of the British Mycological Society, who will have an opportunity of investigating the flora of the native Pine-forests of Scotland. J. S., *Glasgow*.

SCOTTISH HORTICULTURAL.

OCTOBER 3.—A crowded meeting was held in the Society's room 5, St. Andrew Square, Edinburgh. Mr. JAMES GRIEVE was in the chair, and ten new members were nominated. Several interesting exhibits of ripe fruits of the Logan-berry, and a fine sample of Emperor Alexander Apples, and what looked like a large Cox's Orange Pippin were made.

Mr. TODD showed a choice vaseful of the Mytchett White Chrysanthemum. Messrs. LAIRD had samples of Stirling Castle, a fine Red Tomato, and Golden Emperor, both grown in the open air at Eccles, Kelso. The red had ten fruits in the cluster. The same firm had half-a-dozen trusses of zonal Pelargoniums. Among these Oliver was one of the brightest scarlets; Dorothy Burroughs, a delicate pink; Barbara Hope, pink; Scarlet Cerise, and May Ritton, a lovely pink.

EARLY FLOWERING CHRYSANTHEMUMS.

Mr. M. MACKENZIE, of the Warriston Nurseries, who was the lecturer for the evening, on "Early-flowering Chrysanthemums," exhibited a rich collection of some of the older and newer sorts in illustration of his subject. One great object of this informing Lecture was to show the great advance that has been made among early Chrysanthemums within the last thirty years. Floral decorators throughout the autumn and early winter, would be poor indeed now without early-flowering Chrysanthemums. And yet it is only about fifty-four years ago that Robert Fortune was sending the first of them in some form of Christmas Daisy; and the Japanese varieties followed in 1862, some thirty-seven years since. Some of the first were lost, but he managed to bring home seeds, and through these, and sports in profusion, we have got an infinite variety of form, size, and colour in our early and other Chrysanthemums.

One of the earliest notices of early-flowering Chrysanthemums was a list of thirteen varieties, given by Mr. Henry Taylor in the *Gardeners' Magazine* in 1876. In Nov., 1851, Mr. Mackenzie said that he grew in the nursery various Chrysanthemums on a south wall, protected by mats. They were the small or Pompon varieties. Mr. Munro credits Mr. Wm. Handyside, of Musselburgh, with introducing the first set from France in 1868 or 1869, and presented a set soon afterwards to Mr. James McNoble, Curator of the Edinburgh Botanic Gardens. Mr. McNoble mentions receiving another set from Mr. Parker, of Tooting, about 1876. Of these early introduced varieties, *Précocté*, *Frederick Peel*, *White Queen*, *Little Bob*, and *Scarlet Gem* are still grown. Later followed Mr. Munro's collection, with, among others, *La Petite Marie*, *La Vierge*, *Blushing Bride*, *Mrs. Pitcher*, *W. Percy*, *Golden La Petite Marie*, *Madame Desgranges*, and its golden sports. These two sufficed to make the fortune of early Chrysanthemums. The following are some of the more notable varieties named by Mr. Mackenzie:—

Whites.—Mytchett, White Queen, Madame Carmeaux, La Petite Marie, Lady Fitzgram, the finest early white; Queen of Earlies, and La Vierge.

Pinks.—Gustave Grünerwald, Madame Cassimer Perier, Madame Alfred Normin, Elsie Wright, Strathmeath, Blushing Bride, Madame Marie Masse, and Francis Willermout.

Yellows.—Golden Shaw, Golden Fleets, Siburtia, George Vermig, Percy's Seedling, Arthur Crepey, Mrs. Hawkins, one of the best of all the yellows; Canary, Madame Foucher de Carlet, Orange Child, Norbert Sevrès, and Golden Salmon, a great favourite.

Scarlet, Crimson, and Purple.—Little Bob, Frederick Pile, Crimson Queen, one of the best of the time and colour; Nellie Brown, Roi des Précoctes, Harriet Home, and General Hawker.

Several other early Chrysanthemums were sent out last year, but most of them threaten to bloom in November rather than from September onwards, as we know these beautiful

and useful flowers. Among these are Mytchett Beauty, Doris Pell, Mrs. George Hill, &c.

In a society of practical gardeners, Mr. MacKenzie thought it useless to give details of propagation, culture, &c. He only added, in a sentence or two, that culture needed caution and care; avoiding all extremes of heat, water, and manure; not rushing the cuttings, but keeping them in a cool pit or house. Place them ten or twelve in a pot or pan, or place them in boxes near the glass. The plants may be grown out-of-doors, planted out in April or May, and potted-up in August or September in 64, 6, or 7-inch pots, or glass sashes placed over them in September or October. By far the best mulch is moss-litter, as it holds the manure and moisture better and longer than farmyard manure, and cannot be easily blown off the surface. It is a good plan to lift batches from the open for blooming in succession indoors.

CARDIFF GARDENERS'.

PRESENTATION TO THE HONORARY SECRETARY.

OCTOBER 3.—The Session of 1899-1900 was opened by a meeting at the Temperance Club, St. John's Square, Cardiff, on the above date. There was a large attendance, and the Society promises this winter to enter upon a very successful season. The syllabus for the season just opened is before us, and the subjects arranged for discussion are practical, and directly associated with horticulture.

The President is Councillor S. A. Brain and the list of Vice-Presidents includes the names of Alfred Thomas, Esq., M.P., Councillor J. M. Gerhold, J. Lynn Thomas, Esq., F.R.C.S., Councillor J. W. Courtis, Mr. A. Pettigrew (gr. to the Marquis of Bute), and W. W. Pettigrew (Superintendent of Parks, &c., Cardiff Corporation).

The CHAIRMAN called upon Mr. Graham to make a presentation to Mr. John Julian (the Hon. Sec. of the Association), of a beautiful silver-mounted Malacca cane walking-stick, with a suitable inscription. In doing so, Mr. GRAHAM spoke in eulogistic terms of Mr. Julian's services to the Association as Hon. Secretary.

Subsequently Mr. T. COOMBER, gr. to Lord Llangattock, read a paper on "Root-pruning of Fruit-trees," dealing with his subject in a pleasing style (1) the class of roots to prune; (2) how and when to perform the operation; (3) and the after-treatment, the class of soils best suitable for fruit-production.

A MIDDLESEX AGRICULTURAL FRUIT SHOW.

OCTOBER 6.—After receiving a note expressive of great expectations, we went to Ashford full of high anticipations, seeing something exceeding that which even a Crystal Palace fruit show could satisfy. Alas! for the faith thus displayed, for the consummation was indeed disappointing.

The show cut a sorry figure. Possibly it may have been thought good by the farmers and labourers that flocked to the field where the show was held, but gardeners and market growers smiled ironically. Happily we know, after what was seen at the Crystal Palace, that Middlesex can do far better things than was presented at Ashford. Could the metropolitan county do no better than was there seen, then would its fruit-growing reputation be in a poor case. Cannot the market-growers and gardeners of the county do something to rescue its reputation, so far as fruit production is concerned, from such very poor representations? We think if Middlesex did try, it might make a really great fruit-show, we will not say the grandest, as that is a term that only sanguine enthusiasts would employ.

The competitive classes for fruit, chiefly laid out on tables, included the following:—

Twelve dessert Apples, prizes two guineas and one guinea.—These should have brought strong competition, but only nine lots were staged, and really but six in competition, as some exhibitors entered two lots. Messrs. W. & S. PHILP, Harrington, were 1st, with a very large and handsome sample of Cox's Orange Pippin, the most meritorious dish in the show; Mr. C. NEWMAN, Harrington, was 2nd, with high-coloured, handsome Worcester Pearmain, though of less market value than the nice Cox's Orange that were highly commended from the same exhibitor. There were five lots of Cox's Orange Pippin staged, one King of the Pippins, one Ribston Pippin, and one of Hanwell Souring.

With twelve culinary Apples, Mr. E. P. NEWMAN was 1st, with Warner's King, fine, but some fruits much spotted; Mr. C. NEWMAN being 2nd with Rymer, very ripe, and light. Other varieties were Lady Henniker, Blenheim Orange Pippin, Lord Derby, Wellington, and Lane's Prince Albert.

Mr. E. P. NEWMAN had in a separate tent a very good show of Apples and Pears in sieves, the best Pears being Louise Bonne, Pitnaston Duchess, and Uvedale's St. Germain; and of Apples, Prince Albert, Lord Derby, Gloria Mundi, Warner's King, and others; also, good Walnuts, Cob-nuts, Filberts; Coe's Golden Drop and Belle de Septembre Plums, Tomatos, Grapes, &c. Various ornamental Gourds were also very pretty and interesting.

Some Potatoes shown in classes were exceptionally large and dirty. It does seem, according to an admission freely made, that great laxity prevails as to how fruit for competition is obtained, and it was stated by an exhibitor that one fine lot of kitchen Apples was purchased for him at the Crystal Palace. If that rule prevailed in one case, in how many others might it not also? Evidently exhibition morality is at these gatherings none too high; and the sooner the executive committee deal with such proceedings drastically, the better for fruit-culture under the Society's auspices.

NATIONAL CHRYSANTHEMUM.

OCTOBER 10, 11, 12.—The first show of the present season by the National Chrysanthemum Society was held in the Royal Aquarium, Westminster, on the above dates. It was by no means a record exhibition, nor equal to a few of the best that have been held in October previously; but the quality of the blooms, and the number staged, were equal to last year's show, which was an average display. The weakest classes were those for Pompons, which failed in almost every case. The Japanese varieties were strongest, and of these were excellent flowers in some of the exhibits. The displays made by members of the trade were a great advantage to the show.

There were excellent collections of vegetables staged in competition for prizes offered by Mr. H. DEVERILL. The heaviest bulb of Ailam Craig Onion exhibited was 3 lb. 5 oz. and the heaviest dozen weighed 31½ lb.

GROUPS.

The space allowed for groups of Chrysanthemums, arranged for effect was 72 feet. The 1st prize was won by Mr. J. SPINK, Summit Road Nurseries, Walthamstow. All the Chrysanthemums in this exhibit had single stems only, and most of the blooms were very large. Some of the most effective were Madame Gustave Henry, Soleil d'Octobre, Annie Provost, Mrs. W. Seward, R. Hooper Pearson (the new yellow Japanese of last season), and others. There were not many foliage plants used, and these were of the highest character possible; the 2nd prize was won by Mr. Wm. Howe, gr. to Sir H. Tate, Bart., Park Hill, Streatham Common, London, S.W., whose exhibit differed very greatly from that already noticed, a more free use having been made of foliage plants. Some very pretty specimens of *Codiums* were included; the 3rd prize exhibit from Mr. E. Dove, gr. to H. E. Fry, Esq., Bickley Hall, Bickley, Kent, consisted of Chrysanthemums grown with single stems, and in its general features was somewhat after the manner of the 1st prize exhibit, but of less good quality; and it had not the imposing appearance of that to which the 2nd prize was awarded.

CUT BLOOMS (JAPANESE).

The 1st prize in the class for twenty-four blooms in eighteen varieties, was won by Mr. Jas. Brooks, gr. to W. T. NEWMAN, Esq., Totteridge Park, Totteridge, Herts. These were fine blooms, but the exhibit lacked colour, too many of the varieties being white or shades of yellow. Some of the more noticeable blooms were Pride of Madford, Mrs. Barks, Middle. L. Brosillon (soft-yellow Japanese), Mr. W. H. Lees, Reine d'Angleterre, Soleil d'Octobre, Lady Byron, Madame M. Ricard, Pride of Exmouth, E. Silsbury, and Werther. The 2nd prize was awarded to Mr. F. Fulford, gr. to F. D. LAMBERT, Esq., J.P., Moor Hall, Cookham, Berks. In this stand we noticed fine blooms of Dorothy Seward, Elthorne Beauty, Mrs. J. Lewis, and Mrs. G. W. Palmer. 3rd, Mr. W. J. Drewett, gr. to C. ARTHUR PEARSON, Esq., Farnham Place, Farnham, Surrey. The best exhibit in this class was one from Mr. M. Gleeson, gr. to A. Von ANDRÉ Esq., The Warren House, Stanmore, N.W., whose blooms were very much better in size, and especially in colour, than those of any other collection; but he had inadvertently included sixteen varieties only.

In the class for twelve Japanese Blooms, distinct, there were four exhibits, and the 1st prize was awarded to Mr. M. GLEESON. His varieties were Mons. Chenon de Lecht, Madame G. Bernard, Henry Weeks, Ella Curtis, Mutual Friend, Emily Towers, Australia, Elthorne Beauty (very fine in colour), Mrs. Weeks, Thos. Wilkins, Simplicity, and Joseph Brooks. The 2nd prize collection of blooms were smaller, and were shown by Mr. JAMES BROOKES. Pride of Madford was good in this exhibit, its colour being very characteristic; Mrs. J. Lewis, Pride of Exmouth, Mrs. Barks, and Soleil d'Octobre were noticeable. 3rd, Mr. C. Cox, Brickenden Grange, Hertford. There was one other exhibit, and this was awarded an extra prize.

The class for six blooms, distinct, brought nine exhibits, and the 1st prize was won by one from Mr. W. Meredith, gr. to GEORGE WILDER, Esq., Stanstead Park, Emsworth, Surrey. The varieties in this collection were Australia, Edith Tabor, Madame Philippe Revoire, Mrs. D. Dewar, J. Bickenope (this bloom had a weak centre), and Oceana. The 2nd place was taken by Mr. C. Payne, gr. to C. J. WHITTINGTON, Esq., Elm-hurst, Bickley Park, Kent. He had very fine blooms of M. Gustave Henry and Mrs. Coomber. 3rd, Mr. F. VALLIS, Bromham Friar, near Chippenham, Wilts, whose stand contained excellent blooms of the varieties A. H. Hall and R. Hooper Pearson. The difference in quality between either of these exhibits and that which obtained 1st prize was small.

The best collection of six blooms of any Japanese variety was one from Mr. R. Gladwell, gr. to S. SMITH, Esq., Werndee Hall, South Norwood, London. He had half-a-dozen excellent blooms of Australia. The 2nd prize was taken by the variety Madame Gustave Henry, shown by Mr. W. Paton, gr. to Mrs. HARMSWORTH, Poynter's Hall, Totteridge, Herts; and the 3rd prize to Phœbus, exhibited by Mr. A. Page, gr. to A. L. REYNOLDS, Esq., Ravenscroft, Moss Hall Grove, near Finchley. There were seven exhibits in the class.

INCURVED BLOOMS AND POMPONS.

The best collection of six blooms, incurved, was from Mr. R. Jones, gr. to C. A. SMITH-RYLAND, Esq., Barford Hill, Warwick. The varieties staged were Mr. H. Bahuant, D. B. Crape, Globe d'Or, Ada Owen, and Lord Coleridge. Mr. Thos. Robinson, gr. to Mrs. LAWRENCE, Elmsfield House,

Hollingbourne, Kent, who had three very fine but undeveloped blooms of Duchess of Fife, 3rd.

There was one exhibit only in the class for twelve Pompons, but it was a very meritorious collection from Mr. T. L. Turk, gr. to T. Bover, Esq., Southwood House, Southwood Lane, Highgate, London, N., and the 1st prize was awarded to this.

AMATEURS.

The best collection of twelve Japanese blooms was one from Mr. R. Gladwell, gr. to S. Smith, Esq., Werndee Hall, South Norwood. He had fine blooms of Louise, Werther, Suzie (a high-built flower, of pale lemon colour, as shown), Hairy Wender, Phœbus, Australia, and Joseph Brooks. This exhibit was a very satisfactory one, coming as it did from an amateur. The 2nd prize was won by Mr. W. Perrin, gr. to C. W. Richardson, Esq., Fairgreen House, Sawbridgeworth, Herts, who had also a very creditable collection; 3rd, Mr. A. Page, gr. to A. L. Reynolds, Esq., Ravenscroft, Moss Hall Grove, near Finchley.

The best collection of six blooms was also shown by Mr. Gladwell; his varieties were Louise, Madame R. de Massy, M. Chenon de Leche, Werther, Oceana, and Emily Silbury; all of them were of good quality. 2nd, Mr. W. Perrin; and 3rd, T. L. Turk. There were five other exhibitors.

The best collection of twelve blooms of Japanese, in not fewer than six varieties (exhibitors in the above classes excluded) was from Mr. W. G. Prudden Clark, York Road, Hitchin, Herts. The varieties Mutual Friend, Oceana, and Gustave Henry, were of good quality in the exhibit. 2nd, Mr. Martin Silbury, Providence, Shanklin, Isle of Wight.

VASES AND EPYRONES, ARRANGED WITH CHRYSANTHEMUM BLOOMS.

In an open class for two vases, each to contain twelve large flowering blooms, 1st prize was won by Mr. Jas. Brookes, gr. to W. J. Newman, Esq., Totteridge Park, Herts; and the class for a vase of Pompon blooms, arranged with suitable foliage, was won by Mr. T. L. Turk.

There were several pretty exhibits in a class for three epyrones or stands of Chrysanthemums suitable for table decoration, and the 1st prize was won by Mr. C. B. Cole, The Vineyard, Feltham. A very pretty effect was produced by the use of small flowering varieties, and suitable drapery and relief in the way of Asparagus, Codium leaves, Physalis, &c.; 2nd, Miss W. Green, Florist, Harold Wood, Essex, whose flowers were yellow ones. Mr. D. B. Crane, who won 1st prize in the class last year, on this occasion showed an exhibit of one epyrone, and two low serpentine vessels, not more than 2 inches high. The exhibit showed exceptionally good arrangement of the flowers, but the novel means employed found no favour with the judges.

The best single vase of flowers was from Miss Eastersbrook, The Briars, Fawkham, Kent; and Mr. E. H. Chitty, gr. to S. Hardy, Esq., Cholmeley Lodge, Highgate, was 2nd.

NON-COMPETITIVE EXHIBITS.

Mr. W. J. Godfrey, Exmouth Nurseries, Devon, had a large exhibit of cut Chrysanthemums, including a number of novelties. Also plants in flower of a yellow sport from the early-flowering variety Lady Fitzwigan, and plants and cut blooms of Ettie Mitchell, a chestnut or reddish-yellow decorative variety, raised at Exmouth, that promises to be a sterling market variety. A few blooms of winter-flowering Carnations were included also, and perennial Asters (Silver-gilt Medal).

Mr. H. J. Jones, Ryecroft Nursery, Hither Green, Lewisham, made a really fine exhibit of a group of Chrysanthemums in pots, and on either side of this were smaller groups of Codium and Cordylina. Most of the Chrysanthemums were grown with single stems, and carried fine blooms. But for an edging of Mytchett White, and a few similar varieties, those in the group were whole large-flowering sorts, and included some of last season's novelties, such as May Mauser, a primrose-coloured flower, with much deeper centre; and R. Hooper Pearson, rich yellow Japanese, &c. The groups of Cordylines and Codiums were composed of splendidly cultivated plants, and were set up with the most admirable taste (Gold Medal).

Mr. Norman Davis, Framfield Nurseries, Sussex, staged three blooms of a fine white Japanese, incurved, named Miss Alice Byron, raised by Mr. H. Weeks. The flowers are large, handsome, pure white, and the petals broad and of good length.

Messrs. Dobbin & Co., Rothesay, N.B., and Orpington, Kent, were awarded a Silver-gilt Medal for an exhibit of cut blooms of border varieties of Chrysanthemums; also of single Dahlias.

Messrs. H. Cannell & Sons, Swanley, Kent, staged a group of Cannas in flower in pots of similar effect to that shown at the Crystal Palace. There were too many varieties of merit for us to indicate them, but specially bright and attractive were Souvenir d'Antoine Crozy, Queen Charlotte, Amie Pichou, Burbank, Madame La Baronne, P. Thérard, anrea, President Kruger, Doyen J. Liabaud, Sunset Glow, and Madame Perrin des Isles (Silver-gilt Medal).

Messrs. R. & G. Cuttner, Southgate, Middlesex, exhibited a group of plants of the decorative Chrysanthemum Mrs. Wingfield, a pink-flowered variety of much merit for cutting from.

Mr. H. Deverill, Banbury, exhibited cut blooms of perennial Asters and other hardy flowers; also some fine Onions, &c. (Small Silver Medal).

Mr. Eric F. Stuch, Royal Berkshire Nursery, Maidenhead, made an exhibit of cut flowers of perennial Asters, early-flowering Chrysanthemums (Small Silver Medal); and Mr. S. Mortimer, Rowledge Nurseries, Farnham, made a most attractive exhibit of Dahlias, including Cactus, show, and decorative varieties, that were as bright as any exhibit in the building (Silver-gilt Medal).

Mr. Thos. S. Ware, Hale Farm Nurseries, Tottenham, showed a group of cut flowers, composed of Dahlias and perennial Asters (Silver Medal).

Messrs. Jno. Laing & Sons, Forest Hill Nurseries, London, S.E., had much the finest exhibit of fruit, and were awarded a Gold Medal. In the centre was a raised trophy, set with very fine fruits, and which gave a distinct effect to the exhibit. The quality of the fruits throughout, no less than the artistic taste in which they were displayed, was worthy great praise. Messrs. Laing had also an exhibit of Box and Yew trees trained to various imitative shapes.

Messrs. S. Spooner & Sons, Hounslow Nurseries, were awarded a Silver-gilt Medal for a collection of hardy fruits; and another similar exhibit was made by Mr. W. J. Prowett, gr. to C. Arthur Pearson, Frensham Place, Farnham (Silver Medal).

Messrs. Cutbush & Sons, Highgate, London, N., also showed a fine exhibit of fruit upon a table (Silver-gilt Medal).

Mr. W. T. Williamson, 24, Bury Street, Lancashire Hill, Stockport, exhibited another method for adjusting the height of the cups in exhibition stands for Chrysanthemums. The cup is fixed upon a wire which is placed in a socket containing a screw, which will fix the cup at any desired height (Commended).

MR. H. DEVERILL'S PRIZES FOR VEGETABLES.

The class for a collection of eight kinds of vegetables was won by a grand exhibit from Mr. Ed. Beckett, gr. to Lord Aldenham, Aldenham House, Elstree, showing produce of similar quality to that which gained a Gold Medal at a recent meeting of the Royal Horticultural Society. Mr. R. Lye, gr. to Mrs. Kinross, Sjdmon Court, Newbury, was 2nd; and Mr. W. Pope, gr. to the Earl of Carnarvon, Highclere Castle, Newbury, 3rd.

The six largest and handsomest specimens of Onion The Aristocrat were from Mr. Jno. Masterton, gr. to Earl Camperdown, Weston House, Shipston-on Stour.

Mr. J. Bowerman, Hackwood Park gardens, Basingstoke, had the best collection of twelve, and six specimens of Onions, Allia Craig or Cocos-nut, showing in each instance magnificent specimens of Allia Craig.

Oxonian Leeks, in a class for six specimens, were seen best from Mr. J. Bowerman; and Mr. J. Lye had the best twelve specimens of Middleton Park Favourite Beet.

Splendid Parsnips were shown by Mr. Beckett, who won 1st prize in a class for twelve specimens of Improved Hollow Crown. The same exhibitor won the best among five in a class for Aylesbury Prize Red Celery, and in another class for twelve fruits of Glenhurst Favourite Tomato.

TRADE NOTE.

J. C. WHEELER & SON, LIMITED.

A COMPANY has been registered, with a capital of £20,000, in £10 shares, to acquire and carry on the well-known business of J. C. Wheeler & Son, nurserymen, seedsmen, and seed-growers, of Northgate Street, New Inn Lane, Worcester Street, and Kingsholm Nurseries, Gloucester. It may be remembered that the sole surviving partner of the firm (Alderman J. C. Wheeler) died in January of this year. The first directors (to number not less than five, nor more than seven) are: T. Nelson Foster, F. Peters, T. Blinkhorn, G. N. Walker, J. H. Jones, and S. Gibbins, all of Gloucester. The directors' qualification is fixed at £500, and the remuneration at £250 per annum. The registered office is 99, Northgate Street, Gloucester.

Obituary.

DR. A. WALLACE.—The news of the death of Dr. Alexander Wallace, which occurred at his residence, St. John's Terrace, Colchester, on Sunday afternoon, Oct. 7, will be read with regret by many of our readers. The deceased gentleman, who was seventy years of age, has been ailing since the spring, and in July he went to Harrogate for a change, but returned worse, and was attacked by jaundice. Dr. Wallace was born in Guildford Street, Russell Square, London, his father being a barrister. He was educated at Winchester and Trinity College, Oxford, where he graduated M.A. The deceased came to Colchester, where he has practised successfully ever since as a consulting-physician. For some twenty years he did splendid work as unsalaried physician to the Essex and Colchester Hospital. To horticulturists, Dr. Wallace will be best known for his extensive collection of Lilies, Calochorti, and Brodiaeas, which were cultivated at the Kilnfield

gardens, Colchester. The firm of Wallace & Co. imported numerous novelties of these genera from Japan, Colorado, California, and other countries. The deceased gentleman was for many years an ardent entomologist, and made silkworm culture on a large scale his hobby. He wrote several prize essays upon this theme. His knowledge of botany was also extensive, and he wrote and published a work *Notes on Lilies and their Culture*. Dr. Wallace leaves a widow, one daughter, and six sons.

MARKETS.

COVENT GARDEN, OCTOBER 12.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	2 0-2 6	Leeks, per dozen	1 6-2 0
— Jerusalem, per sieve	8 0-4 0	Lettuce, French, Cabbage, dozen	1 0-1 3
Asparagus, Spruce, per bundle	0 10 —	— Cos, Eng., dozen	1 6 —
Aubergines, p. doz.	1 6 —	Marrows, Veg., per dozen	2 0 —
Beans, Channel Islands, Dwarf, per lb.	1 0 —	— in pads or pots	8 0-4 0
— Scarlet Runners, per bush.	3 0-4 0	Mint, per dozen	3 0 —
— French Pkts., about 1 lb.	0 4 —	Mushrooms, house, per lb.	0 8-1 0
Beetroot, new, doz.	0 6-0 9	— outdoor, per lb.	0 2-0 3
— in bush.	1 6-2 0	Onions, bags	4 0-4 6
Brussels Sprouts, p. sieve	2 6-3 0	— Onions, picklers, in bags	2 6 —
Cabbage, tally	0 8-0 8	— Oporto and Valencia, cases	5 6-6 0
— dozen	1 0-1 0	— new, bunches	8 0 —
— Savoy, p. tally	8 0-10 0	Parley, per dozen	1 6-3 0
Colewort, p. bush.	1 3 —	— bunches	1 0 —
Carrots, new English, doz. bun.	1 0-2 6	Potatoes, Hebrons, Snowdrops, &c. per ton	60 0-80 0
— good, cwt. bags, washed	8 0-8 6	Radishes, round, breakfast, per dozen	1 6 —
Cauliflowers, dozen	1 6-2 6	Salad, small, punnets, per dozen	1 8 —
— tally	7 0-10 0	Salsifras, bundle	0 4-0 5
Celeriac, per dozen	2 0 —	Shallots, per lb.	0 2-0 2½
Celery, red, p. roll	1 0-1 4	Spinach, New Zealand, per peck	1 0 —
— white, do.	1 0 —	— sieve	2 0 —
Oress, per dozen punnets	1 6 —	Tomatoes, English, per lb.	0 4-0 5
Onions, doz.	1 6-3 0	— Channel Islands, p. lb.	0 2½-0 4
Endive, new French, per dozen	1 0-1 6	— French, crate, of 20 lb.	3 6 —
— English, p. score	1 6 —	— Canary, deeps.	3 6 —
— Batavian, doz.	1 6 —	Turnips, dozen bun.	2 6 —
Garlic, new, per lb.	0 2 —	— cwt. bags	3 0-3 6
— per cwt.	18 0 —	Watercress, p. doz. bunches	0 4-0 6
Horseradish, English, bundle	2 6 —		
— loose, doz.	2 0 —		
— foreign, per bundle	1 0-1 3		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per bushel:		Grapes, Almiria, bls.	11 6-16 0
— Kings	4 0-6 0	Lemons, Naples, per case of 42	12 6-22 0
— Ribston	6 0-8 0	— Messina, 420	15 0 —
— Blenheim	4 0-6 0	Lyches, Chinese, new, pkt., 1 lb.	1 2 —
— Nova Scotia		Melons, in cases, 24 or 86	5 6-7 6
Gravensteins, per barrel	14 0-18 0	— English, each	1 0-1 2
— Cox's Orange Pippin, bushel	8 0-12 0	Oranges, Teneriffe, case of 80 to 100	7 0 —
— Warner's King, bushel	4 0-5 0	— Australian, case	14 0 —
— Wellingtons, sh.	4 0-5 0	— Jaffa, case	10 6 —
— Various Cooking, per bushel	1 6-3 0	Peaches, A., doz.	15 0-21 0
Bananas, per bunch	8 0-10 0	— B., per dozen	8 0-8 0
Blackberries, 12 lb.	1 6 —	Pears, Californian, case	7 6-9 0
— sieve of 24 lb.	3 0 —	— Catilla, Dutch, basket	3 6 —
Cobnuts, per lb.	0 6½-0 7	Pines, each	2 0-5 0
Crat berries, case	11 6 —	Plums, English, Prune, p. sieve	6 0-6 6
Custard Apples, doz.	4 0 —	— Californian, Golden Drop, &c., cases, 20 lb.	8 0-8 6
Figs, per dozen	0 9 —	Pomegranates, case of 200	7 6-9 6
— Italian, in boxes	2 0 —	Damsons, per sieve	4 6-6 0
Grapes, English, Hamburgh, lb.	1 0-1 6	Walnuts, Grenoble, shelled, p. bag	6 0-7 6
— Alicante, per lb.	0 10-1 0	— English, in green shells, p. bush.	3 0-4 0
— Gros Colmar, per lb.	1 0-1 6	— French, sacks, shelled	12 6-15 0
— Muscats, A., per lb.	1 6-3 0		
— Belgian, per lb.	0 4-10 0		
— Channel Islands	0 5-0 8		
— Lisbon, boxes	7 0-11 0		
— White, Mercia, boxes	3 6 —		

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, dozen blooms ... 6 0-8 0	Maidenhair Fern, per doz. bunches ... 4 0-6 0
Asparagus "Fern," bunch ... 2 0-2 6	Odoctoglossum, per dozen ... 4 6-9 6
Carnations, per doz. blooms ... 2 6-5 0	Marguerites, p. doz. bunches ... 8 0-4 0
Cattleyas, per dozen ... 15 0-18 0	Mignonette, dozen bunches ... 4 0-6 0
Bucharis, per dozen ... 4 0-6 0	Roses indoor, per dozen ... 2 0-6 0
Gardenias, per doz. ... 2 0-3 0	— Tea, white, per dozen ... 2 0-3 0
Gladiolus Breckleyensis, 12 spikes ... 4 0-6 0	— Yellow, Perles, per doz. ... 8 0-6 0
Lilium Harrisii, per dozen blooms ... 6 0-7 0	— Safrano, per doz. ... 2 0-2 6
Lilium longiflorum, per dozen ... 5 0-7 0	Smilax, per bunch ... 8 0-4 6
— lancifolium album, per dozen ... 6 0-4 0	Tuberose, per doz. blooms ... 0 8-0 9
— lancifolium rubrum, per doz. ... 3 0-4 0	

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantum, p. doz. ... 5 0-7 0	Ferns, small, per 100 ... 4 0-6 0
Arborvitae, var., doz. ... 6 0-8 0	Ficus elastica, each ... 1 6-7 6
Aspidistra, p. doz. ... 18 0-26 0	Foliage plants, var., each ... 1 0-5 0
— specimen, each ... 5 0-10 6	Heliconias, each ... 15 0-105 0
Crotons, per doz. ... 18 0-30 0	Lilium Harrisii, doz. ... 30 0-40 0
Dracenas, var., doz. ... 18 0-30 0	Lycopodiums, doz. ... 8 0-4 0
— viridis, per doz. ... 9 0-18 0	Marguerite Daisy, per dozen ... 6 0-9 0
Ericas, var., per doz. ... 18 0-36 0	Myrtles, per dozen ... 6 0-9 0
Eucynymus, various, per dozen ... 6 0-18 0	Palms, various, ea. ... 1 0-15 0
Evergreens, var., per dozen ... 4 0-18 0	— specimens, each ... 21 0-63 0
Ferns, in variety, per dozen ... 4 0-18 0	Pelargoniums, scarlet, per dozen ... 6 0-8 0

POTATOS.

Hebrons, Puritans, Main Crop, Up-to-Date, &c., 60s. to 80s.; John Bath, 32 & 34, Wellington Street.

REMARKS.—The season for Beans and Vegetable-Marrows is now practically at an end. French Beans from the Channel Islands have commenced to arrive; also Tomatoes from the Canaries. The Apple trade is slow, except in the case of fine samples of good fruit. Blackberries also are slow trade at the prices quoted above.

THE WEATHER.

The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
	Above (+) or below (−) the Mean for the week ending October 1.	Above 45° or the Week.	Below 45° or the Week.	Above 45°, difference from Mean since January 1, 1899.	Below 45°, difference from Mean since January 1, 1899.	More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.
0	2	36	2	+ 303	4	1	172	35.9
1	1	42	3	+ 144	23	2	151	25.0
2	1	45	1	+ 232	93	7	187	19.2
3	4	52	0	+ 348	197	2	124	16.7
4	4	45	6	+ 315	138	4	122	19.8
5	1	72	0	+ 490	184	0	107	17.4
6	2	43	3	+ 197	47	0	167	36.7
7	3	42	1	+ 349	146	0	149	27.4
8	2	57	0	+ 536	122	1	133	28.3
9	1	46	0	+ 279	71	5	174	27.6
10	4	48	5	+ 403	51	5	143	31.0
* 0 aver	97	0	+ 761	—	87	5	126	20.1

The districts indicated by number in the first column are the following:—

- 1, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London.
- Principal Graving, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

ANSWERS TO CORRESPONDENTS.

A MODEL GARDEN: *H. H. M.* Thin wood supports and cardboard would do for the ground, picked moss or fine wood-wool dyed green for the grass plots, sand or fine gravel sprinkled over thin cement "slip" for the walks, and trees and shrubs according to taste.

APPLE DISEASED: *T. S.* The Apple is attacked by the "Brown Fruit-rot (*Monilia fructigenum*), the spores being found in the freshly opened core and at the tip end. This disease attacks the flowers, thus finding its way into the fruit. Another case was reported on to the Royal Horticultural Society's Scientific Committee recently (see *Gardeners' Chronicle*, August 5, 1899). No remedy has yet been sufficiently tested, but we might suggest the treatment given in this column for a somewhat similar disease on September 30. Begin by washing down the tree or trees during winter with the copper sulphate solution, then spray with Bordeaux Mixture as directed.

APPLE TREES IN HEDGEROWS: *H.* When trees are planted at the same time as the hedge, it is an easy matter to make special provisions for the trees, so that they may have a good start. In old hedges, it is better to prepare 3 feet square holes a little distance from the hedge, and fill these with good soil made quite firm; and means must be taken to cut off yearly the roots of the hedge plants that are sure to find their way into the good soil. The trees would require annual top-dressings of dung, and a little slaked lime and potash; these last two not together, but in different years.

BOOKS: *H. B. My Gardener*, by H. W. Ward (Eyre and Spottiswoode, East Harding Street, London, E.C.

CUTTING BACK MODERATELY THE SUMMER SHOOTS OF H.P. and Tea Roses: *V. R.* The practice is not harmful if only the very strongest shoots are slightly pruned, and all weak and flowerless shoots taken from the inner parts of the head.

FRENCH MARIGOLDS: *F. M.* The varieties are not new, but they are very pretty, and being dwarf of stature would be capital plants for forming edgings to, and filling beds in the garden.

GALLS ON OAK LEAVES: *W. B.* Oak spangles.

GRAPES RUSTED: *F. J.* We cannot say from which of the well-known causes of rust in Grapes your berries have been injured, but it is not from syringing them with water containing charcoal. Cold draughts, especially if the berries are damp at the time, will "rust" the berries; or rough handling of the bunches in spring when thinning is done. In any case, the berries are directly affected, and the injury is not, as you suggest, a symptom of any root trouble, or unsuitable border.

GRASS: *Phytophiliat.* We cannot indicate the species without the awn being sent us; but you may extirpate the plants by manual dressings, and the sowing of the finer lawn-grasses and clovers along with loamy soil; these will in time smother the weeds.

GREEN TOMATOS: *Dictamnus.* The fruits will not ripen; but they would make a sort of marmalade.

GROWING AND EXHIBITING VEGETABLES: *S.* The gardener you name has written a book on the subj. It is published by Simpkin, Marshall, Hamilton, Kent & Co., Ltd., London.

LILY ROOTS DESTROYED: *F. Smith.* Before deciding, we should like to inspect some bulbs of the Lily, also roots of Cabbage, Carrot, &c. It may be that what you have seen with the naked eye are centipedes (*Julus*), which feed on decaying tissues of plants, &c.

NAMES OF FRUITS: We are most desirous to oblige our correspondents as far as we can, but we must request that they will observe the rule that not more than six varieties be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. They should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.—*T., Birmingham.* Apple Tower of Glamis.—*Danetree.* Pear, Souvenir du Congrès; Apple, Rambour Franc.—*D. S., Cork.* 1, Duchesse de Bordeaux; 2, Beurré Hardy.—*J. J. & Co.* Nine-teen varieties of fruit in one consignment is considerably in excess of our regulations. As you have taken some care in packing, and the fruit is sound, we will endeavour to oblige you by naming a few at a time. 1, Bergamotte d'Automne; 2, Durondeau; 3, Fondante d'Au-

tomne; 4, Seckle; 7, Louise Bonne of Jersey. Belmont. If the miniature fruits received from you are fair samples of the varieties, they are not worth a place in a garden.—*Yorkshireman.* We should like to see the foliage from the branches which bore the two fruits sent. Variation in the form of fruits from the same tree is frequent, but it is unusual that one should be ripe more than a month in advance of the other. It often happens that buds are inserted in established Pears to fill vacancies caused by the loss of branches, especially in trained trees. What form is the tree?—*J. McL.* 4, Durondeau; 17, Délices de Froyennes; 19, Royale d'Hiver; 36, Aston Town; 40, Fondante Van Mons; 41, Beurré Benoit.—*C. B. 1, Bergamotte Reinette;* 2, Comte de Lamy; 3, Nouvelle Fulvie; 5, Williams' Bon Chrétien.—6, an imperfect specimen, not recognisable; 7, Bergamotte Bufo.—*S. A. 1, Brown Beurré;* 2, Duc d'Aumale; 3, Beurré Bronze; 4, Doyenné Gris; 5, Althorp Crassane.—*G. E. P. 1, Loddington;* 2, Kentish Fillbasket; 3, Glory of England; 4, Tom Putt; 5, Royal Russet; 6, Adams' Pearmain.—*W. T. Rolyer.* Winter Greening.—*W. M. B.* Glory of England.—*K. Flemish Beauty;* known also to French pomologists as Fondante des Bois; and it has at least twenty other names.—*Amateur.* Mank's Codlin.—*Constant Reader.* Your Apple resembles Green Tiffing, which is much grown in the North of England.—*J. F. S.* Winter Greening.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*E. S. S.* Panicum capillare.—*T. G.* Phytolacca decandra.—*G. C. W.* Solanum rostratum.—*A. T. C. J.* Immature barren fronds of 1, Lastrea dilatata; 2, may be a very young frond of Lastrea filix-mas; 3, Polypodium dryopteris (Oak Fern), all British.—*D. S., Co. Cork.* Muehlenbeckia complexa, a pretty rock plant for outdoors, and a graceful basket-plant for the conservatory.—*Willow.* Epilobium hirsutum, common Willow-herb.—*J. J. 1, Ophiopogon Jaburan variegatum;* 2, Cyrtanthus Mackeni.—*S. J. A.* The Tasmanian climber will require greenhouse treatment. We cannot say what it is without seeing a flower.—*J. R. P. & Sons.* Acer dasycarpum var. laciniatum.—*H.* Quercus sessiliflora var. cochleata.—*T. W.* Orchid Zygopetalum Mackayii. Conifers next week.

SIX VERY LARGE DESSERT GOOSEBERRIES: *Clara Elliott.* Broom Girl and California (yellow), Companion and Crown Bob (red), General Markham and Green Overall (green).

VIOLETS DISEASED: *Enquirer.* Your plants are affected by a fungus, *Acidium depauperans* (see fig. and description in *Gardeners' Chronicle* for September 16, 1876). Apply, at intervals of two to three weeks, a wash of $\frac{1}{2}$ oz. of sulphate of potassium in 1 gallon of water.

VINES: *T. K.* The proper course would have been to cut back the Vines the year of planting down to the wall-plate, or, say, 2 to 3 from the ground, letting them then run up to the top of the house. The next year to cut them at 5 or 6 feet higher up the roof, and the following 2 to 3 feet more, and so on. It is only in the third year that they may be allowed to carry half a dozen bunches, and the next year ten bunches. We imagine you have let the Vines crop too early and too heavily.

VINE-BORDER SOIL: *J. F. D.* The soil sent is inert, compacted, and generally unfit to sustain the Vines. What few roots were found in it were dead. Clear it out, make a new border, and plant new Vines.

COMMUNICATIONS RECEIVED.—*J. G., Liverpool.*—*H. W. E.*—*D. Roberts.*—*H. W. W.*—*E. Newman.*—*W. Hurlstone.*—*T. Coomber.*—*T. P. Fawcett.*—*C. J. Stewart.*—*London.*—*County Council.*—*J. N.*—*Attwood & Co.*—*J. M.*—*H. Ward.*—*J. B.*—*Old Subscriber.*—*Stevens & Williams.*—*A. H.*—*K. W.*—*A. S.*—*D. McKinnon.*—*A. D.*—*T. J. D.*—*W. H. D.*—*A. O'N.*—*G. B. M.*—*A. D. W.*—*H. W. W.*—*Expert.*—*W. C.*—*R. P. B.*—*S. H.*—*G. D. P.*—*E. C. E.*—*A. G. F.*—*A. L. B.*—*S. G. B.*—*Enigma.*—*Monmouth.*—*F. H.*—*W. T.*—*A. C. C.*—*G. H. P.*—*G. E. P.*—*J. C. H.*—*A. Brown.*—*C. S. A.*—*B.*—*Young Gardener.*—*W. & J. B.*—*M. B.*—*W. H. S.*—*J. L.* & *Sonn.*—*P. O. K.*—*H. W.*—*W. H. R.*

PHOTOGRAPHS RECEIVED WITH THANKS FROM—Brighton and South Coast Horticultural Co., Worthing.—*W. H. Scott.*



THE Gardeners' Chronicle

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IMBER COURT, THAMES DITTON.

OF the numerous historical houses that cluster round London, and are so fast being absorbed by the ever-extending suburbs of our great city, few can claim a longer descent than Imber Court. Its records go back to a remote antiquity—to a time, indeed, when the advent of William the Conqueror was still a current topic, and when our ancestors were not much more civilised than the Zulus of to-day. A thousand years ago it got its name when the River Mole on which it stands was still called by its Celtic appellation Y-Mylin. It was known as Imleworth then, and so difficult did the "Doomsday" clerks find its pronunciation, that the nearest they could get to spelling it was "Limeurde." In the twelfth century the name had been shortened to Imworth, and its dignity increased to that of a manor. For generations it belonged to a family of De Imworths or De Immeurthes, as they preferred to call themselves. They had died out by Edward the First's time, and it came to the D'Aguilars, and so through the great land-owning family of De Braose to the Duke of Norfolk, the leader of the Opposition in Wolsey's time. When the Cardinal fell, and Henry the Eighth seized Hampton Court, the Duke let him have Imber by exchange to add to the chase of Hampton, and it remained royal property till Charles the First's time. Henry the Eighth leased it to the Sir John Dudley afterwards Duke of Northumberland, who lost his head over the Lady Jane Grey affair. Charles the First granted it to Sir Dudley Carleton, the famous diplomatist of the time of the Thirty Years' War, together with the other manors of the Hundred of Emley Bridge that had always gone with it. The house was then a rambling Tudor mansion, much out of repair. Indeed, the Hall was so dilapidated, that Sir Dudley resolved to pull it down, and, like the man of taste and fashion that he was, he got "Mr. Jones," as he calls the renowned Sir Inigo, to design him a little palace in the new Italian style to replace it. This Sir Dudley was so much the foreigner, that nothing purely English was good enough for him, and his un-English ways were for a long time a bar to his becoming Secretary of State. Thus it is that the present house looks so much more modern than it is. For the style, though common enough in Italy where Sir Dudley had served most of his time, was not general in England till the reign of Queen Anne. When Sir Dudley's abilities finally forced him into the ministry, he took his title from his new acquisition, and became Baron Carleton of Imber Court, and afterwards Viscount Dorchester; for by this time the name had again changed. In the dialect of the people, Imwerth naturally became "Immer," and this the pedantic fashion of the day clothed with a classical dress as Imber, and so it continued till, in the eighteenth century, it became corrupted into Ember. Carleton, besides his designs for the

house, greatly improved the grounds, and two grand old Lime trees still exist of an avenue he planted with saplings brought from the Hague. Thus beautified, it became a favourite resort of Charles the First when he had fallen so deeply in love with his wife, that they could hardly get him to attend to State affairs; and once at least we know (from the 12th volume of the *Historical Manuscripts Commission*) that the Council could not sit because "the King and Queen went to Imber Court, as soon as they had dined, to a banquet and entertainment prepared for them by my lord of Dorchester." The Civil War was close at hand then, and it is certain that some of the last happy hours Charles and Henriette Marie ever knew were spent at Imber Court.

Lord Dorchester died before the war broke out, and never lived to see his fine new house completed; but it was finished in 1638 by his nephew and heir, the second Sir Dudley Carleton, clerk to the Council. But he could not live there long. He had, like many other cavaliers, to compound for his estates, and was forced to sell the place to find the money. Merchants and "nabobs" now took the place of the old courtiers, till it came into the hands of Arthur Onslow, the great Speaker of the House of Commons, by his marriage with Anne, daughter and co-heir of John Bridges, Esq., of Thames Ditton, and niece of Henry Bridges, Esq., of Imber Court. For the thirty years he held the office he lived at Imber, and once more it became one of the most fashionable houses round London. Politics, art, letters—all flocked there, and there is hardly a name in that great time that is not connected with it; and most interesting of all, perhaps that of Samuel Richardson, the novelist. When Onslow was raised to the peerage, he became Baron Onslow, of Imber Court, and Viscount Cranley. He died in February, 1768. His son, Lord Cranley, sold the manor in 1784 to a Mr. George Porter, who shortly afterwards sold it to Sir Francis Ford, the first baronet, a Member of Council in Barbados, and an M.P. of the British Parliament. Its next owner was a Mr. Robert Taylor, on whose death it devolved on Sir Charles Sullivan, Admiral of the Blue, in right of his wife, the only daughter of Mr. Taylor. Whilst it was the property of the Sullivan family, it was for a few years the residence of Sir Francis Burdett, the stormy petrel of politics in the earlier part of this century. He did much to revive the social glories of the place, and died in 1844. Frederick Cornwallis, Archbishop of Canterbury, and the Duc d'Aumale, also resided at Imber Court. Slowly but surely the flourishing suburbs that surround the place have gradually shouldered it out of its old dignified and isolated position. In 1862, the property was purchased by the late Mr. Charles J. Corbett (who died in 1892), and in consequence of the death some time ago of his widow, the place has again changed hands, having been sold by Messrs. Farebrother, Ellis & Co., in July last, whilst the entire contents of the mansion were dispersed under the hammer by Messrs. Phillips as recently as September 18-20, of this year.

The gardens and shrubberies have been well cared for during the last few years, and the mansion is well sheltered by some magnificent trees, notably a splendid specimen tree of black Mulberry (*Morus nigra*), probably one of the finest to be found in the vicinity of London; *Taxus aurea variegata*, *Sequoia gigantea*, *Abies cephalonica*, *Cedrus Libani*, *Quercus Cerris*, *Cupressus Lawsoniana*, a noble specimen of the Plane (*Platanus orientalis*), Horse-chestnut, and others which thrive with native luxuriance and vigour. The south side of the house is shaded by a fine example of *Magnolia grandiflora*, and by *Periploca græca*. All the trees have Smith's conspicuous metal labels attached, although some of these seem to have got misplaced—for instance, the label of *Thuia Vervæianiana* is attached to a beautiful specimen of the common Hawthorn!

What, it may be asked, is to be the future of this fine old place? There can be but little hope that it will much longer exist as the quiet Tusculum it has been for so many centuries. Yet still, with its wandering river, its giant trees, its fishponds, and its level setting of meadows where the plover still whistles, and the snipe's cry is heard, there is no spot, perhaps, which has so peacefully resisted the restless growth of the capital, or where a jaded man within but 14 miles of Hyde Park Corner can so easily forget that such a place as London exists. But the jerry-builder, who has done so much to make the London suburbs hideous, seems to have Imber Court almost within his remorseless grasp, and its ancient history will pass into tradition; even its actual site may become a fruitful source of quarrels with the antiquaries at the end of the next century. *Sic transit gloria mundi!* W. Roberts.

ORCHID NOTES AND GLEANINGS.

CATTLEYA × HARDYANA VAR.

ONE of the enchantments which natural hybrid Orchids—which often get imported together with species—have for Orchid amateurs, is the great variation found in varieties of the same kind. *Cattleya × Hardyana* has been one of the most productive, all the forms being beautiful and fragrant, and scarcely two of them can be found that are exactly alike.

In the collection of the Rt. Hon. Lord Rothschild at Tring Park, *Cattleya aurea* and *C. × Hardyana* are special favourites, and many fine varieties have flowered there, including the extraordinary *C. Dowiana aureo-marmorata*, which has a true *C. Dowiana* lip with a conspicuous rose-purple marbling on the sepals and petals. Among others, a very distinct form of *C. × Hardyana* is now in flower at Tring Park, obtained among some plants of Messrs. Charlesworth & Co.'s importation of *C. aurea*. The plant is bearing two spikes, each with three finely-formed flowers. Its most striking feature is a much brighter tint than that possessed by other forms; the marking of its lip resembles very nearly the handsome *C. × Hardyana Luciani*, figured in the *Lindleya*, x. p. 37, though the sepals and petals are even lighter than in that variety, being white with a faint lavender flush and delicate veining of very pale rose colour. The broad wavy-edged lip is bright-yellow, fading to white towards the blotches on each side; the centre streaked with purple; the front lobe rose-purple with lilac margins. There is an indescribably attractive marking of pure rose-colour on the outsides and margins of the side lobes.

BULB-PLANTING ON TURF.

I AM induced by Mr. Bulley's remarks on this subject to pen the following notes. It may be premised that many desirable bulbous and tuberous plants succeed when planted on the turf provided the soil is in a condition to promote and support a vigorous growth. In poor or sandy soils, where the grass makes poor growth, it is doubtful if any species of bulbs, &c., other than the commoner *Crocus*, *Galanthus*, *Chionodoxa*, and *Scillas*, will grow satisfactorily for any length of time. If it is desired to plant under such conditions, the soil must be improved, which may be done in the following manner: Strip off the good turf and loosen the soil, digging it deeply with a fork, mixing kitchen-garden soil and cow-manure with the staple; some soot would also be beneficial. When the soil has been dug over, it should be made moderately firm by trampling it; afterwards, proceed to plant the bulbs, corms, and tubers just below the surface, and lay the turf on the top of them. Where the turf is much worn, it would be found better in the long run to dig it in, and sow the plot with lawn-grasses. Soil that is in good condition will only require to be loosened with a fork beneath the grass, without breaking up the surface, the bulbs being planted whilst the ground is still loose by

means of a dibber, and the holes filled in with some light kind of soil, a roller being passed over the plot at the finish.

BULBS AND TUBERS SUITABLE FOR LAWNS.

Generally speaking, all the Anemones to be afterwards mentioned require to be established in boxes light fibrous material before planting out, the tubers being somewhat difficult to start, even under favourable conditions. They would enjoy the addition of leaf-soil. *Anemones nemorosa*, *A. n. Robinsoniana*, *A. sylvestris*, and *A. blanda*, grow well in grass without much trouble. *A. apennina*,

Cypella Herberti, an Iridaceous plant, with orange-yellow, fugacious flowers, and *Herbertia pulchella*, a similar plant, with satiny, dark blue flowers, will thrive during the summer in grass; but the slender, much branched, almost leafless stems are poor foils to the beautifully-formed flowers. I have counted fifty-six flowers borne consecutively on one tiny plant of *Herbertia* this year. The bulbs of both plants should be lifted on the approach of winter, and stored in sand in a frost-free place.

Zephyranthes candida, with white, Crocns like flowers on stems a foot high, succeeds in sheltered situations; it grows well in dry or moist soils, pre-

I have not seen it grown thus. *Triteleia uniflora*, *Allium roseum* and *A. Schenoprasum* (Chives), make effective displays of white, rose, and blue flowers. These plants increase at a rapid rate, and will withstand any rough kind of treatment. All are readily raised from seeds. *Leucojum vernum* is already largely planted in grass, and is most effective. *L. æstivum* should also do well if freed from coarse grass. It flowers in the summer.

Recesses between specimen shrubs and odd corners of lawns are excellent places for *Tulipa macrospila*, *T. Didieri*, *T. suaveolens*, *T. retroflexa*, and *T. sylvestris*. Tulip Proserpine and



FIG. 102.—RHODODENDRON KINGIANUM: COLOUR DEEP CRIMSON.

and its varieties would also grow well if the leaves were freed from grass. *Fritillaria pyrenaica*, *armena*, *pallidiflora*, *Meleagris*, and its varieties will also thrive. *Galanthus Elwesii*, *robustus*, and the smaller *byzantinus* are also suitable plants; they are, however, much more expensive than *G. nivalis* and its double form, which are indispensable. *Gladiolus nanus* is rarely, if ever, seen planted in grass; yet, it is of surprising hardihood, and cheap enough for extensive planting. It likes a sunny place, and should be planted in September, choosing a site with a dry subsoil. There are many beautifully-coloured varieties, rivalling the Orchids in the delicate tints of colour and effective form.

ferring the latter. *Z. Andersoni*, and *Z. gracilifolia*, small, bulbous plants from Uruguay, are quite hardy, and grow better in grass than anywhere else. The former has copper-coloured flowers, and the latter rose-tinted, tubular ones. Moist places would suit *Orchis maculata* and *O. foliosa*, *O. mascula*, &c.; whilst drier places, with the addition of a little chalk, would suit *Opherys apifera*.

Agapanthus umbellatus minus and *A. Mooreanus*, in white, lilac, and blue colours, are extremely enduring plants, quite hardy in Britain, and thriving where few others will grow.

Camassias Cusicki and *esculenta* are suitable for occasional planting; *C. Leichtlini* may also do, but

several other florists' types are of considerable hardihood, and will last for years if left undisturbed. *Colchicum autumnale* is another useful plant for such places; and *Iris histrio*, *I. reticulata*, and var. *histrioides*, will all grow well on a sunny bank. *G. B. Mallett, Isleworth.*

(To be continued.)

RHODODENDRON KINGIANUM.

THIS is one of several new species of *Rhododendron* which were found on the high mountains of Manipur by Dr. Geo. Watt whilst on a collecting expedition in that region in 1882. He sent seeds of it to the Royal Gardens, Kew, from which a plant

was raised (fig. 102), which flowered for the first time in the Himalayan-house in May this year, where it is planted out along with numerous other species of Himalayan Rhododendrons. It has grown slowly, compared with its nearest ally, *R. arboreum*, its height being only some 6 feet, and its branches are thick and woody. The leaves are crowded, remarkable in being somewhat bullate, with recurved margins, and of a dark green colour. The flower-head and characters of the flowers closely resemble those of *R. arboreum*, whilst in colour they are a rich blood-crimson. The plant was named by Dr. Watt in honour of Sir George King, late Superintendent of the Royal Botanic Gardens, Calcutta. A figure and description of it by Sir Joseph Hooker will shortly appear in the *Botanical Magazine*. W. W.

VEITCH'S CLIMBING FRENCH BEAN.

Each year since this Bean, known also as "Tender-and-True," was put into commerce by Messrs. Robert Veitch & Son, Exeter, it has increased the good opinion which growers formed of it. It follows admirably, for winter cropping, the autumn crop of Tomatos. When the Tomato plants are removed, if the soil is considered to be exhausted, some short manure should be incorporated with it, and the whole made fairly firm with the fork in the process of digging. This done, make holes about 3 inches deep with a dibber in the exact spots previously occupied by the Tomato plants, deposit one bean in each, and fill up with soil. Place a small stick about 10 or 12 inches high close to each bean, and to these secure the Tomato strings (still suspended from the

utilised for growing Mushrooms during the four or five months following without in any way interfering with the welfare of the Vines. Houses from which Tomatos and Cucumbers have been cleared in October or November may also be turned to good account in this way. All that is necessary is to obtain the desired quantity of peat-manure—that is, manure consisting of peat and horse-droppings, mainly of the latter. This should be turned over a couple of times before being taken indoors, in order to let the rank heat or steam escape therefrom before forming it into beds in the houses. Two truck-loads of manure (about 12 tons) will be sufficient to form a flat bed, about 5½ feet wide, on either side of the central pathway the entire length of a house 150 feet long and 15 feet wide. The manure should be turned over once or twice (according to its condition) after it is taken indoors, and before it is formed into beds of an uniform depth. When the heat in the beds has declined to about 75°, spawning may be done. Each brick of spawn having been broken into seven or eight pieces, these should be inserted barely under the surface, at about 9 inches apart all over the beds. The latter should then be soiled over to the thickness of about 1 inch when beaten down with the back of a shovel, so as to present a firm and smooth surface. In forming the beds for the reception of the spawn, the manure should also be made firm. In the event of the soil encasing the beds getting dry or approaching dryness, it should be afforded water by means of a rosed-watercan, and afterwards covered with long litter, straw, or rough hay. The beds must remain covered, and the house kept moist by damping the floors. If all should go well, Mushrooms may be expected a few weeks after spawning the beds. H. W. Ward, *Rayleigh, Essex*.

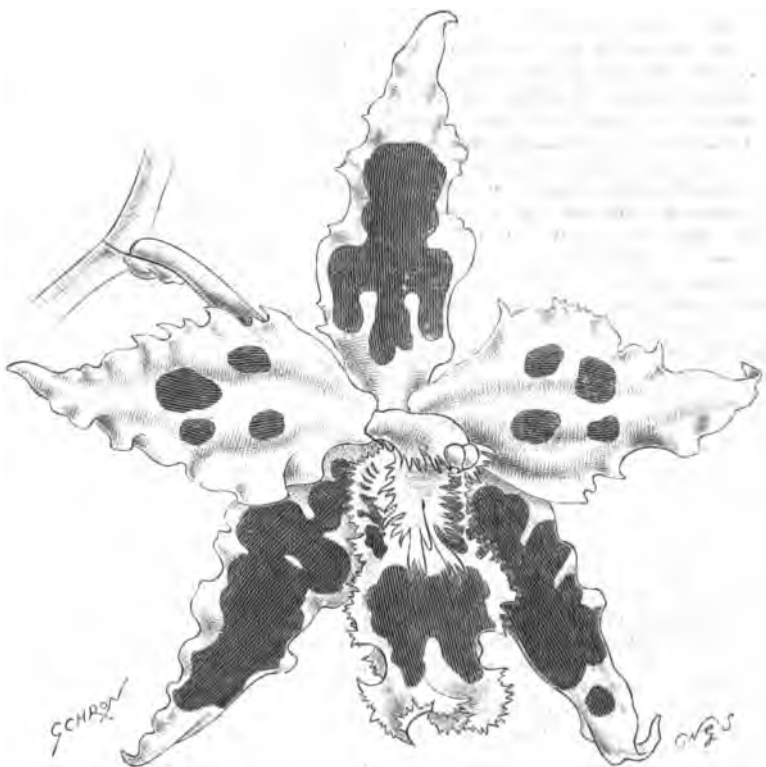


FIG. 103.—ODONTOGLOSSUM CRISPUM "DAPHNE."

ODONTOGLOSSUM CRISPUM "DAPHNE."

AMONG the attractions at the Drill Hall on the occasion of the meeting of the Royal Horticultural Society, on Tuesday, October 3, was a plant of *O. crispum* "Daphne," surmounted by a flower-spike consisting of sixteen flowers. The plant was shown by W. Thompson, Esq., Walton Grange, Stone, and it received an Award of Merit. The fully expanded blooms measured individually 4 inches in diameter, and were of good form, as shown in our illustration (fig. 103); their chief beauty lay in the colouring. The petals were white, with a few pale purple spots; and the sepals were, over the major part of their area, of a light purple tint, bordered irregularly with white; the lip frilled, and with the central area of a lighter brownish-purple hue than that of the sepals, and margined with white.

MARKET GARDENING.

DAFFODIL FORCING FOR MARKET.

ON October 1 of this year we potted up the following distinct varieties, simply as a matter of trial, to see which would flower the first. They will be all treated alike, and no forcing adopted, simply cool treatment up to the middle of December. The varieties are:—Ard Righ, Cervantes, Countess of Annesley, Golden Eagle, Golden Plover, Golden Spur, Henry Irving, John Bright, King Umberto, Maximus Superbus, Mina Troy, "Early Bird" (this will be the Derby winner), Princess, spurius, Tottenham Yellow, Tuscan Bonnet, obvallaris, obvallaris pallidus (Buttercup), Saragossa, Irish cernuus, pallidus præcox, Princess Ida, and double Von Sion (the latter Irish grown). At the start I put in the following for a place, and in the order of finish:—1, Early Bird (late North Star); 2, Ard Righ; 3, pallidus præcox. Any grower of Daffodils for market knows well the advantages of a week's early market, and it is on this account that the experiment is undertaken. I have had Early Bird from the open always in January. The varieties are all of Irish growth. W. Baylor *Hartland, Ard Cairn, Cork, October 12, 1899.*

roof of the house) in readiness for the plants to attach themselves when they begin to spind.

From beans thus planted, that is, in rows at, say, 22 inches asunder, and at 1 foot from plant to plant in the rows, a good crop of pods may be secured. A house say, 100 feet long and 15 feet wide, would contain about 650 plants, and putting the average yield at 2 lb. of beans per plant, this would give 1300 lb., which at 1s. per lb. would give a sum total of £65 for the crop. A minimum night atmospheric temperature of 55° to 60°, with a rise of 5° with fire-heat by day, should be aimed at, running it up to 90° with sun-heat, and plenty of moisture being distributed in the house at the same time. Indeed, a uniformly moist atmosphere should be observed in the house; also in the soil in which the plants are growing, from the time the plants appear above ground until they cease to bear. It may be as well to state that in the open air the Climbing French Bean under notice attains to a height of 8 feet under generous treatment.

MUSHROOMS.

These esculents, under proper management, pay well under glass during the winter and early spring months. Vineries from which the Grapes have been cleared in September, or earlier, may be

THE ROSARY.

VARIETIES OF ROSES TO PLANT.

THE time for ordering Roses is again drawing near, and those who have not a large experience, and who think of exhibiting at the next year's shows, as well as those more experienced, will find the following list well worth conning. It is taken from the reports published in the *Gardeners' Chronicle* of the last three exhibitions held at the Crystal Palace, the numbers indicating how often the particular Rose has been mentioned as being of special merit. I have not included garden varieties, or those that were only mentioned once or twice in the three years, except in the case of new varieties. The list is also interesting as showing what a small number of varieties are run on for the highest class of blooms. We cannot all grow Comtesse de Nadailac in such perfection or the number required to produce such a grand display as that made by Mr. Prince last July, but we can all do our best to produce blooms of the highest quality, and it maybe our efforts will be so far successful that they will be rewarded by a prize at the Crystal Palace or other important Rose show in 1900:—

FORESTRY.

THE DECAY OF TREES.

(Continued from p. 123.)

TAKING a general review of various causes which operate for or against longevity in trees, we are forced to the conclusion that physical and mechanical influences play as great, if not a greater part, than physiological, in hastening or retarding decay. A healthy state of soil and sub-soil, a root system out of the reach of the temporary peculiarities of climate, give a tree advantages which go far towards ensuring it a lengthened spell of life. Dry soils, by favouring the production of well-ripened wood in autumn, and the consequent increase of vitality in the following year's growth, also favour longevity in temperate climes. But the most important factor of any, is the ability to resist that great enemy of tree-life, wind; and this ability, as we have seen, decreases with the height of the main stem, and the more the crown counter-balances in weight and leverage the resisting-power and anchorage of the roots. The constantly-increasing weight of crown and large limbs, which goes on in proportion to the vigour and health of the tree, is, in itself, the most frequent cause of its destruction, for fresh demands are annually being made upon the elastic and cohesive strength of the wood to resist the law of gravity which the side branches are so inclined to set at defiance. The English Elm is a good example of what takes place when these side branches get too heavy for the elastic strength of the wood-fibres at the fork, or in the neighbourhood of their base. Every summer, numbers of large limbs drop off in the calmest weather, and the decay which sets in on the surface of the broken stump, gradually eats its way into the heart of the tree, and weakens the strength of the main stem. The same thing occurs on a more limited scale with spreading and wide-crowned Beeches, or with trees of any kind which possess timber of a brittle nature.

In gales, again, large limbs are frequently torn off, and while the loss of such limbs lightens the crown to a great extent, it also renders it top-heavy on one side, thus increasing its leverage upon the roots. In many cases, the loss of large side-limbs in this way ultimately results in the top being broken completely off at the point where decay has eaten into the trunk; and although spoiling the tree as an arboricultural specimen, it frequently lengthens its life by relieving the roots of the strain which would otherwise be put upon them. In the neighbourhood of London, and other towns, Elms and other trees are frequently lopped and topped for safety or sanitary reasons, and if properly done, the lives of the trees are probably lengthened by the process. We doubt, however, if this is the case when the lopping takes the form so commonly seen of periodically shredding off all the side branches to within a few feet of the top, leaving the trees useless for shade purposes, and certainly more ugly than ornamental.

There is little doubt that in judicious topping and pruning we have a means of increasing the longevity of trees to an enormous extent, and which, if taken advantage of at the right time, may prove of great service in ornamental, if not economic, forestry. In parks and public resorts the rearing of young trees is a troublesome and frequently unpicturesque process, and under the most favourable conditions it never gives us anything resembling those grotesque relics which are so universally admired as the remains of a bye-gone period. A well-shaped tree is a pleasing object, but we do not want all our trees of one particular type or shape, however good it may be in itself. Yet judging from the method invariably adopted of rearing young park timber throughout the country, the day will come when an English park will exhibit as little variety as the different fields of a grazing farm. Our old park timber was probably reared under conditions which prevented it from ever growing into anything of great com-

mercial value, and in its earlier stages would present a similar appearance to those stunted and mis-shapen individuals which are so unhesitatingly removed by the modern forester wherever they appear. The result is obvious. Picturesque antiquity will soon be a thing of the past, unless we resort to methods which resemble to some extent those by which the patriarchs of tree life were produced. Constant nibbling by cattle, or lopping for the sake of the brushwood, seems to have marked the career of many of our old specimens, and without which they would probably never have obtained their present shape and age. Theoretically the most favourable objects for parasitic attack, they appear to have withstood it with comparative impunity, although they may only represent a small surviving proportion out of a large number.

Certain parasitic fungi we know are capable of attacking and destroying perfectly healthy trees, for instance *Trametes radiciperda* on the Scots Fir; but in the majority of cases, it would seem that some predisposing or aggravating influence must be at work before the destruction of trees can be accomplished by any but our most virulent parasites, although their value as timber may be quickly lost, and their power to withstand wind decreased to a dangerous extent by the decay of the main roots. *A. C. Forbes, Calne, Wills.*

AMERICAN NOTES.

AMERICAN POMOLOGICAL SOCIETY.

THE twenty-sixth biennial session of the American Pomological Society was held in Philadelphia, September 6, 7. There were present 130 accredited delegates from 22 States, and 100 others, most of whom are members of the Society. Among the older members present were Thomas Meehan, Germantown, Pa.; P. J. Berckmans, Augusta, Ga.; S. B. Parsons, Flushing, L. I.; T. V. Munson, Dennison, Texas; Robert Manning, Reading, Mass.

President Watrous' address, the feature of the first session, was received with marked attention, the reading of it being often interrupted by expressions of approval. The president urged the necessity of systematic scientific breeding of American fruits. The time had gone by when we could afford to place dependence upon varieties brought from without. The division of the country into well-defined life zones was now accomplished, and suitable fruits must be bred up to fit these divisions. The next fifty years should see fruit breeding as systematically carried out as stock-breeding now is. Pomologists must supply the material for the several stations to work upon, and then, at the meeting of the Society, which was a court of last resort, the facts could be sifted out. Already the good work was begun. In the Mississippi Valley hybrid Plums had already taken their place, and the development of the northern Grape awaited such work as Munson had done in the south. Garden herbaria, such as that now in the New York station, should be kept in all sections. A national herbarium of pomology would act as a check upon frauds. Fruits originated in their own botanical districts, and it was the duty of the Society to teach that such varieties were most likely to succeed there. Thousands of dollars had been wasted in the endeavour to introduce foreign varieties. Isothermal lines rather than territorial divisions should be looked to. The Society's best work was to be done for the mass of the American people, but it certainly could not wholly guide the public taste, and if men will buy Ben Davis instead of Grimes' Golden, the pomologist must plant that—he must go in for what pays.

The committee on the address fully endorsed the president's remarks, and recommended the appointment of two commercial fruit growers, one representing the east, and one for the west, to present papers on marketing at the next session of the society, to see if some means of avoiding glut

1897.	1898.	1899.	Name of Variety.
1	2	8	Abel Carrière
7	8	2	Alfred Colomb
13	12	6	Alfred K. Williams
—	3	1	Antoine Rivoire
—	1	1	Auguste Rigotard
4	4	—	Beauty of Waltham
—	—	4	Bessie Brown
5	1	2	Camille Bernardin
2	2	—	Captain Christy
5	12	5	Captain Hayward
9	13	5	Caroline Testout
7	8	1	Charles Lefebvre
1	—	2	Charlotte Guillemot
—	1	2	Clara Watson
6	5	2	Comte de Raimband
2	2	3	Countess of Caledon
3	4	—	Dr. Andry
2	3	1	Duchesse of Bedford
5	—	2	Duchesse de Morny
2	10	1	Duke of Edinburgh
1	1	1	Duke of Fife
4	8	—	Duke of Wellington
4	10	5	Dupuy Jamin
7	8	2	Earl of Dufferin
1	—	1	Ellen Drew
3	6	3	Etienne Levet
2	2	—	E. Y. Teas
1	2	—	Exposition de Brie
5	3	—	Fisher Holmes
5	—	5	François Michelon
5	5	6	General Jacqueminot
10	16	7	Gustave Pignoneau
2	3	—	Heinrich Schultheiss
8	10	4	Helen Keller
12	—	6	Her Majesty
13	7	4	Horace Vernet
2	5	—	Jeannie Dickson
12	9	7	Kaiserin Augusta Victoria
2	1	—	Lady Helen Stewart
4	4	3	Lady Mary Fitzwilliam
9	16	6	La France
1	8	1	La Fraicheur
4	—	1	Louis Van Houtte
4	—	2	Madame Eugène Verdier
5	19	4	Madame Gabrielle Luizet
2	—	1	Madame Hausmann
3	4	1	Madame Victor Verdier
—	4	—	Magna Charta
4	3	3	Marchioness of Dufferin
3	8	3	Marchioness of Downshire
4	13	7	Marchioness of Londonderry
—	9	3	Margaret Dickson
2	—	1	Marie Baumann
2	2	1	Marie Rady
1	7	14	Marie Verdier
1	2	—	Marquise Lita
7	13	9	Maurice Bernardin
16	12	22	Merville de Lyon
7	21	11	Mrs. R. G. Sharnan Crawford
—	—	2	Mrs. John Laing
—	—	2	Mrs. W. J. Grant
—	—	2	Mrs. Cocker
5	6	2	Prince Arthur
—	2	2	Prince Camille de Rohan
—	—	2	Pride of Reigate
1	1	1	Reynolds Hole
1	1	2	Rev. Alan Cheales
—	1	2	Robert Drucan
2	1	—	Sénateur Vaisse
2	—	1	Sir Rowland Hill
—	2	1	Souvenir du Président Carnot
5	6	4	Susanne-Marie Radosznachl
3	4	4	Tom Wood
14	12	11	Ulrich Brunner
—	—	2	Ulster
5	1	1	Victor Hugo
1	3	2	Viscountess Folkestone
5	2	2	Xavier Olibo
—	7	2	White Lady
TEA-SCENTED ROSES, &c.			
1	1	2	Amazona
5	7	—	Anna Olivier
4	6	6	Bridesmaid
14	13	11	Catherine Mermet
7	9	5	Cleopatra
2	14	12	Comtesse de Nadallac
—	1	—	Comtesse Panisse
6	—	3	Ethel Brownlow
5	7	2	Ernest Metz
4	2	—	Francisca Kruger
1	4	3	Golden Gate
9	7	2	Hon. Edith Gifford
2	5	7	Innocent Pirola
2	3	1	Jean Ducher
1	1	1	Luciole
1	4	1	Madame Bravy
—	5	5	Madame Cusin
12	4	11	Madame de Watteville
6	4	4	Madame Hoste
1	11	2	Maman Cochet
7	8	3	Marie Van Houtte
5	4	4	Medea
—	—	2	Mrs. Edward Mawley
5	4	4	Muriel Grahame
1	2	5	Niphetos
—	2	1	Princess Beatrice
3	8	1	Princess of Wales
—	6	1	Rubens
6	7	4	Souvenir d'Elise Varior
4	13	5	Souvenir de S. A. Prince
3	11	4	Souvenir d'un Ami
2	2	—	Sylph
11	11	11	The Bride
NOISETTE ROSES.			
4	8	2	Caroline Kuster
—	12	7	Maréchal Niel.
E. Dorey, Dublin.			

could not be devised. They further recommended that the Department of Agriculture prepare and issue a bulletin relating the connection of the experiment stations with pomology, and setting forth plainly just what each station had done, and was doing along that line.

THOMAS MEEHAN'S REMINISCENCES.

Thomas Meehan sketched the work done in Philadelphia and the surrounding district in early days. American pomology, he said, is the admiration of the world, and the American Pomological Society has had more to do with that eminence than any other. Europeans were amazed at the profusion of fruits, the poor enjoying them with the richest. The poor abroad grow fruit, but it goes for tithes and taxes, and others enjoy it. This Society is responsible for the difference here. Mr. Meehan reviewed the beginning of Grape culture in Philadelphia, and its spread; following with the Pear and the Apple, and telling of the attempts at

of Catawba and Isabella, was set out near Wissahickon, but it too gave out; the men did not realize that the phylloxera was at work, which pest, he believed, Penn had brought from Europe. All this failure of imported stock led to the cultivation of the native Grape, and Philadelphia laid claim to that. The Pennsylvanians had decided taste in those days, and when the advent of Concord was announced from Massachusetts, the committee which went to investigate, came back with "diphtheria in their throats." Such was the reception given to the one Grape that has crowded out all others. The Grapes which emanated from Philadelphia included Bartram, Bonsel, Alexander, Archer, Bland, and Maxitawny, which was the first really good white Grape. In Pears, Bartram, Petrie, Brandywine, Penn, Tyson, Seckel, Washington, Ledger, Catherine, Early Wilmington, Chancellor, Jones, and Kieffer, belong to Philadelphia. There were also thirty-eight varieties of Apples, all prominent in their time, that had arisen about

name was merely a designation, not a variety nor an advertisement. Publication was essential to the proper security of a name, and this could be done in anything that bore a date—a nurseryman's catalogue offered a suitable medium.

T. V. Munson, Dennison, Texas, urged that the Secretary of Agriculture prepare an authoritative list of all fruit names. This to become a legal standard list, and to which all catalogue makers were to be compelled to conform under penalty of exclusion from the mails. Further, in order to protect the purchasing public, it was advisable that State laws be enacted to punish such people as gave out false, overdrawn descriptions of new varieties, which thus become a sort of fraud. New varieties of fruits to be submitted to the United States Pomologist, and to be described by him before they become subjects of interstate commerce. Legislation protected the sale of pure butter, and why not of fruit?

MALFORMED TULIP-BULB.

IN the curious Tulip-bulb, illustrated (fig. 104), the old bulb has done its part by producing stem, leaves, and probably flowers; whilst the new one, a lateral production, has lengthened into a stalk, and then, as if tired of growing in length, has suddenly contracted its energies and formed a bulb on the end of the stalk. The outermost coat of this bulb is prolonged into a long, horn-like appendage. It is difficult to surmise what could have been the causes of this singular production, but probably we shall not be wrong in attributing it to some injury sustained during growth.

GOOD BORDER PLANTS.

CHRYSOCOMA LINOSYRIS.—This is, I am afraid, a neglected plant, and largely so because its merits are of a nature that do not flaunt themselves in one's face. Its greenish-yellow inflorescence fails to evoke rapturous approval, while its weakly stems, loaded by the expanding flowers, which bend the former in all directions, render it an object of pity to those people who like every plant to grow upright as a Hollyhock, and out of mistaken kindness, they bundle the stems together till they are much like the handle of a broom, and the flower-heads have the resemblance of a mop. The value of the *Chrysocoma*, or *Goldilocks*, as it was prettily designated by people long ago, is largely due to its gracefully recurring habit of growth, which sticking or tying of any kind inevitably spoil. Its general effect in garden decoration is restful, though it is not without colour value when planted in combination with, say, *Aster bessarubicus*. It is useful either dotted singly or grouped in masses of several plants. None of the plants should, however, be nearer than 2 feet from the edging, otherwise, when closer than that, the flowers will sprawl over on the gravel or grass. From the time of Gerard, this plant has had many names, and at present it is resting among the *Asters*.

***Eupatorium Fraseri* (Ageratoides).**—Since the advent of so many fine white *Asters*, this distinct-looking plant is not, perhaps, wanted so much as it was a few years ago, when there was a difficulty to provide sufficient white flowers in late autumn. I find, however, that it would be a mistake to dispense with it, as it fills a place that even such a grand *Aster* as Mrs. Trevelyan fails to do quite so effectively. This year I have confined the *Eupatorium* to one irregular group, and it is now clear that it could with advantage have been more largely employed. It is no doubt best fitted to plant singly among low-growing subjects, though in many cases on account of its compact habit it would be unwise to plant it closer than about 4 feet from the front. The plant requires no staking, though a band of string is not without advantage in protecting the outer stems during high winds.

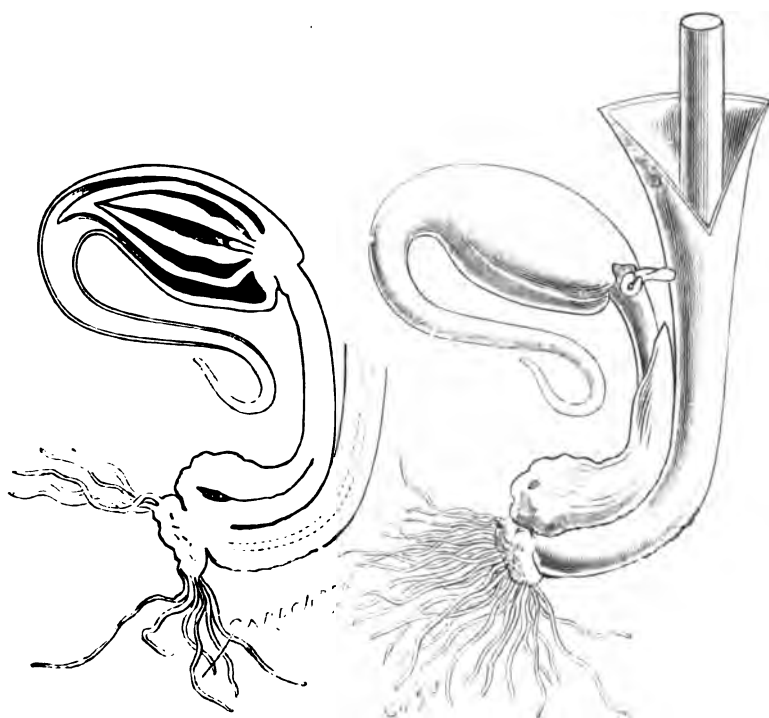


FIG. 104.—STALKED LATERAL BUD OF TULIP.

importation and the destruction by rats in the hold, and the law which gave no redress if there was a cat on board. Philadelphia had become a horticultural centre because of the desire for wine. Penn had established the city where it was because he had concluded it was a good place in which to grow good wine, and he sent to France for his Vines, which he grew in what was now a part of Fairmount Park. His efforts partly failed, so he sent for French vineyardists, but as failure still followed, they concluded Philadelphia was not hot enough, so they took up the Reading Grape, which gave a wine that Franklin said was as good as the foreign wine. But they were not satisfied, and sought the native Grapes till they got the Alexander—considered a great advance, but it was greatly inferior to the Concord. Bartram also tried to grow for wine, and introduced a Grape from Virginia, almost equal to Delaware, but it failed too, and so the Susquehanna was searched till a Grape known as Susquehanna was discovered. It was as good as the Delaware to-day, but that failed too, after a time. Later a vineyard, 3½ acres

the city. Mr. Meehan insisted that the wrong man often got credit for a variety. It is not always the finder who deserves the credit, but he who puts it before the public—the man who knows when he sees a good thing. The Seckel Pear owes its distribution to Dr. Hosack of New York; so, too, the Kieffer was not recognised by the man whose name it bears—it was W. Parry who saw it at the Centennial Exhibition who really merits the honours in this case.

NOMENCLATURE.

Professor F. A. Waugh urged the necessity of a stable nomenclature on a scientific basis. This was a necessity before there can be a scientific pomology. No botanist pretended to know the names of all the plants, but he had a system which made him acquainted with them in a general way, and that was what we wanted in our fruits. The American Pomological Society was not in a position to impose arbitrary rules—no society is big enough to force a rule, it can only formulate a principle. As to selection of names, it must be remembered that a

Boltonias.—In addition to what Mr. Arnott wrote in a late issue of *B. asteroides*, it may be permitted me to add that it is a plant that always attracts attention, on account of its delicately fragile appearance. It is best dotted among low-growing plants, where its good qualities readily become apparent. The later-flowering *B. glastifolia* is of less value for garden decoration, and seems to be about as uncommon in gardens as the first-named. The flowers, in large, irregular clusters, are exactly like single Daisies, and I have cultivated the plant for many years as being indispensable in the late autumn. The glaucous foliage is distinct throughout the whole season of growth.

Helianthus "Miss Molish" is undoubtedly the finest introduction of late years among autumn flowering plants for the border. Its only fault is the amazing rapidity with which it overruns neighbouring plants. This is, however, a fault which can be corrected by means of a sharp spade, and by lifting and replanting annually, which appears to be the best kind of treatment. The most effective way to plant it is in large groups, not necessarily confined to the back part of borders; but in the case of wide ones, they may be allowed to extend to within 3 feet of the front. Pieces with four or five growths are a size suitable to plant, and they should be set at a foot apart, but single bits dibbled equally over the ground to be planted do quite as well. Five or 6 inches apart is a good distance to place the latter. It is a plant, moreover, that ought to be put in unmanured ground, as its tendency to shoot up is considerably strengthened by manure, which yields no counterbalancing advantages.

Its decorative effect is very largely due to the bright colouring of its flowers, which from the point of view under discussion may be called glorified examples of *Helianthus "Stella,"* or of *Coreopsis tinctoria*, but distinct and altogether superior to these.

Salvia patens.—Judging from the number of times one finds this flower portrayed during the thirties, it must have been in considerably greater repute at the time immediately succeeding its introduction than it is now. It is no doubt the finest of all the Sages, though less effective than *S. splendens*, and in border-planting the position it occupies should be, I think, somewhat out of line with the general mass of plants, but at the same time so placed that, in passing, one can fully distinguish its splendid wealth of blue flowers. If allowed to assert itself, lovely as is the tone of blue, it has to me a decidedly depressing effect, as it does not readily harmonise with other colours. At the end of a series of beds on grass I have this year the two outside ones planted with a white-eyed, light blue *Lobelia*, among which dwarf plants of this *Salvia* are closely dotted. The arrangement in this case is pleasing, and produces a sort of "Willow-pattern" effect as regards colouring, but I must confess it is a case of sailing very near the wind. Unfortunately, the plant is here not quite hardy, but the roots are as easily preserved as those of Dahlias. Young stock is raised with facility from cuttings in spring, which again are secured from roots started in heat. The plants are rendered compact and bushy by pinching, and the spikes as they go to seed must be removed. *R. P. Brotherston, Tynningham, N.B.*

THE WEEK'S WORK.

PLANTS UNDER GLASS.

By G. B. FIELDER, Gardener, North Myms Park, Hatfield.

Flowering Shrubs, &c., for Forcing, at present plunged in the reserve ground should be examined, in order to ascertain which of the plants are sufficiently well furnished with flower-buds to be profitable if forced, so that fresh plants may be purchased from the nursery to supply the deficiency. With few exceptions, shrubs cannot be successfully forced for two years in succession, and if the plants are plunged in the reserve ground each year after being forced, with a view to employing them for

the same purpose again, they should be divided into two batches and forced in alternate years. Lilacs and Guelldre's Roses which were forced last winter, will not have made growth sufficiently strong to flower again this winter, and these plants should now be cut hard back, leaving only one or two eyes at the base of the current season's growth. Turn them out of the pots, and after partially reducing the balls, place them in pots sufficiently large to afford the plants a good shift. The pots should be well drained, and the compost of good fibrous-loam and one-seventh part manure, must be pressed firmly round the balls. Plunge the pots again in the reserve ground, keeping the rims well below the surface of the ground. Plants plunged in this manner will only need to be watered in very dry weather. The Lilacs will root out of the pots into the soil at the surface, but the roots may be cut away at lifting time without injury to the plants. The remarks concerning repotting (but not pruning) will apply also to other shrubs which were forced last winter, but take care to afford peat to such species as require it, among which would be included *Rhododendrons*, *Ghent Azaleas*, *Azalea mollis* and its hybrids, *Kalmias*, *Andromedas*, *Clethra alnifolia*, &c. The list of plants now available for winter-flowering is quite a lengthy one; and in addition to those named above, nurserymen supply specially-grown plants of *Staphylea colchica*, *Deutzias* in variety, *Hydrangea paniculata grandiflora*, *Spiraea confusa*, *S. flagelliformis*, *S. arguta*, *S. Thunbergiana*, *Prunus sinensis*, fl.-pl.; *Viburnum plicatum*, double-flowered Cherry, and others.

Dielytra spectabilis, *Solomon's Seal*, and herbaceous *Spiraeas*, which were planted out two years ago, should be strong enough for forcing this winter, and may be lifted and potted-up in readiness as soon as the foliage has died down.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart. CLARE LAWN, EAST SHEEN.

The Winter Treatment of Masdevallias.—The necessary use of fire-heat at this season often induces undue growth in many species of *Masdevallias*, and every precaution should be resorted to, such as using as little artificial heat as possible, ample ventilation, and keeping the plants and the atmosphere much drier, so that the growth already made may mature and rest. The members of this genus are, more often than not, affected with unsightly black markings and spots on the under surface of the leaves, which may be induced in various ways, extremes of heat and cold, in conjunction with a saturated atmosphere, being the more frequent causes. With few exceptions *Masdevallias* may be grown permanently in one compartment if devoted solely to them, but where this cannot be done suitable positions have to be found for them elsewhere than in the cool-house during the winter months. The warmest part of the latter house is suitable for such as *M. Harryana*, *Lindeni*, *ignea*, *Veitchi*, *Chelonii* ×, *Pourbaixi* ×, *muscosa*, *Wageneri*, and allied kinds; but those comprising the *Chimera* group, with *Periateria*, *encullata*, *torta*, *elephanticeps*, *macrura*, *Shuttleworthi*, and the lovely *tovarensis*, require a few degrees more warmth than can be afforded in the cool-house. *M. Wendlandi* should be grown with the warm *Cypripediums*. Without exception all *Masdevallias* need considerably less water at the root at this season than when growing, for although it would be unwise to allow any plant to remain dry for a length of time, it is to their advantage to permit the compost to become dry before affording water. Where any of these are suspended, be sure cold draughts do not blow directly upon them; in other respects a free circulation of air among them is essential.

Affording Water to Cypripediums.—The majority included under this genus may be watered overhead during the summer months without harm resulting, when evaporation carries away water that may lodge among the leaves; but now more discretion must be used by the grower, or disasters may occur. Such *Cypripediums* as *C. Argus*, *barbatum*, *Curtisii*, *Lawrenceanum*, *Mastersianum*, *purpuratum*, *insigne*, *superbiens*, *venustum*, and others of a similar nature, may still be so watered, likewise the hosts of hybrids derived from one or other of the above; but in the cases of *C. Charlesworthi*, *exul*, *Haynaldianum*, *Lowii*, *levigatum*, *Parishii*, *Rothschildianum*, and *Stonei*, and those comprising the *Selenipedium* and *concolor* groups, extreme care

should be exercised, when applying water, to prevent any of it lodging in the axils of the leaves. To ensure success with the latter group, and hybrids claiming descent from either of its members, the plant receptacles should be dipped only to their rims, and if by chance water gets on the leaves, it should be removed forthwith in order to prevent decay being set up. Having thicker leaves than others of the "slipper" family, they may, with advantage, remain dry for a week or more at a time, a slight wrinkling of the leaves always indicating when water is needed.

Oncidium cheiroporum.—This dwarf, cool-growing species is far too rare in collections, and even when obtained it is generally ruined by too much water being afforded during the winter months. The plant is now sending up its tiny, though floriferous spikes, after completing its leaf and bulb growth, and it should be kept moderately dry in consequence. During the dull months, it should be either suspended from the roof, or placed on a shelf near the glass; but in the summer a place on the stage, further away from the light, and where moisture is more abundant, is the best for it.

Treatment of Orchids in Flower.—Exhibition houses are best for the effectual display of Orchids when in flower, for everyone will admit that Ferns and other greenery greatly add to their effectiveness. But where their health is the chief consideration, it is better to let them flower where they have grown, or at least in the same house. For the better preservation of the bloom, both the plants and the atmosphere should be kept moderately dry; and although shrivelling may appear, a thorough soaking should not immediately follow the removal of the flowers, for more often than not the shrivelling is due to exhaustion than to lack of moisture at the root. The two most effective Orchids flowering at the present time are *Dendrobium Phalaenopsis Schroderianum* and the autumn type of *Cattleya labiata*, both of which need a long period of rest, commencing with the expansion of their flowers.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucester.

Half-hardy Plants.—These plants should now be lifted, and potted in pots of a size no larger than will accommodate the roots. They may be wintered in a cool and airy structure, kept free from damp, and from which frost is excluded. Alpines growing in pots, and plants of small size, may be plunged in beds of coal-ashes, with an ordinary garden frame over them, further protection being afforded in very severe weather. *Echeverias*, *Sempervivums*, and other succulents, in the case of large specimens, may be potted; and in the case of small plants, these may be placed in cutting-boxes filled with loam. Place them all in a structure where they may be well ventilated and kept dry. Under such conditions the plants are enabled to withstand several degrees of frost without injury.

Begonias with Tuberous Roots.—Frost having now destroyed the flowers of these plants, the stems may be cut down to within 4 inches of the ground, and the tubers taken up with a moderate amount of soil attached to each, choosing a dry day for the job. Let them then be spread out on mats in a cold frame, or on ainery-border, to dry them gradually. In a fortnight the stems will readily separate from the tubers; but if they do not readily fall, they should not be forced to do so, otherwise the tubers will shrivel, and they may decay. As soon as dry, embed them carefully in trays or boxes with finely-sifted leaf-mould, putting the crowns just below the surface. *Begonia* tubers keep in good condition in a cool, dry room or cellar, to which frost has not access.

Begonias with Fibrous Roots.—Cuttings of these soon form roots if placed in pots filled with sandy loam and leaf-mould, and stood in a stove. If that be not done, a few of the old plants may be potted-up, in order to furnish cuttings for the spring.

Cannas.—Though in some light dry soils *Cannas* may be wintered out-of-doors if afforded the protection of a covering of leaves, it is safe to take up the roots with such soil as hangs to them, and place them close to one another on a Vine-border or in a dry shed, where they should remain till the stems become dry. When the latter being cut back to

within 4 inches of the crown, and the labels tied to them, may be placed in flat plant-baskets, and covered with leaf-mould. In this way the roots may be readily examined in the winter, and if found not to be keeping satisfactorily, can be easily removed to more suitable quarters.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD,
Wrotham Park, Barnet.

The Turnip Crop.—Owing to the drought, Turnips have been hitherto a short crop generally, but the late sowings bid fair to make good bulbs rapidly. The Extra Early Milan is equally useful at the end of the season as at the beginning, coming into use fully three weeks before any others, and thus filling up a gap at this season. Beds of the Chirk Castle and Red Globe should be kept free from weeds, and the plants encouraged to grow by frequently hoeing between the rows.

Brussels Sprouts.—Those plants which were set out early in the summer have Sprouts fit for use. The beds of these and of later sowings and plantings should be cleared occasionally of the decayed lower leaves, but do not remove or bruise the healthy leaves. This vegetable should be grown in a sunny position, and ample space given between the plants, crowding always leading to early and great loss of leaves, with the result that the Sprouts are small and inferior. The rows of late-planted Sprouts should be moulded up with the hoe; and if the land is not in good heart, liquid-manure should be applied.

Carrots.—These plants being more tender than the Parsnip, the main crop should be taken up at an early date, and wintered in a damp shed or cellar, or laid in thickly in deep trenches, as was recommended in the case of Beetroots, burying the crowns 2 inches deep, and leaving all the leaves on the roots. When lifting the crop, put aside all undersized and deformed roots. Some litter or bracken sprinkled over the ground in very severe weather will keep frost from entering the ground and spoiling the roots. Horn Carrots should remain in the beds where sown, and there protected with coal-ashes, soil, or litter.

French Beans.—The plants should be kept growing in a house having a temperature of 60°, syringing them once or twice daily with tepid water. Weak liquid-manure may be applied alternately with clean water when podding commences. Let the plants be kept near the glass, and admit air to them in favourable weather. Their chief foe is red-spider, which must be kept in check by a humid atmosphere and daily syringings, together with sufficient root-waterings.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTMEYER, Esq., Dropmore, Maidenhead.

Peach and Nectarine-trees.—Where the purchase of additional varieties, or a re-arrangement of the existing trees is contemplated, operations may be commenced when the leaves begin to fall from the trees. With a view to keeping the walls fully furnished with fruiting trees, it is usually advisable to remove some old trees each year, choosing those which are in the least satisfactory condition. A Peach-wall thus gradually renewed will have fresh trees coming into bearing each year. Young trees, or those of middle age, produce, as a rule, the finest fruits, and are the most vigorous and healthy. Wherever the spaces between the bearing trees permit of it being done, young trees of the Peach and Nectarine may be planted for drawing upon in future for forcing-house and open air cultivation. Such young trees can be moved early in the autumn, and in a better condition than nursery-trees. If a young dwarf-trained tree from the nursery be planted in a temporary position this year, it will be in a suitable condition for removal into a permanent one next season, and will probably benefit by transplanting. In selecting nursery-trees, it is of very great importance that the stocks upon which they are budded should be young, clean, and vigorous. Trees which have branches bearing traces of having been several times cut-back, should not be accepted. The Peach and Nectarine require a warm position on a wall, and well-drained land; and when a tree is planted on the same site as one that has been removed, the soil should be thoroughly trenched to a depth of 1½ to 2 feet. Take away every bit of root and a portion of

the old soil, and add new loam, together with a small quantity of wood-ashes and lime-rubble substitute for it, and well mix in with the staple. Lime-rubble, in a finely-pounded state, should be afforded in considerable quantity if the soil is deficient in lime, and in much less quantity if the underlying stratum is chalk or greensand. Where the subsoil is retentive, even though it be drained artificially, a 6-inch layer of brickbats or other similar material should be placed about 2½ feet below the surface-soil; a covering of turves, with the grassy-side downwards, being placed on these; or failing turves, coal-ashes may be used as a thin layer. Walls having a south and west aspect may be planted with Peach and Nectarine-trees in all the southern counties, but in others, a south aspect is the only suitable one. In the warmer counties, standard trees of such early varieties as Waterloo, Alexander, and Amsden June may be grown in the absence of walls, these carrying a crop of fair-sized fruits with tolerable certainty if the spring weather is favourable to the setting of bloom. Such has been my experience during several seasons preceding the present one, which is the worst experienced for Peach culture during the past four or five years.

Varieties to Plant.—Of Peaches, the earliest to ripen are Waterloo, Alexander, and Amsden June. Second Early: Hale's Early, Condor, Early Silver, Violette Hâtive, Grosse Mignonne, Royal George, Stirling Castle, Bellegarde, and Dymond. Late: Barrington, Sea Eagle, Nectarine Peach, Princess of Wales, Walburton Admirable, Exquisite, and Gladstone. The five last-mentioned should only be planted on a south aspect. Nectarines: Early Rivers, Lord Napier, Elruge, Humboldt, Pitmaston Orange, and Victoria.

Root-pruning.—The fruits having been cleared from the trees, the roots of such as have made rank and unfruitful growth this year should be pruned in the manner advised for early-fruiting varieties in a former Calendar.

FRUITS UNDER GLASS.

By W. STRUCKELL, Gardener to Lieut.-Col. RALPH VIVIAN,
Wood Ashton, Trowbridge.

The Orchard House.—Trees that have made this year too much branch-growth, should be root-pruned even when not re-potted, and this may be performed whilst they are still in leaf. The same remarks apply likewise to such trees as may be planted on the border, every thong-like root that penetrates the lower stratum of soil being severed. In filling in the soil over the roots of such trees it is an advantage to add old mortar-refuse, or slaked lime in small quantity to the staple. The same degree of firmness as is given to the soil in a pot or tub is not required in a border, but it must be made firm about the roots if the trees are to do well. If the border is dry, as it probably will be, have water applied copiously. Trees that show signs of failing, may be assisted by taking out a semi-circular trench 5 or 6 feet away from the stem, preserving all roots met with during the operation, and removing the old soil inwards towards the stem, undermining always, and gradually extracting the roots to a distance of 2 feet from the stem. Having done this, and thrown out the exhausted or soured soil, bring up and prune back the stronger roots, spread out the whole of the roots radially on a bed of fresh loamy-soil of a turfy nature made very firm, and cover them with similar soil. Do not omit the application of lime in some form, or burnt refuse, if you have it. Artificial fruit-tree manure may be also mixed with the loam, but no farmyard dung. Apply water, as in the case of pot-trees.

Bananas.—The only means by which to obtain a regular supply of fruit is to have several plants in different stages of growth. There is no gain in trying to retard, or unduly hurry the fruiting of plants, from which an early show of fruit is expected. A regular and steady artificial heat, supplemented by sunshine, is needed by the plant, and without it, it is scarcely worth the attempt to cultivate it under a coolish or varying temperature. They are a long time on hand, and their season of fruiting most uncertain. The temperatures maintained in the general plant-stove is very well suited to the Banana if plenty of atmospheric moisture and of water at the roots be afforded. Where final potting of successional fruiters is not yet completed, let them be potted without delay, as they should get rooted in the new soil before the

winter actually sets in. Remove any promising suckers, and pot them for succession; but in detaching them, disturb the roots of the parent plants as little as possible. Suckers taken at this date will make good plants for re-potting in the spring of next year. Pots and tubs may answer the gardener's purpose, but brick-lined pits or circumscribed borders are better, growth being stronger and the fruit-clusters larger; moreover, there is less labour in affording water. This method cannot be adopted in low glass-houses, as the plants attain a height of 12 feet. Let a temperature of 65°, min., be maintained in the house in which there are plants showing for fruit, as well as in those in which there are ripening fruits. Afford manure-water once or twice a week to plants that are in a forward state, particularly those which are pot-bound or have a limited rooting space. Farm-yard drainings and soot are suitable aids to growth, and artificial-manures may be alternately afforded, or employed entirely, as may best suit the cultivator. A soil which suits the plants is rich turfy loam, which should be roughly broken, and if this is obtainable, animal manures may be dispensed with. With the soil neither too wet nor too dry, the ramming-stick may be used freely when potting the plants.

Peach Houses.—The earlier the trees are planted after this date the better, as they will get partially rooted in the new soil in the course of the next four weeks. A tree may require removal because it is worn out, or it is an unsuitable variety, or there are too many fruits coming in at about one season, or there is a lack of variety. Transplantation may be required by such as have made too much wood and too little bloom this year, and which it is feared may become quite unfruitful. Usually a number of trees are grown on open walls for the purpose of taking the places of those in the forcing-houses, and in such cases it is an easy matter to keep the houses furnished with large fruiting-trees. The trees may be transplanted whilst still in leaf, and by the time forcing must begin, they will be partly re-established. Amsden June is an excellent Peach for the early house; the Early Grosse Mignonne, Early Alfred, Hale's Early, Dr. Hogg, and Royal George are likewise also good varieties and good forcers. Alexander and Waterloo are better in later houses, and they must not be started at such high temperatures as those previously named. Cardinal, Early Rivers, and Lord Napier Nectarines may be grown in the early houses; Bellegarde, Dymond, Dagmar, and Violette Hâtive Peaches form good successional fruiters, as also Pine-Apple, Dryden, Humboldt, Downton, and Spencer Nectarines which make capital maincrop varieties indoors. New trees should not be planted in the soil which has been occupied a long time by old trees, and if a new border cannot be made for them, at the least a good proportion of new loamy soil should be provided. This is not absolutely necessary, because any good kitchen-garden soil which has not borne trees for some long time will answer the purpose. A fair proportion of charred garden-refuse or lime rubble should be mixed with whatever kind of soil is made use of. Trees arriving from a nursery with their roots in a dry state should be placed in water for an hour or two before planting them.

THE APIARY

By EXPERT.

Bee-houses.—For the establishing of apiaries, bee-houses are specially to be recommended, as then everything can be kept secure from molestation, and any extra appliances stored ready at hand even in exposed or badly-fenced situations. The bee-keeper must sometimes of necessity keep his stocks in a house. The objections urged against their use are, chiefly, want of room for manipulations, want of room for supering, want of ventilation, entrances too near each other (this encouraging young bees to enter the wrong hive, as well as young queens when out to get mated), and risk of disturbing all the hives during operations. In most cases all these objections may be removed. My experience of bee-houses has been fairly extensive, having in use some of several shapes and sizes. My first attempt was, however, unsatisfactory, for I had one made to hold twelve hives, almost identical to the one used by the late Rev. H. Raynor. In practice, I found that the entrances were too near each other, and there was a want of room for supering purposes; consequently I discarded it after trial.

(To be continued.)

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

TUESDAY, Oct. 24.—Royal Horticultural Society's Committee.
National Chrysanthemum Society's Floral and Executive Committees.

SALES.

MONDAY, Oct. 23, and the following Monday, Tuesday, Wednesday, Thursday and Friday.—Dutch Bulbs at Protheroe & Morris' Rooms.

TUESDAY, Oct. 24.—Unreserved Sale of Orchids, Greenhouse Plants, Glass Erections, &c., at the Victoria and Paradise Nurseries, Upper Holloway, by order of Messrs. B. S. Williams & Son, by Protheroe and Morris at 12 o'clock (three days).

WEDNESDAY, Oct. 25.—Great Sale of Lillium longiflorum, from Japan, &c., at Protheroe and Morris' Rooms, at 5 o'clock.

WEDNESDAY, Oct. 25.—Sale of Nursery Premises and Nursery Stock, at 14, Mayfield Road, Wimbledon, by Mr. Herbert Wm. Rendell, at 12 o'clock.

THURSDAY, Oct. 26.—25th Great Annual Sale of Nursery Stock, at Hollamby's Nurseries, Groombridge, Tunbridge Wells, by order of the Executors of the late Mr. Edward Hollamby, by Protheroe & Morris, at 12 o'clock (two days).

THURSDAY, Oct. 26.—Important Unreserved Sale of Established Orchids, Stove and Greenhouse Plants, &c., at the Assembly Rooms, Saville Row, Bath, by order of the Rev. E. Handley, by Protheroe & Morris, at 12.30 o'clock (two days).

FRIDAY, Oct. 27.—Imported and Established Orchids at Protheroe & Morris' Rooms.

METEOLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period October 8 to October 14, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			
OCTOBER 8 TO OCTOBER 14.	At 9 A.M.		DAY.	NIGHT.	At 1-foot deep.	At 2-foot deep.		At 4-foot deep.	LOWEST TEMPERATURE ON GRASS.		
	Dry Bulb.		Wet Bulb.	Highest.						Lowest.	
	deg.		deg.	deg.						deg.	ina.
SUN. 8	N.N.W.	36.6	36.2	51.1	32.4	...	49.2	54.1	55.4	25.4	
MON. 9	E.S.E.	40.1	40.0	59.7	31.7	...	48.3	53.3	56.1	25.9	
TUE. 10	E.S.E.	36.1	35.6	60.2	32.1	...	48.2	52.9	55.9	24.9	
WED. 11	S.E.	41.0	40.3	63.7	34.6	...	48.2	52.5	55.6	27.1	
THU. 12	S.E.	51.2	50.6	62.9	40.5	0.07	49.6	52.5	55.4	33.2	
FRI. 13	W.S.W.	47.8	43.5	53.6	41.2	...	50.5	52.8	55.1	32.6	
SAT. 14	N.N.W.	41.0	39.7	52.5	29.0	...	47.9	52.6	54.9	20.2	
MEANS...	...	42.0	40.8	57.7	34.5	0.07	48.8	53.0	55.5	27.1	

Remarks.—The weather has been remarkable for dense fog, cold biting winds, and frost on the ground nearly every morning during the week.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—47°.

ACTUAL TEMPERATURES.—

LONDON.—October 18 (6 P.M.): Max. 40°; Min. 41°.

Dull, foggy, cool.

PROVINCIAL.—October 18 (6 P.M.): Max. 52°, south-west Ireland; Min. 52°, Shetland.

If we make exception of our Pomology. Fruit Committee, which does good work in an unostentatious way, and of our annual Fruit Show at the Crystal Palace, it cannot be said that Pomology is at all well or adequately represented in this country. From the Duke of BEDFORD's fruit farm near Woburn, we may in future expect great things, for there, experiments are carried

out on a well thought-out plan and with as much scientific precision as circumstances permit. Fruit-growing has no doubt made progress in response to the energetic efforts of the Royal Horticultural Society; but scientific pomology, if we may use such a term, has slumbered since the memorable fruit conferences held at Chiswick some years since. Yet there are many questions still awaiting full solution, in particular the question of spraying. How, when, and how often should it be done? Will it pay?

These questions the Americans have answered for themselves, but our growers are either very uncommunicative, or they do not practise it. We are inclined to believe the latter is the truth, for out of a large number of Pears recently cut open, only one or two were free from maggot. Of course, this is not to be taken as a general case, but at all events, it may serve as an indication. In France and Switzerland the state of things seems little or no better. Systematic and purposeful hybridisation is almost unknown among our pomologists, yet the prospects of success are by no means indifferent.

Then there is the question of varieties suitable for special localities and aspects—a question not half sufficiently considered, as anyone may see if he inspects the dreadful rubbish exposed for sale at relatively high prices in the greengrocers' shops. Some of us who are in the habit of seeing the magnificent fruit exhibited at the Royal Horticultural Society and at the principal local shows imagine, and rightly so, that such samples are superior to what may be seen on the continent. On the other hand, the fruit and vegetables offered for sale in the markets of provincial towns in France and Italy are much superior, as a rule, to what we see in our own shops. That this is so there is no manner of doubt, and it is a question of cardinal importance for the fruit-grower to set this matter straight. Our growers produce at once the finest and the worst samples. The former we see on the exhibition-tables; the latter we, as consumers, are obliged to purchase in default of better. Surely in this, as in other matters, there is a middle course to follow, which would give more general satisfaction than our present policy of extremes.

The American Pomological Society, whose meeting in Philadelphia is alluded to in another column, has taken great interest in all these matters, and for a time was carried on with a zeal and energy that excited our envy as much as the right-mindedness and eloquence of its late President, MARSHALL WILDER, stirred our imagination. Since his death, the Society seems to have relapsed somewhat into a state of dormant energy! Conditions have changed, as our American correspondent states, and the Society has not at present fully adapted itself to new circumstances, but that it will do so we cannot doubt. The appended letter from our correspondent will be read with interest, and may furnish hints for our own use:—

"The passing of the semi-centennial of the American Pomological Society leaves one full of reflections, full of hopes, and full of questionings. The Society has had an eventful—almost a romantic career. During the early years of its existence it held large meetings and remarkable fruit-exhibitions, which attracted all the leading fruit-growers of the day. It was the centre of horticultural thought—the summit of horticultural ambition. Much attention was paid to the study of new fruits, and to judging the merits of hundreds of varieties originated on this continent or imported from Europe. A great influence was exerted by the Society, and much good accomplished.

"In recent years, however, conditions have changed enormously. American fruit-growing has changed from the amateur type to the commercial type. Pomology has passed from the experimental stage to the stage of high refinement and severe competition. The different lines of work have been highly differentiated, so that one man can no longer be an authority on all fruits, but each must confine himself to his specialty. No society or committee can longer pass final judgment on varieties for commercial growing. Meanwhile the country has been filled with local experiment stations which go far to usurp the functions formerly exercised by the American Pomological Society. Interest in the meetings has flagged, the attendance has been scant, and it has become a question whether or not the society could live in the new environment which had grown up about it.

"The twenty-sixth biennial meeting recently held at Philadelphia was expected to answer this question. But, while this meeting was highly successful, it has been only a partial answer. There is not room here to discuss this whole question, although it is of the highest importance to American pomology. At all events, we hope for the best. At the recent meeting, there was a large and very representative attendance, coming from all parts of the continent. The meeting of so many eminent and able men was sure to be in the highest degree pleasant and profitable. The fruit exhibit was good, but not remarkable. The programme was well carried out, but was made up largely of second-hand material, which we had all heard before. There was no notable discussion of any topic, though there was a most notable omission of all reference to the San José scale. This insect has utterly ceased to be a terror to American fruit-growers.

"The American Pomological Society still lives, and we still hope to keep it with us as a strictly representative organisation of American fruit-growers and fruit-lovers."

THE above-named Society has now completed its arrangements for a Show and Conference to be held at Lyons on November 3 and following days. M. VIGER, Minister of Agriculture, will preside. The programme of the proceedings is an attractive one, the social aspect being none the less looked after than the educational. On the first day of the show, the Floral Committee will meet to adjudicate upon the novelties; then follows the judging. At mid-day there will be lunch. At 2 P.M. the Show will be opened, and this will be followed by a meeting of the Conference. Dinner will be served at 7 P.M., after which there will be a reception by the syndicate of the Lyons nurserymen.

On the following day there will be a second meeting of the Conference, a lunch at mid-day, and then a visit to the Park of Tête d'Or and the municipal greenhouses. In the evening a grand banquet. On the third day other arrangements are made of a similar nature. The subjects to be discussed at the Conference are, among others, Fertilisation, Maladies and Parasites, Wintering Chrysanthemums, Manures and Composts, &c. To show the way that popular interest has been aroused in this young and flourishing Society, it need only be mentioned that although this is only the fourth year of its existence, it counts already over 560 members, many of whom are Chrysanthemum celebrities resident beyond the borders of France. A very pressing invitation has been extended to members of the English National Chrysanthemum Society, but unfortunately the dates of the Aquarium and Lyons shows are too close to allow many of those who are interested to be present at both.

SINGLE CHINA ASTER (CALLISTEPHUS HORTENSIS).—The China Aster (*Aster chinensis*, of Linnaeus), which, by the way, is not an Aster any more than a Water-lily is a Lily, was introduced from China to France by a missionary 170 years ago, since when horticulturists have so modified and diversified its characters that we have almost as many forms of it as of the Chrysanthemum.

we are again indebted to a French missionary in China, are of opinion that as an ornamental garden-plant it is superior to most of its garden descendants. At Kew it has been largely used this year as a group-plant in the herbaceous-borders, and during September and October it has been as much admired by visitors as any plant grown there. It is more elegant because

poses. The illustration here given (fig. 105) was prepared from a specimen exhibited at the Drill Hall recently by Mr. J. WEATHERS, of Silverhall Nurseries, Isleworth, who has been very successful in its cultivation. W. W.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the



FIG. 105. —*CALLISTEPHUS HORTENSIS*: COLOUR OF THE FLOWERS PALE ROSE-MAUVE, AND BRIGHT YELLOW DISC.

Mr. BARRON prepared a list of the China Asters specially grown at Chiswick in 1888, in which he enumerated no fewer than seventeen sections, bearing such names as Quilled, Pæony, Pyramidal, &c. That so great a degree of variation has been obtained within the limits of one species without hybridisation is remarkable. Probably many who have seen the wild type as here represented, for the re-introduction of which, a year or two ago,

looser and taller than the double-flowered forms, its height being 12 to 18 inches, freely-branched, and clothed with healthy, dark-green foliage and numerous flowers, from 3 to 5 inches across, coloured pale rosy-mauve, with a broad, rounded, bright-yellow disc. The plant ripens seeds freely, and the flowers last a week or more if cut and placed in water. Market-growers of flowers look upon it as a very promising plant for their pur-

Royal Horticultural Society will take place on Tuesday, Oct. 24, in the Drill Hall, James St., Westminster, 1 to 4 P.M. A lecture on "Growth of the Fruit Trade" will be given by Mr. GEO. MUNRO, V.M.H., at 3 o'clock. The War Office having asked for the Drill Hall of the London Scottish Volunteers (in which the meetings of the Royal Horticultural Society are held), to be placed at its disposal for the temporary accommodation of 300 soldiers en

route for South Africa, it is probable that the Society's meeting on October 24 will have to be held in the Drill Hall of the Queen's Westminster Volunteers, which adjoins that of the London Scottish, being actually the next door. If this should be the case, Fellows and exhibitors are requested to make the best of an unavoidable inconvenience, which it is hoped will not have to be repeated. The following dates have been fixed provisionally for meetings in 1900: January 9, 23; February 13, 27; March 13, 27; April, 10, 24; May 8, 23, 24, 25 (Temple); June 5, 19, 27 (at Richmond); July 3, 17, 31; August 14, 28; September 11, 25, 27, 28, 29 (Crystal Palace); October 9, 23; November 6, 20; December 4, 18; January (1901), 15, 29; February 12. Gentlemen willing to lecture on any of these dates are requested to communicate with the Secretary, 117, Victoria Street, S.W., at once.

TRIALS WILL BE MADE AT CHISWICK IN 1900 WITH THE FOLLOWING SUBJECTS:—

1. Tulips for outdoor decoration; twelve bulbs of each should be sent at once to the Superintendent, Royal Horticultural Society's Gardens, Chiswick, W. Each variety should be marked with its colour, and an indication of its season, early, mid-season, or late.
2. Phlox decussata.—Two plants of each should be sent on or before March 1.
3. Cactus Dahlias.—The 1899 trial will be repeated. Any new varieties, two plants of each, should be sent in April.
4. Potatoes, new varieties.—Twenty tubers to be sent before February 1; also, a trial of distinctly Early Potatoes, both old and new varieties, requested.
5. Tomatoes, for outdoors only.—Seed before February 1.
6. Peas.—Half-a-pint to be sent in January.
7. Celeriac.—Seed in January.

EXAMINATIONS IN HORTICULTURE.—The Royal Horticultural Society will hold its next examination in horticulture on Tuesday, April 17, 1900. For Syllabus, apply to the Secretary, R.H.S., 117, Victoria Street, S.W., enclosing a stamp.

KINGSTON CHRYSANTHEMUM SOCIETY.—This old-established Society, which holds its annual show on November 29, has, like some others, dispensed with the old challenge cup, and its difficult and unequal class for twenty-four Japanese and twenty-four Incurved; and has instead arranged a champion class for thirty-six Japanese, with valuable money prizes.

FOREIGN CHRYSANTHEMUM SHOWS.—During the present season there will be abundant evidence of the continued popularity of the Chrysanthemum. We hear that a society has recently been formed in Denmark. The French National Chrysanthemum Society holds its show on November 3, at Lyons; the Italian National Chrysanthemum Society at Milan on November 9, Paris on November 8. Other towns, viz., Voiron, Bourges, Havre, Limoges, Bordeaux, Cambrai, Pau, and Le Mans will follow.

THE RECENT SALE OF ORCHIDS AT "THE Firs," WARWICK.—As showing the remarkable value which Orchids fetch at sales, the following particulars of prices paid for notable plants at the sale of the late Major Mason's collection on October 10, 11, and 12, are interesting. The sale was conducted by the well-known firm of Protheroe & Morris, Chesapeake, and was well attended. By far the highest prices obtained were realised for varieties of Cypripedium, and the most valuable of these was *C. insigne giganteum*, for which £147 was paid. *C. Lawrenceanum* Hyeaen, figured in our pages January 16, 1897, fetched £89 5s. The plant had two growths. Another specimen of the same variety was sold for £76 13s. *C. insigne Sanderi* sold for £54 12s., and a smaller plant for £35 14s.; *C. Aylingi*, with three growths, for seventeen guineas; *C. callosum Sanderianum*, £73 10s.; *C. insigne Maulei*, yellow variety,

£32 11s.; *O. insigne "Dorothy,"* with eight growths, £29 8s. Of *Dendrobium*, a plant of *D. Phalenopsis* album, with five old and one new pseudo-bulb, was sold for £52 10s.; *D. Wardianum* album, with nine pseudo-bulbs and three buds, 11 guineas; *D. x Gemma*, with three pseudo-bulbs, 13 guineas; and *D. Ballianum*, a fine specimen plant, 15 guineas. Of *Cattleyas*, a plant with seven pseudo-bulbs of *C. x Ferdinand Denis* fetched 17 guineas; *C. Mossii* Wagneri, £27 6s.; *C. Louis Chaton*, 11 guineas; *C. Mantini nobilior*, 11 guineas; *C. Parthenia speciosa*, 17 guineas; *C. labiata* alba, with four pseudo-bulbs, £63; *C. Mossii bellissima*, 17 guineas; *C. Skinneri* alba, 17 guineas; *C. Mendeli "Miss Little,"* 19 guineas; *C. x Lord Rothschild*, £26 5s.; and *C. intermedia* alba, £22 1s. *Laelias* and *Laelio-Cattleyas* sold for good prices. *L. anceps*, "Bull's White," fetched 15 guineas; *L. purpurata Backhouseana*, 16 guineas; *Laelio-Cattleya "Iolanthe,"* 18 guineas; *L. purpurata Littleiana*, £21; *L.-C. eximia*, £21; *L.-C. Bertha Fournier*, £31 10s.; *L.-C. Pallas superba*, 16 guineas. Seedling and hybrid Orchids that have not yet flowered fetched considerable prices, and the total amount realised by the three days' sale was £3110 13s.

FRUITS GROWN AT THE CAPE.—The condition of affairs in South Africa holds the first place just now in public attention, and we have thought the time opportune for the production of the latest published figures in connection with the growth of the various fruits suited to soil and atmospheric conditions of this old colony and outlying districts, such as East Griqualand, Tembaland Trans-Kei, Pondoland, Walfish Bay, and Bechuanaland. It would appear that, notwithstanding the drought which prevailed for several years, and the visitation of locusts, increasing attention is paid to fruit-culture—the larger number of Plum, Orange, Lemon, and Naartje-trees is very noticeable. The following are the figures for 1896, for the purpose of comparison:

Fruit Grown.	Trees.	Fruit Grown.	Trees.
Peach ...	1,377,472	Plum ...	106,624
Apricot ...	253,175	Orange ...	197,920
Apple ...	383,611	Lemon ...	28,468
Pear ...	339,672	Naartje ...	20,332

These figures may easily be used in comparison as the following table is scanned, the items being for the crop of last year:—

Fruits grown.—1893.	Planted.	Standing.
Peach ...	93,507	1,006,922
Apricot ...	34,672	298,232
Apple ...	48,330	384,736
Pear ...	39,653	334,466
Plum ...	52,908	247,832
Fig ...	31,160	920,062
Orange ...	37,814	253,922
Lemon ...	3,099	33,076
Naartje ...	4,239	26,376
Vine-stock ...	6,259,654	83,750,031

The number of "deaths" in Vines owing to pests, drought, chills, &c., was very numerous; but the advance all round was very marked. It is to be hoped that the horrors of war may not interfere with the process of fruit-production at the Cape.

GRAPE LADY HUTT.—This new white Grape, judging from the examples Mr. HUDSON has grown at Gunnersbury House this season, bids fair to become our most valuable late white Grape. Mr. Hudson himself thoroughly believes in a future for this variety. It sets well, is as fine-looking as Gros Maroc, and has been found to hang and keep well, and its quality is excellent. Its companion variety, the black Appley Towers, is likely to supplant the Alicante as a late variety; for like its white companion, it sets well, forms a handsome bunch, and hangs for a long time. Some new Grapes of the past quarter of a century

have failed to maintain the position they were expected to occupy; but the two above-named seem destined to exhibit all the good qualities with which they were credited when they were distributed.

NEW ZEALAND SPINACH.—While in the London market gardens (a correspondent writes) the Vegetable-Marrow plants are blackened by frost, and the Runner French Beans are much injured from the same cause, the New Zealand Spinach is green and flourishing, presenting to view masses of healthy green foliage. One market-gardener near Gunnersbury has about 2 acres at least of this Spinach, and market-gardeners appear to be alive to the importance of a crop of this vegetable in such dry summers as those of 1898 and 1899. The somewhat light ground is deeply ploughed and heavily manured, and the plants appear to revel in it, and make a prodigious growth. The density of growth of the New Zealand Spinach covers the soil, keeping it cool and economising moisture, decided advantages in a dry season.

GRAPE JUICE IN BEVERAGES.—A Canadian expert, with the knowledge that Grapes fetch only £4 and £5 per ton in Canada, suggests that it might pay to introduce Grape-juice, unf fermented, to drink with Apollinaris-water &c., believing, as he does, that no drink in warm weather is more refreshing, or so soothing as that. It should be stated that the Californians have quite taken to this new form of beverage, and doubtless it would soon become a favourite in this country. In Switzerland it forms a refreshing beverage, but too sweet to suit English palates.

CALIFORNIAN V. CANADIAN PEARS.—Some doubts have been expressed as to the superiority of Californian Pears over those sent home from various districts in Canada, but it should be borne in mind that the Canadians reach England in fewer than twelve days, and the Californian in not much less than twenty. A well-known authority, Mr. ROGERS, states that the Californian Pears are tough in fibre, and not so fine in flavour as those of the Old Dominion, and it would seem that if the time occupied in transit could be reduced by a third, the highest prices would be obtained for Pears, Peaches, and Tomatoes.

THE POTATO CROP IN GERMANY.—According to the official statistics, the crop is a medium one. The low grade Potatoes suitable for starch and spirit manufacture are below an average crop; but eating Potatoes, such as Magnum Bonum, Imperator, Saxonia, and other good descriptions, are above the average.

THE SAN JOSÉ SCALE.—Two years ago we were told that the United States of America would be overrun by this insect, and that unless restrictive legislation were obtained in the States and at Washington, the orchards would be ruined. A draft bill was actually prepared with this object by certain over-zealous entomologists. That bill was dropped, and its promoters were obliged to meet the nurserymen in annual convention, and listen to the opinions of representative men in the nursery trade. The result was a federal bill of far different mien. The San José Scale has not spread as promised, excepting under the most favourable conditions for its so doing; and with general vigilance on the part of cultivators of orchards it is not probable that it ever will. It is not a new creation, but has existed for countless ages, and is no more likely to do great injury to orchards than the insects that are peculiar to the Orange, Olive, Grape, &c.

HYACINTHS IN GLASSES.—Those who cultivate Hyacinths for the decoration of the dwelling-rooms or conservatory, usually like to have a few of these in glasses. They do not produce such strong flower-spikes as those in moderately rich soil in pots, but they are interesting because the development of the roots may be studied as conveniently as the growth of the leaves and flowers, and they are more cleanly and less trouble. We have just

received specimens of a glass for this purpose from Messrs. STEVENS & WILLIAMS, Brierley Hill. These are of a very pretty design, in shape like a vase with a crimped top, narrowed to form a base upon which the bulb may rest. The glasses are ribbed, and prettily engraved with Fern-fronds and flowers. Altogether they are much more ornamental than the ordinary glasses, and if we could suggest an improvement it would be that the base should be made larger, so that when the Hyacinths are in bloom, the glasses would be perfectly secure from turning over.

KIDDERMINSTER AND DISTRICT HORTICULTURAL SOCIETY.—The usual monthly meeting of this Society was held on Wednesday, October 11. The chair was occupied by F. HUGHES, Esq., when, before a large attendance of members, Mr. A. YOUNG, gardener to Lord DUDLEY, Witley Court, gave an instructive address on the cultivation of

but it should be noted that, if the £150 of prize-money had had to be paid, there would have been a deficit for the year of about £110. The balance now standing at the credit of the Society to carry forward to next season is £195 14s. 6d. During the past year the Society has received intimation of two bequests, viz., a sum of £200 from the late Mr. George Angus, merchant, Aberdeen; and one of £50 from the late Mrs. Catharine Murray, or Paterson, Aberdeen, the former to be applied 'for the purpose of elevating the taste of the working-classes, and encouraging working-men and their wives and families to spend their leisure in attending to horticulture;' and the latter 'to be given in prizes spread over fifty years, to be called the Samuel Paterson Prize, to amateurs in plant-growing.' The £50 legacy has been received, and as soon as the other has been paid over, it is suggested that this sum of £250 should be invested in good heritable security. The directors are very

the sale, and the whole realised excellent prices. There were some remarkably fine specimens of the *Picea nobilis*, some of which stood 7 feet high; there were also some very choice plants of *Abies Hookeriana* and *A. Menziesii*. Mr. D. P. Laird, of Edinburgh, was auctioneer.

DEVELOPMENTS IN THE AGRICULTURAL DEPARTMENT OF ABERDEEN UNIVERSITY.

At a meeting of the joint committee on Education in Agriculture, held in Marischal College, Aberdeen, on Friday, Dr. James W. H. Trail, Professor of Botany in the University, submitted a report upon the class of botany to teachers during the autumn, in which special notice was drawn to the fact that this class, started in connection with the University, anticipated, and exactly meets the requirements of the new article as to "Nature Knowledge" in the code. Applications, it was mentioned, had come to the County Technical Instruction Committee from county teachers, inquiring as to facilities to enable them to qualify for this new provision in the code, and intimation had been sent to them that the necessary instruction is already being provided in connection with the University. In view of the new provision, special interest attaches to the following statement from Professor Trail's report:—"The treatment of the subject was strictly practical, being designed to assist the schoolmasters to acquire the methods of observation and reasoning, that would enable them to utilise the materials for teaching botany in their schools, either from the wild flora, or with the aid of plants, easily grown in gardens. The instruction was restricted to what could be seen with the unaided eye, or with an inexpensive lens, and the apparatus employed for the dissection of the plants, and other simple physiological experiments was such as would cost but little. Information was also given as to the collection and observation of suitable materials for a small school museum. Three excursions were made to enable those at the class to become acquainted with the commoner plants of their district, thus permitting more complete knowledge to be gained of their various adaptations to the surrounding conditions of life."

The committee were gratified to learn that these autumn classes were supplying to rural teachers instruction necessary under the new clause in the code.

DRACÆNA VICTORIA.

OUR illustration of this beautiful variety was taken from a group exhibited by Mr. William Bull at the last Temple Show. It is an importation from Brazil, and resembles *D. Lindeni*, but retains its golden variegation as it grows older. The recurved lanceolate leaves taper to each end, and are of a bright golden-yellow, with a central band of green, marked with narrow, cream-coloured linear streaks. It is one of the handsomest of its class (fig. 106).

NURSERY NOTES.

MESSRS. THOMAS RIVERS AND SON.

THE name of Rivers, Sawbridgeworth, is of world-wide repute, and we may justly claim for Thomas Rivers, and for his son, the lately deceased head of the firm, T. Francis Rivers, the credit of having introduced to commerce more meritorious new fruits than any one living in this country, or on the Continent. In the case of the Plum, which next to the Apple is of the greatest importance in this country, the Rivers—father and son—by their introduction, lengthened the season during which Plums can be enjoyed in the fresh state by nearly six weeks at both ends. In this connection we may name Early Rivers syn. Early Prolific, which ripens at the end of July—a culinary variety; and Monarch and Late Orange, two excellent dessert varieties, ripen-



FIG. 106.—DRACÆNA VICTORIA (W. BULL).

Chrysanthemums, together with hints as to their artistic arrangement for exhibition and house decoration. A hearty vote of thanks was accorded the lecturer, and a discussion on the subjects treated of took place among those present.

SCOTLAND.

ROYAL HORTICULTURAL SOCIETY OF ABERDEEN.

The following is the report by the directors of the Royal Horticultural Society of Aberdeen to the annual meeting of the members to be held to-day (Saturday, 14th inst.):—"The exhibition of 1899 will long be remembered by those concerned for the great disaster which attended it. The directors wish to take this opportunity of thanking those members of the Society who so willingly came forward after the disaster, and by their efforts assisted in making the show a very fair one after all, from a horticultural point of view. The directors report that the financial result of the year is that there is a balance of income over expenditure of £379s. 7d.,

grateful for these bequests, and hope that this is only a beginning, and that others will follow. The thanks of the Society are due to the Town Council for their kindness in having, as formerly, granted the use of Duthie Park on the occasion of the exhibition."

GREAT NURSERY SALE AT ABERDEEN.

During this last week there was held at Messrs. Ben Reid & Co.'s Nurseries, Granitehill, Aberdeen, one of the most important sales of nursery stock that has taken place in Scotland for several years. The sale was rendered necessary by the expiry of Messrs. Reid's lease of the ground. The whole of the plants disposed of were of the choicest description, and buyers attended from all parts of the country, and although these were principally factors, foresters, and others belonging to estates in the northern counties, there were buyers from the south of Scotland and from England. There were altogether 5145 lots to dispose of, consisting of hardy ornamental Conifers, ornamental evergreen and deciduous trees and shrubs, transplanted forest trees, plants for game coverts and hedges, Roses, &c. There was a keen demand throughout

ing late in September and October; and Late Rivers, the latest good Plum in season, in November.

Of Peaches raised at Sawbridgeworth, which ripen very early, are Early Beatrice, Early Louise, Early Rivers, and Early Victoria, juicy, good-flavoured varieties, with in some cases a very hardy constitution. Lady Palmerston, Osprey, and Nectarine Peaches may be mentioned as varieties extending the season of Peaches at its termination; and there are many more as good. In our climate, very late Peaches are better when grown in pots or borders in an orchard-house, and if the same be furnished with hot-water pipes for use in ripening the fruit, expelling dampness, or protecting the bloom from injury by very severe frosts, so much the better. This remark holds good of late Plums and of Pears, which, except in the finest of summers, do not mature with us.

With the raising of varieties of the Nectarine which should supersede older ones, the firm has been extraordinarily successful, no fewer than twenty being enumerated in the catalogue for 1899-1900. We need only mention Early Rivers, raised by the late proprietor, a splendid-looking fruit, ripening three weeks before the well-known Lord Napier, itself Riversian in origin. The size is for a Nectarine extremely large, and the flavour exquisite. Cardinal is a still earlier-ripening Nectarine, of high colour, and fine and distinct flavour, forming a compact sturdy tree, that bears freely. Rivers' Orange, Stanwick Elruge, Advance, and Spenser are fine varieties, mostly ripening in the month of September. The acquisition of Apples has not been pursued with the same amount of energy, at any rate with success equalling that displayed in breeding Pears, Peaches, Nectarines, and Plums; for we only know of about five varieties, viz., Thomas Rivers, syn. Rivers' Codlin, a cooking variety, of rich flavour, fit for use in the middle of September; Early Rivers, a fruit in shape and colour resembling Lord Suffield, which ripens a week earlier, the flavour sharp and good—it makes a prolific bush, and is not liable to canker. Early Peach Apple is an earlier ripening "Irish Peach," and does not bear its fruits at the ends of the branches; St. Martin's, a richly-flavoured dessert variety, is in season from November to February, and resembling Besspool; and Prince Edward, in season during the same period—a bright yellow fruit, with tender, melting flesh, and brisk flavour.

Much of the interest felt in visiting the Sawbridgeworth nurseries arises from the fact that we see the processes of cross-breeding carried on under our eyes, and survey results at first-hand. The parents of certain varieties were shown to us, and the reasons given for effecting such and such crosses; and in some instances the actual first seedling, as in the case of Rivers' Prolific Plum, is to be observed, showing the effects of age certainly, but still likely to serve as a living witness of successful breeding for some years longer. This variety, in the hands of some nurserymen, would have made a very respectable fortune, but the late Mr. Rivers parted with it to the trade and private customers soon after its good points became generally known, for, as he said, the good of the country.

In looking through the glasshouses, two long, narrow spans were noted, filled with Orange, Lime, and Lemon-trees in pots, and planted in the borders. Many of these are of great age, but the roots being confined to limited areas, the plants are removable without damage or root-disturbance. A considerable number of young trees was observed in another house to meet the demand for this fruit, and the collection is extensive. We noticed Stustain, a nice flavoured St. Michael's; Silver of Plata, Egg. St. Michael's, and varieties of it; blood and oval Malta Oranges, Navel, Tangierine, and Seville; five varieties of Lemons, besides Limes, Shaddocka, Citrons, &c. In some of the houses were Apple-trees in pots, loaded with fruits, most of which had that exquisite colour and bloom not attainable by fruits grown out-of-doors. To preserve the, in many cases, weighty fruits from falling, they were

secured by pieces of bast fixed round the stalks, and the spur or shoots on which they grew. This is done long before the fruits are ripe, in order to prevent losses. King of Tomkins County, a favourite Nova Scotian and Canadian variety, and one largely imported into this country, brings fine large, high-coloured fruits under glass, although it is useless out-of-doors. We noted very fine Peasgood's Non-such, Ribston, Blenheim Orange, and Cox's Orange Pippins, growing on trees in pots. Several large span-roofed houses were filled with young Peach-trees for fruiting next year, and thus early bereft of leaves, which proved how well matured is this year's wood. A houseful of the largest pyramidal Peach-trees in the world is to be seen here, many of them being 10 feet high, and 5 feet in diameter at the base. Some late varieties were heavily loaded with fair-sized fruits not yet ripe, especially good being the Salway Peach, which can only be obtained at its best from trees grown under glass.

The Fig is largely, grown as bushes in houses set apart for it, as are Grape-vines in pots, the stock of which is in capital order, large of cane and wonderfully ripened. The large vineries in which grow the varieties of Vines cultivated for sale, which are allowed to fruit after yielding their quota of "eyes" to the propagator. These old Vines, consisting of all the best varieties, black and white, including La Tisserande and Mrs. Pearson, were carrying more than ordinary heavy crops of well-coloured large bunches, and without a trace of shanking. The earlier varieties were in some cases cleared off the Vines.

Pears were more numerous than Apples in pots, and could be found in some of the glasshouses and in sheltered spots out-of-doors, the pots in the latter case, embedded in soil or coal-ashes. The quantity of fine fruit borne by these pyramidal trees would astonish those unacquainted with the possibilities of pot-culture carried on either in or out-of-doors, for most of the Pear-trees go outside after there is no longer any danger from frosts in May. In the sheds, the re-potting of Peach, Nectarine, and Plum-trees, was in full swing.

OUTSIDE DEPARTMENT.

The area under cultivation amounts to about 200 acres, and this chiefly consists of orchards of bush trees and breaks of young stocks of varying ages. That which bore originally and for many years the young nursery stock is now planted up as orchards, with either bush or low standard Pears, Apples, or Plums, the returns from which are very large, the fruit being superior in size and general appearance, owing to the trees being at the present time at their best. The young stock occupies land which until recent years was under ordinary farm crops.

In surveying the breaks at close quarters, one could not but be struck by the firm, vigorous growth made by the Apples, Pears, Plums, Peaches, Nectarines, and Cherries, in spite of the droughty weather of the past summer; and the thoroughly ripe condition of the wood. In the case of one-year cut-back Pears, so ripe was the wood that the leaves were ready to fall, and had quite lost their vitality. Apples on the Broadleaf and Nonsuch varieties of the Paradise stock have made as good growth as others on the wilding stock. All trees worked on these dwarfing stocks are pruned and trained for pyramids, bush trees, or some form of cordon. The breaks of Peaches and Nectarines worked last year consist of fine stuff.

Of Apricots very fine breaks of maidens and trained trees were observed; the wood of just the right size, neither too gross nor too weak, and well matured. Pears trained as double cordons, cups, horizontal, for covering walls and fences, &c., were excellent.

The new land brought within the boundary of the nursery is of a heavy, loamy nature, admirably adapted for fruit-trees, and one in which they can defy drought with impunity, a condition of the trees prove this year.

The title of the firm, Thomas Rivers & Son, will be kept up by the present owners, Messrs. T. A. H. Rivers and H. S. Rivers, sons of the late T. Francis Rivers.

HOME CORRESPONDENCE.

SENILE DECAY OF ORGANISMS.—On reading a note taken from Professor Sedgwick's address at the meeting of the British Association at Dover, on p. 281 of the *Gardeners' Chronicle*, I had carefully to scrutinise the page and verify the date, lest I had stumbled on a very venerable back number. Some of us who have read the *Gardeners' Chronicle* from its first number had hoped that such notions had not survived to this day. For years before 1841 eminent horticultural authorities believed in senile decay, and the wearing out of species and varieties. Even Thomas Andrew Knight seemed disposed at one time to give up such popular varieties of the Apple as the Golden and Ribston Pippins, as being at that date less fruitful and vigorous. Possibly few gardeners will quite grasp the Professor's meaning when he says that there is no reason to suppose that the separative process of any organism is sufficiently complete to prevent senile decay. If this be so, then is Nature but a poor evolutionist after all. I have not so read the life, the laws, and the work of Nature. To me there is abundant evidence that the recuperative processes of every organism are not only sufficiently powerful and complete to prevent senile decay, but to develop yet higher, stronger, better, and more durable developments. [Do not Oaks and Wellingtonias, as well as Ribston Pippin trees, grow old, and at last perish entirely? Ed.] This is how I have read Darwin's theory of evolution, and is not his view and teaching shown in our improved fruits, flowers, and vegetables? Some of the older vegetable physiologists went so far as to assert that neither seeds nor buds were likely to live longer than the plant from which they were taken. Thus not a few expected to lose the Ribston Pippin root and branch when fruit had been amongst us for a century. And here we have the old doctrine in a new setting by Professor Sedgwick, as we find him virtually saying on p. 281 we cannot prevent senile decay. The age a plant from which grafts are taken becomes a matter of importance to gardeners. And he goes on expressly to say that with regard to buds, they share in the growing old with the parents. This is simply a truism. But if the Professor means, which is evident from the context, that the buds share in this senile decay of the parents, then the experience of practical men, and the vigorous life of hosts of old species of trees and plants, disprove of any such theory. I thank the Professor for lucidity and incisiveness of his closing sentence in the *Gardeners' Chronicle*, as if we suppose the average life of the individual to be a hundred years, a bud removed at fifty will be fifty years of age, and be able to live on the graft for fifty years more. But science and experience prove this absolutely. A bud fifty years old is inconceivable. The life of the average bud is seldom more than a year. In growing into a flower, a leaf, a fruit, a branch, a stem, it ceases to be a bud, and may be subject to different laws. Even the ages of individual plants and trees are wholly empirical. On what principles of logic or collection of facts shall we measure the life of an individual by a thousand years, and of an Apple-tree at a hundred years? Neither can the theory of a natural twist or bend towards senility or decay hold water. We have thousands of facts throughout the closing century pointing the other way. Through the use of improved dwarfing and other stocks, stronger or more concentrated manures, improved soils, and greater cultural care and skill, our seeds, buds, scions, and cuttings have been vastly strengthened and improved. The age of senility, if it ever existed, has ended, and a new era of strength and higher evolution has set in. Nowhere is this more visible than among our older Apple-trees, such as the Ribston Pippin. Go where we may among young, well-grown trees, we note no sign of decrepitude in root or stem, or branch or fruit; and never were so many fine Ribston Pippins grown in Britain as to-day. And yet, according to the latest theories, the parent buds of these model Ribstons have already seen their fifty, sixty, seventy, eighty years out of their possible hundred years of life. Yes, and their progress during the last fifty years at least has been upwards and onwards, and not downwards. D. T. Fish, F.R.H.S.

GARDENERS' ORPHAN FUND.—With your consent I should like to make a suggestion in reference to the above-named fund. What I am wishful to

allude to is, the possible use of the very excellent little booklet issued some time ago to many if not all subscribers thereto. To my mind, the idea of the booklet is a very good one. It contains twenty receipts with counterfoils, each one to represent a sum of 1s. or upwards. The time is at hand when horticulturists of all sections will meet in large numbers at the many Chrysanthemum exhibitions held all over this country. After the various exhibits have been examined and criticised, there usually comes a time when they form into groups to discuss the varied subjects of interest to the craft. Without trespassing on the means of visitors, anyone interested in the Orphan Fund can then suitably use his or her booklet to advantage. To those who may not have one by them, I have no doubt a post-card sent to the Secretary, Mr. Wynne, No. 1, Dane's Inn, Strand, London, W.C., would at once be attended to. Collectors get one vote at the annual election for each 5s. sent to the head office. Let us hope a good number of booklets may be sent up before the year ends. *Northern Subscriber.*

ROSA CAMELLIÆFLORA.—I am not sure if this Rose is known to English growers, nor am I able to give its origin or the name of the raiser, as I have seen only one truss of it, and that was quite enough to fire one with a desire to possess it. I take it to be a Hybrid China; the flowers are large, full, double, and of a finely-cupped form; the colour purple, shaded-crimson. But then it is very highly fragrant, which suggests that it possesses the blood of this fragrant group; the flower stems are strong and rigid; the buds long and pointed. As a late-flowering fragrant Rose it is invaluable. Can anyone give information as to its origin? *R. D.*

BLACKBIRDS, ETC., AND FRUIT.—I have been much interested with the several notes appearing of late with reference to "our feathered friends," but more especially concerning the thrush. In Mr. J. Hart's note of September 30, he says, "The thrush is a gentle, innocent bird, and that he does not attack large fruit on trees and walls." My experience is that he does attack large fruit on trees and walls, and very much so. As for netting fruits, I have tried it in a good many different ways, and for all kinds of fruit, small and large, but have never been successful in keeping out thrushes and blackbirds. It may be very well in a small garden containing a few fruit-bushes or a small plot of Strawberries, but in a large place where everything has to be netted, I find that after the net has been put on it is necessary for someone to be on the spot the whole of the time if the birds are to be kept out. Apart from the small fruit, they are most destructive here amongst the Plums, Apples, Pears, and Figs. In these gardens we have several very large old Fig-trees growing in the moat; the largest of these trees, a Brunswick, had a fine crop of about twelve dozen fruits this season, which were bagged in the ordinary course, as we have to put all Figs just previous to ripening into bags made of a brown, coarse muslin. Out of the twelve dozen fruits we managed to get less than four dozen; besides these, were five dozen new bags being pecked to pieces to get at the fruit, and the other trees were served nearly as badly. The wholesale destruction of the Figs and bags, and labour thrown away, I have to place chiefly to the credit of the thrush, which, apart from a very small bird unknown to me, which took a few of the earliest fruit before the bags were put on, is the only depredator. On several occasions I have watched him pecking his way through the bag and coolly devouring the Fig; and no ordinary amount of commotion seems to frighten him, and then only to return again as soon as one's back is turned. On two occasions this season I have found Mr. Thrush in the vinery eating the Grapes. Granted the thrush makes off with a quantity of worms and snails, &c. But what are they compared with the wholesale destruction of which he is capable? In conclusion, I fail to recognise the thrush as a gentle, innocent bird from a gardener's point of view. *C. Dales, Walmer Castle Gardens, Kent.*

TEA-SCENTED ROSES.—In the *Gardener's Chronicle* of October 7, p. 275, we noticed the following remarks on Tea-scented Roses:—"The two most conspicuous are Empress Alexandra of Russia and White Maman Cochet. The former is one of those dark-coloured Teas which some people admire, but which I, for one, think spoil

the chaste and delicate beauty of the stand in which it appears. I think one of the great charms of the Tea-Rose is its delicacy and refinement, and these very highly-coloured flowers greatly interfere with that characteristic." We thought by the introduction of this exquisite Rose with its distinct and beautiful colour of red and orange, we were offering to the public an original long sought-for desideratum; and that others thought so too was made manifest by the Award of Merit it obtained from the Royal Horticultural Society, and the large sale it met with. But does the presence of a dark beauty "greatly interfere" with the "delicacy and refinement" of her fairer sisters? We think it will be said by some—nay, rather it tends to heighten and adorn them. Be that as it may, we venture to predict that we shall now shortly acquire a host of high-coloured Tea-scented Roses which many lovers of this flower have long sighed for, but sighed for in vain. *Wm. Paul & Son, Waltham Cross.*

HELENIUM AUTUMNALE VAR. STRIATUM is correct. All of our Compositae vary, and many distinct forms can be had by selection. Hybridisation among North American Compositae is rare, though it sometimes occurs. Dr. Gray, in his *Synoptical Flora*, notes its occurrence in a species of *Vernonia*, a fact I have demonstrated by actual experiment. Often what are considered hybrids are variations, nothing more. The opportunities for cross-fertilisation in our Compositae are rare, chiefly confined to cases where the ligulate corollas are female only. A curious fact is, that when pistillate ligulate flowers become tubular, they change to hermaphrodism. *Thos. Meehan, Germantown, Philadelphia.*

LILIUM CONCOLOR VAR.—I have a quantity of bulbs of a form of this Lily which were sent me about twenty years ago from China by the late Consul Swinhoe, which, during the whole of that time have refused to flower in my garden, though I have tried it in various places. I shall be happy to send bulbs to any Lily-growers who would like to try it. I expect a warmer and wetter climate is what it wants. Apply to *H. J. Elwes, F.R.S., Colesborne, Andoversford, R.S.O., Gloucestershire.*

LATE NESTING OF THE SONG-THRUSH.—There is at the present date (October 17) in the pleasure-grounds here a song-thrush sitting upon four eggs. Is not this an unusual occurrence? *William Coomber, Houghton Hall Gardens, King's Lynn.*

THE NATIONAL CHRYSANTHEMUM SOCIETY'S FLORAL COMMITTEE.—The new rule which recently came into force has caused a good deal of "feeling." Rule 4 now reads, "and no certificate shall be awarded to any new variety unless it receives the support of three-fourths of the Committee present, but if not more than ten members [are present] the voting must be unanimous." On the 28th ult. I sent a basket of plants of a yellow sport from Lady Fitzwigram, and because only eight out of a possible eighteen members had sufficient interest in their work to attend the meeting, the trouble and expense of packing and sending the plants 200 miles and back again was in vain, and I may grow another batch for next September with a like result. But the meeting of the 10th inst. gave us an example of the working of this ridiculous rule. At 1 o'clock, the time appointed, not a member was present; shortly afterwards the Secretary was in his place; later on, a few of the Committee joined him, but all waited to see if the number necessary to do business would attend. The Secretary sees a few stragglers and calls them to the table, and business commences. Only two varieties were presented for certificates. Being interested in one of these, I will pass on to the variety staged by Mr. H. Weeks. It was proposed that a Certificate be awarded, and a majority supported the proposition, but as it did not receive the support of three-fourths of the Committee the Certificate was lost. Then a farce was played. Very few of the Committee were aware of the new rule, and wanted to know when such a "ridiculous regulation was made," &c. Explanation followed, and the proposition for the Certificate was put again, and more hands were held up in its favour but still not sufficient. Then more Committeemen appeared, and the matter was explained to them. Again the proposition was put, and still not sufficient votes were recorded to make it absolute. More discussion followed as to the wisdom of the rule. Finally, and some thirty minutes late, another member of the Floral Committee was seen

to be hurriedly approaching the table, and the blooms were handed to him for his opinion. Wonderful to relate, the Chairman again put the proposition for a Certificate to the meeting. Result: 11 for, 4 against; and in the words of a Committeeman "the Certificate was lost by the third of a man." Ultimately, amid high words, the Chairman dissolved the meeting. No one can object to the action of the minority of four, who conscientiously voted against the Certificate. As a protest, it is at present my intention not to place any blooms before the Floral Committee for the whole of the coming season. *W. J. Godfrey, Exmouth.*

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

OCTOBER 10.—Present: Dr. H. Müller, in the Chair; with the Rev. W. Wilks, and the Rev. G. Henslow, Hon. Sec.

Potatoes with Scab.—A number of samples were received with the descriptions of the manures supplied. They were forwarded to Dr. Smith for examination and report.

Fungus on Chrysanthemum Leaves.—Some leaves badly spotted with a brown fungus were received and forwarded to Dr. M. C. Cooke for further examination, who reports as follows:—"The Chrysanthemum disease is the 'rust,' which I refer to *Uredo Hieracii*; but I cannot tell for certain until the Puccinia is found. I had it two or three years ago on leaves sent from Slough. It is capable of spreading, and I should destroy all the infected leaves by burning, if sprinkling with Condy's Fluid prove ineffective. It is better to sacrifice the entire plants, than for it to establish itself as a permanent pest, like the Hollyhock disease (*P. Malvacearum*), to which it is allied. It is impossible to give the cause, but probably infection from other plants."

Five-merous Eucharis.—A blossom of this plant, with its whorls regularly arranged in series of fives—most unusual for a monocotyledon—was received from Mr. E. Escombe. An examination revealed the fact that it originated in the coherence of twin flowers. The stem a short distance below the base of the inferior ovary contained very numerous and scattered fibro-vascular cords. Nearer the flower they became thirty in number, and so entered the base of the twin ovaries. These were united by a common wall, in which two of the cords normal to the ovaries were suppressed. Hence the superficial cords were now reduced to ten only. This number, therefore, laid the foundation of the supply for the four whorls (perianth and stamens) of five parts each. Apart from the two united ovaries of three cells each, and six rows of ovules in each cell, no trace of the twin origin was visible.

Chrysanthemum arrested.—Mr. E. H. Jenkins, of Hampton Hill, sent branches of the variety *Madame Desgranges*, in which the majority of the flowers were very small, with yellow petals on short stiff branches. There had been great difficulty in expansion from the bud. This was considered to be due to the excessive drought. The later flowers were nearly normal on slender pedicels. It was remarked that various kinds of Chrysanthemums had behaved in the same manner elsewhere, as well as other Compositae, such as *Rudbeckias*. The cultural care had been quite correct, but while one plant was a failure, another in the same pot was normal. Such cases are not uncommon, some individuals succumbing to a disease, while others, under the same conditions, may resist it. Mr. Jenkins asks if the form represents the original type. It does to some extent, being like the double form of the small *C. indicum* cultivated at the beginning of the century, and figured in the *Transactions of the Royal Horticultural Society*. It shows a tendency to arrest and reversion. The actual cause is obscure, but it would seem to be most probably climatal.

BRITISH MYCOLOGICAL.

OCTOBER 2 TO 7.—The Annual Meeting of the above society was held this year at Lyndhurst, Hants. Three of the members attended the meeting of the Scottish Cryptogamic Society the week before, for distance is no object when fungi are in view. These meetings of mycologists themselves testify to this. But some of your readers may ask, what is a mycologist? Gentle reader, mycologists are beings who appear only in the autumn, generally somewhat shabbily-dressed, but wearing stout, well-nailed boots. They carry baskets or tin boxes, and when two of them meet, converse with great vivacity in a language quite their own, in which the words *Hymenomycetes*, *Fries*, *volva*, *Agaricus*, *pileus*, and *mycelium* frequently occur.

The excursions on this occasion were under the guidance of the Rev. W. L. W. Eyre, who, duly equipped with baskets, waterproofs and whistle, led the party on the first day through some fine young Fir plantations. Tremellodon gelatinosum was the first find, followed soon after by a *Polyporus* on fallen Fir trunks; *P. spongiosus*, Fr., and *P. amorphus* quickly followed. In vain the leader blew his whistle, every dead stick and every rotten stump had to be examined. Miss Annie Lorrain Smith, of the Cryptogamic Department of the British Museum, who acted as referee for the "Micros,

lighted upon a bed of *Mycena Iris*, Berk., while another of the members was to be seen in the centre of a Bramble-bush calmly collecting the leaves, which, he maintained, were infected with *Phragmidium albidum*, a Uredine recently added to our flora. *Rhizoglyphus rubescens* was found in abundance on the pathway in company with great quantities of *Lactarius deliciosus* and other Fir-wood species. The visit was paid in the forest in the nick of time as far as fungi was concerned, recent heavy rains following a comparatively prolonged season of drought had brought fungi up in great profusion. The large number of Boleti found was a special feature of this meeting. Twenty species were met with, including several uncommon ones, such as *B. durinusculus*, *tenipes*, and *calopus*. Two species the present writer had never met with before, viz., *Boletus candicans*, Fr., figured by Saunders & Smith, t. 17, and *B. aeruus*, Bull.

Wednesday (October 4) proved a wet day, and the party consequently got thoroughly soaked. It was none the less a successful day, for Mr. Eyre lighted upon that truly beautiful—*Mycena*, *M. aurantio-marginata*, a plant of extreme rarity. *Cortinarius milvius*, Fr., was also met with, as well as *Sparasius crispus*; but what seemed to arouse the enthusiasm of the moist mycologists most was a magnificent crop of *Poronia punctata*. This is not so very rare a fungus, but is one none of us had seen growing in anything like such perfection before. On the subsequent days *Cortinarius raphanoides*, *Leptonia formosa*, *Russula cerules*, *R. lactea*, Fr., var. *incarnata* were found. Mr. and Mrs. Rea, unable to tear themselves away from these Elysian fields, stayed a few days longer, and found *Boletus flavidus*, *Irpex obliquus*, *Gomphidius gracilis*, *Hydnum cinereum*, *Poria umbrina*, *Polyporus Schweinitzii*, and many other good things.

In the evenings papers were read. First, of course, the address of the President, of which great things were expected—but it turned out (in his own opinion. Ed.) a terribly dry affair, although it was listened to with respect, and will no doubt find a prominent place in the *Transactions*; still, the summary of ten years' work amongst the Uredineæ is not a very lively topic for an after-dinner audience; but those who want to know what new species have been added to our flora, what life-histories have been worked out and so forth, will have to buy the forthcoming number of the *Transactions*.

Dr. M. C. Cooke was not able to be present: this we all regretted, because many of us were anxious once again to meet him and to let him know how we at least appreciated his half-century's work on this branch of science. He sent a poetical retrospect of old Woolhopean memories of—

"The years that are gone
When friendships were many and defections none."

In this the various members who used to attend these historical fungus forays were referred to, beginning with—

"The genial Doctor, everywhere so known,
Alas! too soon the Master claimed his own."

And Mr. O. E. Broome, so many years the colleague of the Rev. M. J. Berkeley—

"Learned and wise, but taciturn and slow
To offer judgment when he did not know."

And the

"Dear Canon, such a jovial parson he,
Like jolly monk of sage antiquity;
Canon and pipe are silent now. Alas!
Whom the Gods love—"

Dr. Cooke's communication, however, finished in a somewhat less pathetic strain—

"So fill your glasses for another toast,
Don't let the opportunity be lost,
Let it be bumpers as you close the book,
And just another hip for poor old Cooke."

Mr. Crossland's paper on "*Mollisia cinerea* and its Varieties," was a very carefully-prepared account of this obscure and difficult problem. Mr. T. Howse read a paper on "*Fungi in the Alps*," which made us all wish we were there under his guidance to gather some of the treasures he had found. Fortunately, the Rev. W. L. W. Eyre's "*Notes on Hampshire Fungi*" came as a corrective. He kindly had copies printed, which he distributed to the members, of his list of the fungi found by him in the county—and such a list it was! We felt after all there was no place like home.

It was decided that the invitation of the Scottish Cryptogamic Society should be accepted, and our next meeting be held under the presidency of Professor Marshall Ward, F.R.S., somewhere in the far North in the Pine-forest of Rothiemurchus. C. B. P.

THE LOUGHBOROUGH GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

OCTOBER 3.—The third annual exhibition of fruits and flowers was held in the Corn Exchange, Loughborough, on the above date, and a very fine display of "Hardy Fruits," in 385 dishes, was made by the members and other residents of the district.

Mr. H. MERRYWEATHER, of Southwell, Notts, staged forty dishes of Apples of great merit, amongst them being fine specimens of Peasegood's Nonsuch, Bramley's Seedling (very fine), Gascoigne's Scarlet Seedling, Prince Albert, Gold Medal, Royal Jubilee, The Queen, Bismarck, Lady Sudeley, Ecklinville, Cox's Orange Pippin (of very large size), and Lord Derby.

JAMES ELLIS, Esq., The Gynalls, Leicester (gr., Mr. Needham), showed sixty-five dishes of orchard fruit, and made a

useful object-lesson to fruit-growers, the fruit being of much excellence.

Amongst the members of the Association who contributed collections of fruits were the Rt. Hon. Lord BELPER, Kingston Hall, Derby (gr., Mr. W. English), seventy-four dishes Apples and Pears; HUSARY PACKER, Esq., J.P., D.L., Prestwold Hall, (gr., D. Roberts), fifty-two dishes Apples and Pears—of the latter, Pitmaston Duchess, General Todleben, Uvedale St. Germain, and Catillac, being very noticeable fruits; C. T. PARKER, Esq., J.P. (gr., J. Powell), fifty-five dishes of Apples, Pears, Siberian Crabs, and Plums; J. CLARKE, Esq. (gr., Mr. C. Hartis), contributed twelve dishes of excellent Apples, and very fine Marie Louise Pears. Messrs. Fitterton, Hickling, Smith & Son, and Tucker & Son contributed fruit to the Exhibition.

Messrs. J. SMITH & SON, Derby Road Nurseries, showed a very fine lot of Pompon and Cactus Dahlias, backed up with good, well-bloomed early-flowering Chrysanthemums, all making a most effective display. The Dahlias consisted of the most modern varieties, put up in triplets.

Mr. H. HICKLING staged *Gladiolus* spikes, eighteen varieties of Cactus, and thirty-six varieties of show Dahlias, he latter being of great excellence, especially the varieties Mrs. Saunders, Perfection, Mr. Chamberlain, Colonel, Mont Blanc, John Heckling, Mrs. Langtry, and Mrs. Kenda's.

In the evening Mr. E. A. Merryweather delivered a lecture upon "The Incidental Care of Fruit-trees, in order to produce the best Results." The lecturer dwelt on the proper preparation of the soil, its nature; planting, staking, and pruning, both root and branch; manures, insects injurious to fruit-trees; storing, and grading fruit for sale.

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT.

OCTOBER 4.—The sixth annual exhibition of fruit and honey was held at Ryde Town Hall on the above date. The exhibits consisted of over 400 dishes of fruit, which showed a marked improvement in quality over last year's exhibits.

The Hall was given a very nice effect by the intermixing amongst the dishes of fruit, plants of *Dracenas*, *Palms*, *Ferns*, &c., kindly lent by Mr. JOHN DIMMICK of Ryde. The exhibition, which was non-competitive, gave every exhibit an opportunity of receiving an Award according to its merit.

The principal exhibitors were Admiral Denison, Woodside, Wootton (gr., Mr. W. Taylor); J. J. Thornycroft, Esq., Steyne, Bemburgh (gr., Mr. T. Collier); Lady Daly, St. Wilfred's, Ryde (gr., Mr. Geo. Honeybourne); Lady Atherley, Landguard Manor, Shanklin (gr., Mr. S. Banks); J. O. Brook C.C., Ryde (gr., Mr. W. Spragg); W. H. Chatfield Clarke, Esq.; C. A. Cleveland, Niton (gr., Mr. H. Jacobs); and Messrs. H. Webber, W. Hillier, F. Orchard, R. Colenutt, J.P.; G. Lipscombe, G. H. Burt, T. Gibbs, C.A.; and Geo. Williams. Silver Medals were awarded to the exhibits of Admiral Denison, Mr. Thornycroft, Lady Daly, and Lady Atherley. A Bronze Medal was awarded to Mr. Geo. Williams.

A First-class Certificate was awarded Messrs. J. CHEAL & SONS, of Crawley, for a fine collection of fruit, consisting of over eighty dishes of Apples and Pears.

EDINBURGH FIELD NATURALISTS AND MICROSCOPICAL.

OCTOBER 7.—On the above date the members of this Society held their annual fungus foray in Niddrie grounds by the permission of the proprietor, Major-General Wauchope. A large number of ladies and gentlemen turned out for the occasion. The weather being fine, the woods looked lovely, dressed in their autumn tints. Owing to the dry summer, fungi were rather scarce, yet about twenty species were gathered.

Among the rarer of these were *Leptia rhacoles*, *Pluteus cervinus*, *Agaricus personatus*, *Polyporus hispidus*, *P. giganteus*, and *Lycoperdon saccatum*. The rarest of all, however, was the Jew's ear fungus, *Hirneola auricula Nida*, which was growing in profusion on Elder-trees. The fungus, in appearance somewhat like a human ear, is seldom found in Scotland, at least in the eastern part of the country. How the popular name of Jew's ear arose is not quite certain. It is said to be a corruption of Judas' ear, and the fungus is usually found on the Elder, generally on old trees. According to medieval tradition, Judas hanged himself on an Elder, with the result that his ear in the form of this fungus has been found on it ever since. It is also supposed that the name originated in the days when hatred against the Jews was a mania. The kings of England knew how to get money from the Jews when their Christian subjects refused it. At such times, the protection of the Crown was suspended from these money-lenders, and a Jew's ear was a very common adornment of the pillory. Then, when people came across this remarkable fungus sticking out from the bark of a tree, and having such a striking resemblance to the human ear, what more natural than they should liken it to the ear of a Jew, lopped off and nailed to the tree?

In dry weather the fungus shrivels up, and becomes hard and horny, but in wet weather it is soft and elastic, almost gelatinous. This sponge-like quality, combined with its edibility, has given it a value as an article of commerce. The Chinese, fond of all kinds of gelatinous animals and plants, from which they make their soups, are particularly fond of Jew's ears, and they import large quantities of an allied species from New

Zealand and the South Sea Islands. The quantity of this fungus exported to China is enormous, the annual value being upwards of £25,000. The plant requires no preparation for market beyond collecting and spreading it in the open air or in sheds for a few days to get rid of the moisture. When dry, it is packed in bags and shipped to China by way of Sydney and San Francisco.

Several fine old trees and some beautiful Conifers were observed in the course of the ramble over Niddrie estate.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

THE opening meeting of the autumn session of the Reading and District Gardeners' Mutual Improvement Association was held last week, when an interesting hour was spent on the subject of "Successes and Failures of the past Season."

This was opened by Mr. H. WILSON, gardener at Lower Redlands, and from the experience elicited from Messrs. Neve, Stanton, Bound, Townsend, Exler, Chamberlain, Woolford, Alexander, and Hinton, a good opinion was formed of the crops in the neighbourhood. Early Peas were good; the later crops in most places a failure. Beans fairly good, Potatoes good, Carrots good, Cauliflowers nearly a failure, Turnips similar, Lettuce poor, Onions very good, Spinach a failure, but a splendid substitute when this crop fails was found in Spinach-Beet. Fruit of better colour, and clearer than usual. Peaches (outdoor) very good, Plums very good, Pears very good, Apples very good, Cherries very good, Currants and Gooseberries excellent; Strawberries, some varieties, very good indeed. The best flowers to withstand the drought proved to be fibrous-rooted Begonias, *Godetias*, *Nemesias*, *Antirrhinums*, *Verbenas*, *Patunias*, and *Phlox Drummondii*.

The exhibits consisted of a splendidly-flowered Orchid, *Miltonia candida*, shown by Mr. LEVEX, gr., Hillside; a bunch of Sutton's Scarlet Queen Salvia, by Mr. E. FAR, The Gardens, Greenlands; and a grand specimen of Allriston Apple, weighing 1 lb. 10 oz., by Mr. FANEY, Balmore Gardens.

As it was the first meeting held by the Association since the death of Mr. James Martin, who had been a member since its formation, the President, Mr. C. B. STEVENS, referred to the great loss the Association had sustained by his death, and said that he had become one of the most practical men in his profession; there might be greater theorists, but more practical men none. He was a friend to every gardener, and it was his characteristic to impart to them the knowledge he had obtained. His death was a great loss to their Association, and to the great firm by whom he was employed. Messrs. Woolford, Stanton, Neve, Macdonald, and Dore also spoke to the great interest shown by the deceased in all things appertaining to their profession. It was suggested that some memorial should be raised, and it was decided to bring the matter forward at the next meeting.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

OCTOBER 13.—The members of the Committee present on the above date were Messrs. G. Shorland Ball, W. Thompson, J. Cypher, W. Stevens, W. B. Upjohn, R. Johnson, and P. Weathers, Sec.

S. GRATRIX, Esq., Whalley Range (gr., Mr. McLeod), showed *Sophro-Cattleya* × *Cleopatra* (*Sophronites grandiflora* × *Cattleya Leopoldi*), the flower in size was nearly as large as those of the latter parent, and was of an intensely dazzling bright crimson colour (First-class Certificate). *Cypripedium insigne Gratrixianum*, from the same collection, was simply a good form of *C. insigne*. *Cypripedium tessellatum porphyreum*, a portion of the original plant, received an Award of Merit; I have seen much darker forms, but the plant had been in flower for some time, which possibly accounted for its pale colour. *Cattleya* × *Ingrami* was also good, though it did not show the influence of *C. aurea* in the lip as well as I could have wished (Award of Merit).

W. THOMPSON, Esq., Walton Grange, Stone (gr., Mr. Stevens), had a magnificent *Odontoglossum* called *O. crispum* var. *Daphne*, which received a First-class Certificate. Mr. Stevens thinks there is the blood of *O. × Wilckeanum* in this plant. The markings are quite extraordinary, being a kind of brick-red, in which there is a tint of violet (see fig. 108, p. 307).

J. LEMANN, Esq., Heaton Mersey (gr., Mr. Edge), sent two *L. × Cattleya* hybrids, receiving an Award of Merit for *L. × C. Antimachus*, *C. gigas* × *C. Dominiana*.

G. SHORLAND BALL, Esq., Willmow (gr., Mr. Gibbons), sent a collection of plants, amongst which were some well-grown examples of *Oncidium tigrinum*, with huge growths and flower-spikes. A Cultural Certificate was awarded for these, and a First-class Certificate for a pretty plant of *Oncidium ornithorhynchum album*.

Mr. J. CYPHER, Cheltenham, showed *Cypripedium* × *Memoria Moensii*, which has already been awarded a First-class Certificate. This is certainly one of the best and most striking hybrids in cultivation, and it is a pity its exact parentage is not known.

Mr. A. J. KEELING exhibited a fine form of *Cypripedium* Charlesworthi, called *splendens*; a form of yellow *C. insigne*, which was not sufficiently developed to determine; and a fine form of *Laelia praestans magnifica* (Award of Merit).

Mr. W. B. UPJOHN, Worsley, showed a fine spike of *Cymbidium Traceyanum*, a form identical with that in Baron Schroder's collection, and much superior to most varieties of this species. P. W.

COVENT GARDEN. OCTOBER 19.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	a. d. s. d.		a. d. s. d.
<i>Adiantum</i> , p. doz.	5 0-7 0	Ferns, small, per 100	4 0-6 0
<i>ArborVita</i> , var., doz.	6 0-36 0	<i>Ficus elastica</i> , var.	1 6-7 6
<i>Aspidistra</i> , p. doz.	18 0-36 0	Foliage plants, each,	...
— specimen, each	8 0-10 6	each ...	1 0-5 0
<i>Crotone</i> , per doz. ...	18 0-30 0	<i>Heliconias</i> , each	15 0-105 0
<i>Dracenas</i> , var., doz.	12 0-30 0	<i>Lilium Harrisii</i> , doz.	30 0-40 0
— viridis, per doz.	9 0-18 0	<i>Lycopodium</i> , doz.	8 0-4 0
<i>Ericas</i> , var., per doz.	18 0-36 0	<i>Marguerite Daisy</i> ,	...
<i>Euconymus</i> , various,	...	per dozen ...	6 0-9 0
per dozen ...	6 0-18 0	<i>Myrtles</i> , per dozen	6 0-9 0
<i>Evergreens</i> , var.,	...	<i>Palms</i> , various, ea.	1 0-15 0
per dozen ...	4 0-18 0	— specimens, each	21 0-38 0
<i>Ferns</i> , in variety,	...	<i>Pelargoniums</i> , scar-	...
per dozen ...	4 0-18 0	let, per dozen	6 0-8 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	a. d. & d.		a. d. & d.
Apples, per bushel :		Lemons, Naples,	
— Kings ...	4 0- 6 0	per case of 420	22 6-30 6
— Ribston's ...	6 0- 8 0	— Malaga, case 200	9 0 —
— Blenheim ...	4 0- 6 0	— Messina, 360	14 0 —
— Nova Scotia		Lyches, Chinese,	
Gravenstein's,		new, pkts., 1 lb.	1 2 —
per barrel ...	13 0-16 0	Mangos, doz.	3 0- 5 0
— Cox's Orange		Melons, in cases	6 6 —
Pippin, bushel.	8 0-12 0	— English, each...	1 6- 2 0
— Waver's King,		Oranges, Teneriffe	
bushel ...	4 0- 5 0	case of 80 to 100	6 0- 7 0
— Wellingtons, bah.	4 0- 5 0	— Jaffa, case	10 0 —
Various Cooking,		— Lisbon, case	14 0 —
per bushel	1 6- 3 0	— Jamaica, case	10 0-15 0
Bananas, per bunch	8 0-10 0	— in barrels	22 0-23 0
Blackberries, 12 lb.	1 6 —	Peaches, A., doz.	18 0-24 0
— sieve of 34 lb.	3 0 —	— B., per dozen...	8 0- 8 0
Chestnuts, per bag	12 0-18 0	Pears, Californian,	
Cobnuts, per lb.	0 6 —	cases	7 0-10 0
Cranberries, case	11 6 —	— Catillac, Dutch,	
— kegs (Russian)	2 0 —	basket ...	8 0 —
Crustard Apples, doz.	6 0- 8 0	— French Duchesse,	
Figs, per dozen	0 9- 1 3	case	9 0-10 0
— Italian, in boxes	2 0- 3 0	— — crate	18 0-16 0
Grapes, English,		— Catillac, crate	12 6 —
Hamburg, lb.	0 9- 1 6	Pines, each ...	2 0- 5 0
— Alicante, per lb.	0 10- 1 3	Plums, English,	
Gros Colmar,		Prune, p. sieve	6 6- 7 0
per lb. ...	1 0- 1 6	— Californian,	
— Muscat, A.,		cases, 20 lb.	8 6-11 0
per lb. ...	2 0- 3 0	Pomegranates, case	
— Belgian, per lb.	0 4- 0 10	of 120 or 200	6 0- 7 0
— Channel Islands	0 6- 1 0	Walnuts, Grenoble,	
Lisbon, boxes	10 0 —	shelled, p. bag.	6 6 —
— White, Mercia,		— French, sacks,	
boxes ...	3 0 —	shelled...	8 0 —
— Almelra, bls.	15 0-25 0	— bags	4 9- 5 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	a. d. s.		a. d. s.
Artichokes, Globe, per doz. ...	8 0 - 8 6	Leeks, per dozen bunches ...	1 6 - 2 0
— Jerusalem, per sieve ...	3 0 - 2 6	Lettuces, French, Cabbage, dozen ...	1 3 - 1 6
Asparagus, Sprue, per bundle ...	0 10 -	— Cos, dozen ...	3 0 -
Aubergines, p. doz. Sesna, Channel Islands, Dwarf, per lb. ...	1 6 - 0 6 - 1 0	Mint, per dz. bnchs. Mushrooms, house, per lb. ...	3 0 - 0 10 - 1 0
— French Pkts., about 1 lb. ...	0 8 1 - 0 4	— outdoor, per lb. ...	0 5 - 0 4
Beetroots, new, doz. — in bush. ...	0 8 - 0 9 1 6 - 2 0	Onions, bags ...	4 0 - 4 6
Brussels Sprouts, p. sieve ...	2 6 - 3 0	— Onions, picklers, in bags ...	2 6 -
— per bushel ...	4 6 - 5 0	— Oporto and Valencia, cases ...	5 6 - 6 0
Cabbage, tally ...	5 0 - 7 0	— new, bunches ...	3 0 -
— dozen ...	1 0 - 1 6	Parley, per dozen bunches ...	1 0 - 1 6
— Savoy, p. tally ...	6 0 - 10 0	— per sieve ...	0 9 - 1 0
Cardons, each ...	1 9 -	Paranipe, dz. bunch. — bag ...	3 0 - 4 0 3 6 -
Carrots, new Eng- lish, doz. bun. — good, cwt. bags, washed ...	2 6 - 8 0 - 8 6 1 6 - 2 6 8 0 - 12 0	Pimento, per lb. ...	0 9 -
Cauliflowers, dozen — tally ...	2 0 - 1 0 - 1 4	Potatos, Hebrons, Snowdrops, &c. per ton ...	60 0 - 90 0
Celeriac, per dozen Celery, red, p. roll — white, doz. ...	2 0 - 1 0 - 1 4 1 0 -	Radishes, round, breakfast, per dozen bunches ...	1 6 - -
Colewort, p. bush. Uress, per dozen punnets ...	1 3 - 1 6 - 1 6 -	Salad, small, pun- nets, per dozen ...	1 8 -
Cucumbers, doz. ...	1 6 - 3 0	Salsafy, bundle ...	0 5 -
Endive, new French, per dozen ...	1 0 - 1 6	Seakale, doz. punts. Shallots, per lb. ...	18 0 - 0 2 1 -
— English, p. score ...	1 6 -	Spinach, New Zea- land, per peck — sieve ...	1 0 - 2 0 -
— Batavian, doz. Garlic, new, per lb. — per cwt. ...	1 6 - 0 2 - 18 0 -	Tomatos, English, per lb. ...	0 8 1 - 0 4 1
Horseradish, Eng- lish, bundle ...	2 6 -	— Channel Islands, p. lb. ...	0 2 1 - 0 3 1
— loose, doz. ...	2 0 -	— French, crate, of 20 lb. ...	2 6 -
— foreign, per bundle ...	1 0 - 1 3	— Canary, deepe ...	3 6 -
		Turnips, dozen bun. — cwt. bags ...	2 6 - 3 0 - 3 6
		Watercress, p. doz. bunches ...	0 4 - 0

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. & d.		s. & d.
Aran Lilies, dozen		Maidenhair Fern,	
blooms	6 0-8 0	do do do bunches	4 0-6 0
Asparagus "Fern,"		Odontoglossums, per	
bunches	2 0 2 6	dosen	4 6-9 6
Carnations, per doz.		Marguerites, P. doz.	
blooms	2 6-5 0	bunches	8 0-4 0
Cattleyas, per dozen	15 0-18 0	Mignonetta, dozen	
Bucharis, per dozen	4 0-6 0	bunches	4 0-6 0
Gardenias, per doz.	2 0-8 0	Roses indoor, per	
Gladioli Branch-		dosen	2 0-6 0
ensis, 12 spikes	4 0-6 0	— Tea, white, per	
Lilium Harrisii, per		dosen	2 0-8 0
dosen blooms ...	6 0-7 0	— Yellow, Perles,	
Lilium longiflorum,		per doz.	2 0-6 0
per dozen	5 0-7 0	— Safrano, per	
— lancifolium al-		doz.	2 0-2 6
bium, per dozen	6 0-4 0	Smilax, per bunch	2 0-4 6
— lancifolium ru-		Tuberosa, per doz.	
brum, per doz.	8 0-4 0	blooms	0 8-0 9

Ротатор.

Hebrons, Puritans, Main Crop, Up-to-Date, &c., 60s. to 90s. ;
John Bath, 32 & 84, Wellington Street.

REMARKS.—Brussels Sprouts and Cabbages are coming very good. Grapes and Walnuts are plentiful and good, at moderate prices. Apples remain about the same price, excepting superior samples. There were on sale to-day some home-grown Red Currants, of good sample, but there is no demand for them. The Cranberries in cases are of the Cherry shape; those in kegs the Russian, and are similar to Red Currants.

SEEDS.

LONDON: October 18.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that there were but few buyers on to-day's Seed market, and but little business was transacted. Meantime, Clover-seeds, all round, although quiet for the moment, keep remarkably steady in value. The most interesting feature this week is a further sharp rise in the price of Italian Rye-grass. Full quotations are maintained for Mustard, Rape, and Linseed. Canary-seed, with a strong undertone as regards value, is just now slow in demand; whilst Hemp-seed, with arrivals of new seed close at hand, comes cheaper. For Blue Peas, Haricot Beans, and Spanish Lentils, the tendency is upwards. The Board of Trade Returns give the imports of Clover and Grass-seeds into the United Kingdom for last month as cwts. 14,916, value £21,857, as against cwts. 10,593, value £32,805, for the same month of last year.



The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.)

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.		
	Above (+) or below (-) the Mean for the week ending October 14.	ACCUMULATED.			No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.	
		Above 49° for the Week.	Below 49° or the Week.	Above 49° difference from Mean since January 1, 1899.					
									Below 49° difference from Mean since January 1, 1899.
	Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths In.	In.			
0	1 +	38	0	+ 296	- 18	7 +	178	38.2	23
1	2 +	48	0	+ 143	- 5	5 -	169	25.1	31
2	0 aver	48	0	+ 272	- 95	4 -	139	19.5	32
3	2 -	57	11	+ 339	- 189	5 -	126	16.8	66
4	2 -	58	15	+ 311	- 128	4 -	123	20.1	55
5	8 -	58	7	+ 475	- 179	7 -	108	17.5	63
6	0 aver	43	0	+ 186	- 150	2 -	172	37.7	32
7	1 -	47	1	+ 535	- 147	2 -	152	28.1	47
8	2 -	55	3	+ 523	- 120	7 -	135	28.6	50
9	1 +	51	0	+ 275	- 73	1 -	178	28.4	47
10	0 aver	58	0	+ 401	- 53	3 -	146	39.5	51
*	1 -	78	0	+ 750	- 67	8 -	128	20.2	57

The districts indicated by number in the first column are the following:—

0. Scotland, N. *Principal Wheat-producing Districts*—
1. Scotland, E. 2. England, N.E.; 3. England, E.
4. Midland Counties, 5. England, including London.
- Principal Grazing, &c. Districts*—6. Scotland, W.
7. England, N.W.; 8. England, S.W.; 9. Ireland, N.
10. Ireland, S. * Channel Islands.

Mr. E. YOUNG, Foreman, Wadhurst Park Gardens, Sussex,
as Gardener to W. PARROTT, Esq., Biddlesden Park
Brackley.

Mr. R. BURTON, formerly of Norbury Hall, Derby, Woodside Garden, Darlington, and for the past three and a half years General Foreman at Spring Grove House Gardens, Isleworth, as Gardener and Bailiff to G. A. Hodson Esq., Smallwood Manor, Staffs.

Mr. THOS. SHARPE, late outside Foreman at Cullen House Gardens, N.B., as Gardener to R. M. LAMB, Esq., Clendon House, near Sunderland.

Mr. T. R. CUOKNEY, recently Gardener at Cloverley Hall, Whitchurch, Salop, and previously Gardener at Eden Hall, Penrith, as Gardener to the Earl of DARNLEY, Cobham Hall, Gravesend, Kent.

Mr. B. CALVERT, for the past five years Head Gardener at Hallingbury Place, Bishop's Stortford, as Gardener to **Mrs. FLETCHER**, Oak Lawn, Edenbridge, Kent.

Mr. F. COMLEY, late Gardener to **HERBERT WESTROP, Esq.**, of South Lodge, Enfield, as Gardener to **G. J. GRANT, Esq.**, Beaumont Manor, Wormley, Herts.

Mr. C. ALLEN, late Foreman at Berry Hill Gardens, Taplow,
as Gardener to Mrs. MIDDLETON, Haselbeech Hall
Northampton.

Mr. CHAS. DAVENPORT, late Gardener at Marshall's Park, Romford, Essex, as Gardener to Mrs. GOAD, Hackbridge House, Carshalton, Surrey.

Mr. T. T. SHEPPARD, formerly in the gardens at Belvoir Castle and Welbeck Abbey, as Gardener to A. B. MARKHAM, Esq., Stuyvesant Hall, Mansfield, Nottinghamshire.

Mr. A. HAMMERS, for the last fourteen years Head Gardener at Beaumanor Park, near Loughborough, Leicestershire, has been appointed by the Asylum Committee of the Corporation of Leicester to the management of the gardens, farm, and grounds of the Borough Asylum, at Humberstone.

Mr. ALEXANDER McVINISH, late Gardener at Lockington Hall, Derbyshire, succeeds Mr. Hamshire as Head Gardener at Beaumanor Park, Loughborough.

Mr. PETER HARPER, late Head Gardener at Althorpe, Inverness, and in a similar position previously at Westerlie, St. Andrews, and D. Jenan Ali Rais, El Biar, Algiers, as Foreman Gardener to MALCOLM INGLIS, Esq., Montrose, Donnybrook, Co. Dublin.

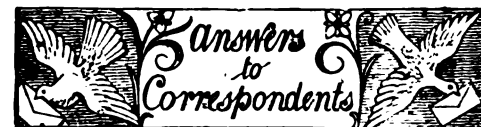
Mr. ROBERT MILNE, late Foreman in the gardens of Montrose, Donnybrook, as Head Gardener to Sir JOHN DILLON, Bart., Lismullen, Navan, Co. Meath.

Mr. F. FLOOD, for the past fourteen years Head Gardener at Wichnor Park, Burton-on-Trent, as Head Gardener to E. A. LEATHAM, Esq., Misarden Park, Cirencester, Gloucestershire

Mr. EDWARD REID, formerly at Houndswood, Capel Manor, and Wood End Gardens, as Gardener to S. J. GIBBONS, Esq., Grove House, Northfleet, Kent.

Mr. A. SUTHERLAND, for the past two years outside Foreman at Houston House, Renfrewshire, N.B., as Gardener to Surgeon Lieutenant-Colonel JOHNSTONE, Newton Dee, Aberdeen, N.B.

Mr. J. A. ROOKER, several years Foreman and Decorator in the gardens for Mr. A. DE ROTHSCHILD, has succeeded Mr. HERRIN as Head Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead, Bucks.



AREA OF LAND TO PROVIDE VEGETABLES AND POTATOS FOR FIFTY PERSONS : W. H. N. Nothing under 6 acres. Number of men : five men, and in summer two women or boys. If horse implements be used in cultivation, three men would suffice, provided there are no wall-trees, glass-houses, or much forcing to be done.

BANANA CULTURE: *Anxious.* See our Calendar for "Fruits under Glass" in the present issue.

BEGONIA GLOIRE DE LORRAINE: *J. B.* Your plants are now showing bloom, or should be, and may therefore be removed to a light house, having an intermediate temperature. This beautiful Begonia delights in considerable heat and moisture during the period when growth is being made. The amount of syringing done now must be determined by circumstances, but you are more likely to do harm than good by frequent applications. You may shade from bright sunshine.

BOOKS: *W. T. W.* We are unable to advise you. Why undertake to give lectures when you know so little of the subject?—*C. A. B. Watson's Cactus Culture* (Upcott Gill); *Manures*. By A. W. Crews, the *Field Office*; and *Artificial Manures*. By Alf. Sibson, to be met with at the second-hand book-shops. There is no modern work on table decorations that we know of. The best forestry work is Dr. Schlich's *Manual of Forestry*, four vols. ; then there is *The Forester*, by Brown & Nisbet, published by W. Blackwood & Sons; and for Orchid cultivators get *Williams's Orchid Manual*, published by the author, Paradise and Victoria Nurseries, Upper Holloway, N.

CHRYSANTHEMUM: T. B. P. P. You selected the buds rather early—a circumstance that usually

tends to coarseness in the flowers; but the difference is not sufficient to wholly account for the condition of your plants. It is a very delicate matter in the culture of such plants as the *Chrysanthemum* to feed as highly as possible without bringing about the penalties attending "over" stimulation.

CORRECTION: In Mr. Young's *Orchid-house Calendar*, in our issue for October 7 last, he was made to say that the *Orchid-pots* should be washed with soft-soap and hot water. This we desire to correct, soft-soap being rather injurious to the roots of *Orchids*, and scrubbing hardly less so.

CUCUMBERS: *Old Subscriber.* Assuming that you are that which you sign yourself, and have read your *Gardeners' Chronicle* carefully, you should not stand in need of any instruction in cultivating the *Cucumber*. Pray examine back numbers for calendarial directions. The cultivation of the plant is, in the main, the same in private as in market gardens.

CYCLAMEN: *H. E. G.* The grub eating your *Cyclamen* is that of one of the weevils. They are extremely destructive, and difficult to catch. You might try the effect of applying clear lime-water. The soil used is infested with them, and should be baked before making use of it in potting plants.

EXHIBITIONS FOR POTATOS: *J. N.* You may exhibit tubers in competition at many of the larger *Chrysanthemum* shows to be held during this month and next; for instance, at the National *Chrysanthemum Society's*, to be held at the Aquarium on November 7, 8, and 9 (for prizes offered by nurserymen); at Edinburgh, November 16, 17 and 18; Birmingham, Southampton, &c. In each number of *Gardeners' Chronicle* we give a list of shows for the week; and at the commencement of each month a list is given of the principal shows that will occur during that month.

FERTILISATION OF ASPIDISTRA FLOWERS: *T. J. D.* The fertilisation is effected by slugs.

FRUIT-TREE STOCKS: *C. A. B. K.* See issue for March 9, 1889. Mr. G. Bunyard's paper, read at Rochester Farmers' Club, Maidstone. The most important papers on this matter appeared in the *Gardeners' Chronicle* on the following dates, April 24, 1869; June 28, 1873; and April 25, 1874.

NAMES OF FRUITS: We are most desirous to oblige our correspondents as far as we can, but we must request that they will observe the rule that not more than six varieties be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. They should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of *Plums*, abolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.—*G. J., Maidenhead.* 1, Tower of Glamis; 2, Minshall Crab; 3, Golden Winter Pearmain. Pears: 1, Fondante de Malines; 2, Beurré Bosc.—*G. W.* 1, Caroline; 2, Winter Greening.—*M. A.* 1, Unknown; 2, Norfolk Beefing; 3, Sialy's Mignonne; 4, Broughton; 5, Yorkshire Greening; 6, Calville Malingre.—*G. I.* 1, Prince Albert; 2, Round Winter Nonsuch; 3, Mère de Ménage; 4, Winter Greening; 5 and 6, not in condition, they will be named later if the specimens mature.—*X.* 1 and 5, probably local varieties; 2, Broad-eyed Pippin; 3, Ribston Pearmain; 4, Greenup's Pippin; 6, Calville Blanche d'Hiver.—*G. S.* 1, 2, and 3, quite rotten; 4, Beurré Duquesne; 5, Forelle.—*J. S.* Winter Queen, the Reine Sophie of continental growers.—*R. W. R.* Not Glou Morveau; it is a poor example of Beurré d'Arenberg, which is sometimes confounded with the above variety.—*H. H.* 1, Cobham; 2, Alfriston; 3, Tower's Glory; 4, Golden Russet; 5, Golden Pippin; 6, Winter Strawberry.—*G. H.* 1, Such a small, imperfect specimen cannot be identified; 2, Hoary Morning; 3, Graham; 4, Golden Russet; 5, Parry's Pearmain; the Pear was decayed.—*A. G. B.* 1, Reinette Carpentier; 2, Yellow Ingestre; 3, Not known; 4, Herefordshire Pearmain; 5, Ross Nonpareil; 6, Dr. Harvey.—*G. R.* 1, Beurré Luizet; 2, Beurré Blanc des Capucines; 3, Comte de Flandres.—*J. K.* Yellow Admirable Peach.—*G. H. P.* 1, Herefordshire Beefing; 2, Duchess's Favorite.—*A. O. C.* 1, Lemon Pippin; 2, Herefordshire Beefing; 3, Bess Pool; *C. H.* Your fruits resemble the Sack or Spice-apple.—*G. T.* 1, Pitmaston Nonpareil; 2, Lord Derby.—*Monmouth.* 1, Golden Harvey; 2, Petworth Nonpareil; 3, Not known; 4, Nonpareil; 5, Radford Beauty; 6, Hoary Morning.—*W. T.* 1, Pineapple Pippin; 2, Castle Major; 3, Nonpareil Russet; 4, Dumelow's Seedling; 5, Greenup's Pippin.—*Enigma.* 1, Tyler's Kernel; 2, The two fruits sent under this number differ in so many characters that we shall keep them until we hear from you that there has been no confusion; 3, which you say is "a seedling on its own roots," appears to us to resemble Caroline—not Queen Caroline, which is a distinct variety. If you are writing again please describe the habit of the tree.—*X.* 1, Golden Winter Pearmain, generally known as King of the Pippins; 2, Hornmead's Pearmain; 3, Lord Derby; 4, Scarlet Nonpareil.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*Young Gardener.* *Pyrus* Aria (white Beam-tree).—*H. Watson.* 1, *Myrica cerifera* ♂; 2, *M. carolinensis*; 3, *Populus tremula*; 4, *Viburnum Opulus*; 5, *Crataegus tomentosa*.—*Thos. Wakeford.* 1, *Zygopetalum Maokayi*; 2, *Platanus acerifolia*; 3, *Cedrus atlantica glauca*; 4, *Abies Pinsapo*; 5, *Cupressus macrocarpa*; 6, *Cupressus*, probably *macrocarpa* also, a vigorous top-shoot.—*A. B.* 1, *Cupressus nootkatensis*; 2 and 3, forms of *Thuja orientalis*; 4, *Thuja occidentalis*; 5, *Cupressus Lawsoniana*; 6, *Juniperus virginiana* (a state of).—*Eaton.* 1, *Crataegus orientalis*, probably, send fruits; 2, *Pavia* (*Æsculus*) *macrostachya* fruits; 3, *Caryopteris mastacanthus*.—*W. C. L.* *Acer platanoides*, the Norway Maple.—*A. C. B.* 1, *Pinus Montezumae*; 2, *Abies grandis*; 3, *Picea Morinda*; 4, *Cupressus* (*Retinospora*) *obtusata*; 5, *C. Lawsoniana*; 6, *Retinospora plumosa* of gardens, a form of *Cupressus pisifera*.—*G. B.* *Solanum jasminoides*.—*X. I. R.* 1, *Galega officinalis*; 2, *Hippophae rhamnoides*; 3, *Pyrethrum serotinum*; 4, *Leycesteria formosa*; 5, *Veronica Teucrium*; 6, *Crataegus coccinea*.—*Enquirer.* 1, *Solanum jasminoides*; 2, *Buddleia Lindleyana*.—*A. J. L.* *Yucca gloriosa*.—*T. W.* *Datura Stramonium*, a poisonous weed used in medicine. It frequently comes up with foreign seeds.—*A. B.* One of the varieties of the Japanese *A. polymorphum*.—*X.* We name some of the enclosed specimens as well as we can from the miserable scraps sent, but remind the sender that he has transgressed two rules; first, in requiring an answer by post, and next in sending more than six specimens. It would be impossible to conduct the *Gardeners' Chronicle* if these rules were systematically disregarded. The specimens sent are not only bad, but more than one bear the same number. A donation to the *Gardeners' Orphan Fund* would be some compensation for the trouble and loss of time occasioned. 1, *Pseudotsuga Douglasii*; 2, *Abies excelsa*, probably; 3 and 4, *Cupressus Lawsoniana*; 5, *Thuja gigantea*; 6, *Acer Negundo variegatum*; 7, *Veronica Traversii*; 8, *Ligustrum lucidum*; 9, *Lonicera Xylosteum*; 10, *Thuja gigantea*; 11, *Crataegus coccinea*; 12, *Eleagnus hortensis*; 13, *Prunopitys elegans*; 14, *Cupressus Lawsoniana*; 15, *Phillyrea angustifolia*; 16, *Spiraea Douglasii*; 17, *Spiraea opulifolia*; 18, *Ribes aureum*; 19, not found; 20, not recognised; 21, *Spiraea* sp.; 22, *S. Thunbergii*; 23, *Acer circinnatum*; 24 and 25, *Spiraea callosa*; 26, *Spiraea* sp.; 27, not found; 28, *Tsuga canadensis*; 29, *Acer platanoides*; 30, *Lonicera flexuosa*; 31, *Cupressus Lawsoniana*.—*C. S.* 1, *Aralia* sp.; 2, *Harpalum rigidum*; 3, *Helianthus* species; 4 to 10, perennial *Asters*. Impossible to be named from memory; take them to some nursery where there is a named collection; 11, *Spiraea Douglasii*; 12, ?; can you not send other specimens? Those before us are withered beyond recognition. Never send more than six. It is not our business to name plants, though we are anxious to oblige so far as we can consistently with our duties.—*Ben. Reid & Co.* Not recognised.—*E. M.* *Crataegus coccinea*.

PINE-SHOOTS DESTROYED: *R. S. Margatta.* The injury is the work of the Pine-beetle, *Hylurgus piniperda*. The beetles propagate in decaying brushwood and thinning, consequently such rubbish should be cleared out of all Fir planta-

tions. The beetles ascend the trees and commit great ravages; dressings of bark, trimmed from felled trees should not be left in the plantations, but should be burned forthwith. Sickly trees, likely to harbour the insects should also be removed. The plantation being a young one, you might try what a syringing with Paris Green would do in clearing the trees, in the proportion of 1 lb. to 120 gallons of water, keeping it stirred constantly whilst being used.

PLANTS FOR A WARM BORDER: *W. H. R.* All kinds of *Lilies*, *Gladioli*, early and late-flowering species and their varieties. *Tritomas* in variety, including *Leichtlini*, *nobilis*, *corallina*, *Pfitzeri*, *Rooperi*, *Uvaria* and *U. glaucescens*; *Verbascum Chaixi*, *V. olympicum*, and *V. phoeniceum*; *Trollius* of species, with yellow and white flowers, good for the front row; *Tradescantia virginica*, *Spiraea filipendula* fl.-pl., *S. palmata*, *Sedum spectabile*, *Scabiosa caucasica*, *Romneya Coulteri*, *florists'* var. of *Pyrethrum*, and *Potentilla*, many species of *Primula*; *Plumbago Larpentæ*, *Polemonium Richardsoni*, *Polygonum* of species, *Pentstemon* species, and *florists'* var.; prostrate *Phloxes*, and *florists'* var.; *Monarda didyma* and *M. fistulosa*, *Eurothera Pilgrimi*, *E. Youngi*, &c. *Megasea* of species, *Lychnis* of species, *Incarvillea Delavayi*, and *I. Olga*; *Lathyrus* of species, and *Malva moschata alba*, *Iberis coriariaefolia*, and others; *Hemerocallis* in variety, *Eremurus Bungei*, and others; *Erigeron* species, *Doronicum* species, *Dielytra spectabilis*, *Crinum capense*, *C. Powellii*, and others; and many more plants equally suitable. The summer display could be helped out with *Annals*, such as *Aster* of various types, *Sweet Peas*, *Coreopsis*, *Scabiosa*, *Salpiglossis*, *Stocks*, &c. *Cannas*, *Dahlias*, *Chrysanthemums*, *Pelargoniums*, tuberous *Begonias*, &c., could be employed.

POTATOS: *W. H. S.* The tubers have probably been attacked by a mite, the irritation caused by which has induced the formation of the corky warts on the surface.

SHOWER BOUQUET: *Anxious.* A figure of a shower bouquet is given at p. 213 of our issue for September 9, 1899.

THE QUANTITY OF GRAVEL REQUIRED FOR COVERING A WALK ONE INCH THICK: *Celsa.* Multiply the length and breadth in inches, and divide by 48,656, the number of inches in 1 yard.

TOMATO DISCOLOURED: *X.* A single Tomato gives little chance of accurately determining the cause of yellow patches. In this instance the fruit was sound, even where yellow, except at the insertion of the calyx. There a fungus-mycelium was present, and slightly affected the tissues. The fungus has probably come from the stems of the plant, but in absence of any stems, leaves, or roots, nothing more can be said. All parts of a plant must be seen before recommending treatment.

VINE-LEAVES TO PRESERVE WITH THE GREEN COLOUR INTACT: *Grape Leaves.* This cannot be done. The leaves must be taken when full grown and matured, but not possessing the autumnal tints. They must be exposed to the fumes of sulphur in a close box, having an air inlet to allow of the combustion of the sulphur, which latter, after burning a quarter of an hour should be withdrawn and the inlet closed. The next day the leaves should be taken out of the box and laid flat on sheets of paper, and dried gradually under pressure. To prepare a green colour, dissolve in ten quarts of boiling water 150 grammes of alum, and then the colouring matter in quantity so as to give the desired tint, together with a small quantity of Picric acid, according to the shade required. The leaves must be laid on a wooden float and allowed to simmer till the desired tint is obtained. Picric acid is poisonous, and affords a beautiful shade of yellow, and is useful for giving the required shade to the green dye. This sort of work requires a good deal of practice to enable the operator to obtain satisfactory results.

COMMUNICATIONS RECEIVED:—*Wells & Lewis.*—*C. C. H.*—*R. G. W.*—*Attwood & Co., Ltd.*—*E. G. B.*—*R. W. P.* & *Sons.*—*B. J. G.*, Liverpool.—*W. B. H.*—*A. D. H.*—*T. M.*—*M. D.*—*B. C. R.*—*W. B. H.*—*Cork.*—*D. T. F.*—*G. B. M.*—*J. Mayo*, Wellington, N.Z.—*A. O'Neill.*—*W. J. G.*—*E. C.*—*D. W. Thomson.*—*G. H.*—*A. H.*—*R. E. C.*—*J. H.*—*W. Camm.*—*G. P. J.* & *Sons.*—*P. W. Hayes.*—*J. E. A. B.*—*J. Waterer & Sons.*—*C. W. T.*—*C. L.*—*A. R. E.*—*A. G.*—*M. C.*—*E. M.*—*X.*—*W. C. P. C.*—*Disease.*—*E. J. MoC.*
PHOTOGRAPHS RECEIVED WITH THANKS FROM:—*J. Fleming*



THE

Gardeners' Chronicle

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FRIAR PARK, HENLEY.

THE RESIDENCE OF FRANK CRISP, ESQ.

SOME of the most picturesque and lovely views obtained on the Thames, are in the district on either side of Henley, a town known by name at least over the whole world in connection with the greatest and most fashionable of British regattas. It is not a matter of surprise, therefore, that the district contains some magnificent gardens.

The natural advantages possessed by the neighbourhood have in a large measure been utilised by the erection of country-houses, that in their turn render this beautiful Oxfordshire valley further interesting from our point of view. Thus, there is Park Place, the delightful residence of Mrs. Wilson Noble; Greenlands, the home of Mr. W. F. D. Smith, M.P.; and others.

Friar Park, the particular establishment with which for the present we are concerned, is the residence and property of Mr. Frank Crisp, the genial and popular Treasurer to the Linnean Society of London—a gentleman whose liberality is as great as his capacity and enthusiasm for work are astounding.

To reach Friar Park from the Henley railway-station, you must needs turn your back upon the Thames, and walk or ride, the former preferably, through the quaint little town, and part of the way up a considerable bank. When you have come barely more than half a mile, there may be seen a carriage-drive upon your right. On a bank by the important-looking gates may be noticed some well-coloured specimens of Golden Privet, and immediately through the gates on the left is an imposing lodge—one of the prettiest from an architectural point of view that we have seen. This handsome little house is occupied by Mr. Crisp's steward and gardener (Mr. Philip O. Knowles), who, when Mr. Crisp bought this place, came to Friar Park, eleven years ago, from Greenlands, and for his first responsible charge has had the making, under the direction of Mr. Crisp, of one of the most remarkable gardens in the country. The proprietor of Friar Park is nothing if not thorough. He is not content with any second-rate production, and if there arises a suspicion when something has been completed that the work would have been better done by another method, or that a better effect was possible, the work is most likely commenced again without hesitation. It is whispered that the house at the entrance-gates was not always as it is to-day, and that it has been twice built. Be that as it may, it should be some satisfaction to Mr. Knowles that his house is so far removed from the reproach of the jerry builder, that it was constructed at an expenditure of something like £3000.

THE MANSION.

But if the entrance-lodge is so remarkable, what shall we say of the mansion? It is reached from the road by a twice-curved and

ascending broad drive, which approaches the house on the south side. There are few such buildings as that at Friar Park, and if Mr. Crisp is proud of it, so ought he to be. We could not, and fortunately we need not attempt to, describe its florid architecture, which is in the late Gothic style, carried out in part stone and part brick, but delightfully relieved and adorned by skilfully-carved stone, because in our Supplementary-sheet is reproduced an excellent photograph of the building, taken by Messrs. Marsh & Son, of Henley, who have taken all the photographs illustrative of this article. From that illustration our readers may form a very good idea of the general effect, and even of the more important details of Mr. Crisp's residence. But of the very numerous representations of friars in stone upon parts of the building, a knowledge could be obtained only by a careful inspection of the building itself, and such an inspection would not only prove to be very fascinating, but by its means, one would see reflected in the figures, and in certain remarkable instances of optical delusion that are illustrated by carved stone, the humour characteristic of the proprietor of Friar Park.

GENERAL FEATURES OF THE GARDEN.

At the time the building of the mansion was completed, Mr. Crisp did not possess the amount of land around the site that he now owns, and this circumstance explains a number of alterations that have been made in the gardens during the past five years. At various times additional meadows have been purchased, until at this date Mr. Crisp has ninety acres surrounding his residence.

Not all of this, however, has yet been laid out as a garden, and a small part of that most recently acquired is upon the opposite side of the public road. But the garden is now, and will be when the improvements that are being made have been completed, sufficiently large, varied, and interesting to be a fitting "setting" for such a mansion. Of variety, scarcely more could be provided than Mr. Crisp's love of completeness has already caused to be represented there.

A huge rockery, carried out in accordance with Mr. Crisp's desires, is more than sufficient in spring to interest a sympathetic visitor for the whole of one day. A pinetum that includes about 100 varieties of Conifers has been formed; a collection of Conifers also that have been trained and cut into endless imitative and fantastic shapes, and interspersed with an unique collection of old sun-dials from all sorts of sources. A formal Dutch flower-garden, as prim and model-like as possible, and a delightful herbaceous garden, just as homely-looking as the Dutch is cold in appearance; bowers, arches, and wigwags, covered with Roses; a beautiful lake, and its associate, a bog garden; a maze that when a little older will be sufficiently puzzling for the best of us; shady walks; a Rhododendron-garden planted as will be described presently; plenty of choice trees and shrubs, as specimens and as small groups, placed in positions dictated by good taste and experience; a kitchen garden sufficient to supply the needs of the family; hot-houses for the cultivation of fruits and plants; and last, but not least, a series of wonderful caves that form a fitting complementary feature to the rockery. All these stamp the place with a degree of interest to the bulk of visitors which is lacking in most gentlemen's gardens.

When making an inspection of Mr. Crisp's

garden, after passing through the gates to the drive, the visitor turns along a path to the right, along an exceptionally shady walk quite overhung with Chestnut and other trees, leading to a "root walk," or a path lined with great roots, and near to a high bank that has been made there.

THE LAKE, &c.

Presently the bog-garden comes into view, here Irises and other semi-aquatic species of plants and Ferns have been planted, but this feature will be largely extended.

The bog-garden adjoins the lake (see fig. 107, p. 322), a pretty piece of water, containing an island that adds very considerably to the charms of the scene. The outlines of island and lake are informal, and the planting that has been done accentuates the points of beauty. The Bamboos will be very appropriate when they have grown to a greater size, and in a sheltered situation a group of plants of *Eucalyptus Globulus* have been unharmed during three winters. To-day the lake is a conspicuous and effective feature of the gardens, and it takes one by surprise to be told that it is quite of artificial make, and that upon the same site was once a private residence. The change has been brought about by the well-known firm of Messrs. Pulham & Son, of Broxbourne, who are responsible for several very artistic pieces of work at Friar Park, both with the famous Pulhamite, and in other matters relating to water and rockwork.

HERBACEOUS FLOWER GARDEN.

Near to the lake a charming flower-garden is entered, followed by another, not prim or formal ones, but gardens of herbaceous perennials, where the beds are full of Roses, Lavender, Tritomas, Lupins, and other hardy plants. Very narrow gravelled walks intersect some of these beds, and they are edged with Box, a somewhat curious feature in so charming a garden. The site was evidently at one time a fruit-garden, and some of the fruit-trees have been wisely left, for it is absurd to suppose that where usefulness exists there can be no beauty. The walks are very interesting, because of the curious manner in which they have been designed to lead the visitor unsuspectingly to certain corners and features, almost as a series of "surprise packets." If there is anything particularly charming, be sure you will not discover its existence until you are quite upon it, for it is not intended that you should do so.

In one of the gardens just described is the iron or wire archway, illustrated in fig. 108, p. 323. The arches form a cross, with a dome in the centre, and although they were only erected about three years ago, the greater part of the frame-work is now nicely covered with Honey-suckles, *Clematis montana*, Roses (especially the variety William Allen Richardson, a favourite Rose of Mr. Crisp's), and Turner's Crimson Rambler. Our photograph was taken from the end where Crimson Rambler has been planted, and when the exceedingly vigorous plant is in flower the prodigal display of crimson bloom produces an effect not easily forgotten.

SUN-DIALS AND CLIPPED CONIFERS.

What a change there is from the garden just described to that of the old English garden, full of Conifers and other trees trained in imitative and grotesque shapes, and interspersed with old and curious sun-dials! The latter are perhaps more remarkable than the trees, for it is doubtful if a larger collection exists. One of

these bears the date 1657. Another one, apparently very old, consists of a stone slab, supported by an American eagle; whilst a third is said to be made from a piece of old London Bridge.

The illustration on p. 325 (fig. 109), shows a few of the clipped trees, but these are not more than a fifth part of the collection. In the illustration there is a very fine specimen of a spirally-trained tree, and two representations of sheep. In the whole collection there are endless varieties of shapes, such for instance as afternoon tea-tables, peacocks, presentation-cups, columns, pyramids, and ovals. There are excellent specimens of standard plants of *Retinospora* worked upon 5-feet high stems of *Cupressus Lawsoniana*. The shape of the tree thus worked resembles that of an umbrella. It is a fact that many gentlemen who have lately made new gardens have included larger or smaller collections of fancifully-cut trees, and nurserymen have received unusual demands as a result of this tendency to re-introduce into English gardens a feature that was at one time exceedingly popular, but that was subsequently the object of almost universal ridicule. But a long period must elapse before such a garden recently planted will give effects similar to those at present existing at Levens Hall or Elvaston Castle.

THE PINETUM AND RHODODENDRON DELL.

The collection of Conifers is planted on a slope to the north, and from this site there is a glorious view of the surrounding country, where the counties of Berkshire, Oxfordshire, and Buckinghamshire meet. Part of the range of the Chilterns forms a prevailing feature in this landscape, and in the nearer valley there is an old dyke that runs from Oxford, as well as a road from Henley to Oxford, which is perfectly straight for a mile of its length, and passes through an avenue of fine Elm-trees. From the same point of view may also be seen the cottagers' allotments, upon a piece of ground lent by Mr. Crisp to the town of Henley for a period of fifteen years. It will be in future years that the Pinetum will be most interesting, for as yet the plants are all young, but in the one hundred or so species and varieties that have been planted there are some very choice ones, that will make the collection remarkable. We hope that the Conifers will succeed, and there is no doubt but they have been planted on the best available spot.

From the top of the pinetum there runs a "Pine-walk," dividing this from the herbaceous garden. The path between these hardy old Pines is only about 6 feet wide, and the walk is near upon 200 yards long. What a glorious retreat from a midsummer's glaring sun!

The Rhododendron-garden forms a pretty bank on one side of a dell, and the plants are succeeding admirably. We saw them when some of the choice varieties were in bloom, and the effect was gratifying. A path commences at the top of the bank, and winds backwards and forwards until the base is reached; and as the Rhododendrons are planted on either side this path, it is possible to conveniently inspect each of the plants without traversing any part more than once. The effect of the whole garden can be seen equally well from the top or at the foot.

THE FLOWER-GARDEN AND EAST FRONT.

There is a primly-designed flower-garden at the east front of the house, and being contiguous to the architecture of the magnificent building, there is the less reason to criticise its pronounced artificial characteristics. The geometrical flower-beds, each edged with Box, and the walks red with finely-broken bricks, may be less tasteful to some of us than the herbaceous garden already mentioned; but as a feature merely of the whole garden, and as the means of bridging over the

extremes shown by the architect and the "free-hand" gardener, this more formal style may be admired.

There are, happily, no rude inconsistencies in the present case, and nothing to mar the harmony of the view. During the summer the beds have been bright with showy, neat-habited, flowering plants, that Mr. Knowles has attended to exceedingly well. In this garden there is a very beau-

than this, the system of construction is a bold one, such as will give its best effect when it has existed for some years. This is no ordinary rock-garden with a path down the centre, and banks on either side; it is more like a model "Alps;" it stretches over a great space of ground, and there are represented in it mountains of greater and lesser height, valleys, mountain-passes, the stepping-stones of which may be seen in the illustration;



FIG. 107.—VIEW OF THE LAKE AT FRIAR PARK (SEE P. 321.)

tiful fountain carved out of Portland stone; while the east front is further decorated with two great copper cranes.

THE ROCKERY.

The thoroughness that has characterised all the work at Friar Park is very conspicuous in the construction in so fine and complete a rockery. If the reader turns to the illustration of this on our Supplementary-sheet, it may possibly be thought that it presents a somewhat unfurnished appearance. It must be remembered, however, that the Rockery has been made and planted but recently. More

rustic alpine bridges, overlooking quite formidable precipices; a waterfall, &c. The waterfall commences at the highest point in the rockery, and after winding and twisting in innumerable directions, for a moment conspicuous, then hidden for a time, at last runs into a small pool surrounded by a little greensward at the lowest point. The rockery has a range in height of from 30 to 40 feet. Then, as remarked above, the construction is bold, and not of comparatively small stones or artificial stone, that can be hidden by a season's growth. It is made with good solid Yorkshire stones, and over

2000 tons have been brought to Friar Park from Leeds. One of these stones that weighs 6½ tons is a somewhat conspicuous object, and in a rockery will remain such for some years. But the manner in which the stones have been placed—a most natural one—and the method adopted in planting, will in time bring about a fully furnished appearance, and one that would not be possible in the case of less bold construction. Fortunately a common error in the formation of rockeries has been avoided; there has been provided ample space

intendence of Mr. Knowles, and for this work the Guildford Hardy Plant Company have been called upon to supply an immense number of plants, including all the choicest species this firm could furnish. It says something for the nurseries from whence the stock has been obtained, as it does also for the manner in which the planting has been done, that all of the species so far as our observations went, are flourishing to a surprising degree. We were struck with the evident vigour of numberless plants, and

feet in breadth. The collection of plants is so large, that it would serve no purpose to enumerate a portion of them in this general description. The choicest as well as the commonest species have been planted, including some of the best of the hardy Orchids. We may add, however, especially in the light of what has been said respecting the bold construction of the rockery, that situations have been found for Sweet Briars, Cistus, Polygonums, Acacia hispida, Opuntias, and quite a number of evergreen shrubs that are slow



FIG. 108.—VIEW IN MR. CRISP'S GARDEN AT FRIAR PARK, SHOWING A WIRE ARCHWAY SUPPORTING ROSES, HONEYSUCKLES, CLEMATIS, ETC. (SEE P. 321.)

for the plants, in which they will be able to develop into the largest size of which they are capable. The Japanese and other dwarf-growing Conifers will have a splendid effect in such a rockery as this. It is situate to the north of the mansion, and the oldest portion, which is nearest to the house, was partly or wholly the work of one of the best-known firms in the country, Messrs. Backhouse & Son, of York. This firm has since supplied a large number of plants for the other parts of the rockery and for the pleasure-grounds, particulars of nearly 500 varieties being now before us. All the planting has, however, been carried out under the super-

an instance may be given in the popular Edelweiss, which occurs again and again in equal condition to the plants shown in fig. 110, p. 331. The Gentianas and a considerable number of other species that are usually difficult of cultivation succeed admirably.

The scale upon which the rockery has been erected, admits of the plants being cultivated in batches, so that the hardy Primulas, Thymus oococineus and T. Serpyllum, Campanulas, Tropæolums, Veronicas, Papavers, Potentillas, Dianthus, Cheiranthus alpinus, Saponarias, and all similar species, may each be seen in batches several square

to make growth, or that never become too large for such a rockery. Much, very much more might be said upon the plants in this rockery were there no limit to our space; but our present task has been rather to describe the rockery itself. It should be added before passing, that there are splendid patches of one of the prettiest of the Sempervivums *S. arachnoidum*.

THE CAVES.

From speaking of the rockery it is but natural to pass to the caves, and especially as one of the entrances to these caves is from the rockery. They are the most wonderful artificial caverns we

have ever seen, and they extend under part of the rockery and up to the dwelling-house.

Following one of the mountain-passes previously mentioned, one comes to a sliding iron door, amidst the most natural-looking environs, so that even the door itself, set in a dim recess, is not suspected to be other than stone. But pass through this doorway and the first cave comes into view. This is the "Vine" Cave, and over its roof and around the pillars is represented a Vine with leaves and fruit, as natural-looking as possible under such extraordinary circumstances. The berries are really of glass, and in each is an electric light, which, when turned on by the pressing of a button, has an indescribable effect upon the various and curious formations of tufa. From this chamber there are roomy passages that lead into a second cave, and again into others—the Wishing-Well cave, another containing examples of optical delusions, and the most charming of all, the Water-cave.

We shall not attempt on this occasion to describe these caves with any degree of fulness, as there are so many interesting features at Friar Park that this article has already become of greater length than was intended. Unfortunately our photographer after repeated efforts was unable to obtain a photograph that would have shown the interior of one of them. The series of caves, however, are well worth a visit from anyone who is at all interested in such a feature, and they are undoubtedly an excellent testimony to the skill of Mr. T. B. Harpham, Church Street, Edgware Road, London, their constructor.

In the Wishing-Well there are various optical delusions, and by pressing a button one can see his future wife or husband. The bewilderment and delusion effected by the display of mirrors set at various angles is perfect. Marguerite approaching the church door, followed by Faust, is the subject of a very pretty optical delusion. But the prettiest effect is that obtained in the Water-cave, and there one can take a boat and row under the earth in electrically-lighted caverns of wondrous fascination, and in several lights of extraordinary colour. Means exist for heating all these caverns with hot water when necessary, and the electric light is provided by a generator on the place.

CONCLUDING ITEMS.

There is nearly a score of glass-houses, where Peaches, Grapes, and other choice fruits are cultivated, and which contain good collections of Orchids and Cactaceous plants, besides other decorative and flowering species. All of these are cultivated in a manner creditable to Mr. Knowles, who each year has been able to show as good a batch of herbaceous Calceolarias as could be seen anywhere.

The kitchen-garden and its fruit-trees have the same satisfactory appearance.

Friar Park and its gardens is open to visitors one day each week, and we think no one would be other than delighted by a visit there. A charge of sixpence each person is made, and half the proceeds are given to the Gardeners' Royal Benevolent Institution, and half to the Mayor of Henley, for the assistance of the local charities.

In concluding this notice of Friar Park and its gardens, we are full of appreciation of the liberality and enthusiasm that Mr. Crisp has displayed in the development of an establishment that to-day promises to become a place of horticultural interest to an unusual degree, and we fervently hope that he and his gardener may have health for many years, so that the proprietor may not only see the completion of his ideas, but also enjoy the pleasure that should follow their realisation.

NEW OR NOTEWORTHY PLANTS.

SELENIPEDIUM × GERALDA (LINDLEYA-NUM × CAUDATUM).

Mr. OAKES AMES, in the issue of *American Gardening* for September 23, 1899, records this interesting cross, which was made by Mr. Wm. Turner,

gardener to W. D. Rockefeller, Esq., Rockwood, Tarrytown, N.Y., the new arrival being dedicated to Mrs. Rockefeller. The flowers are said to be rather smaller than those of *S. × grande*, to which the description points to its bearing some resemblance.

Cypripedium × tonso-purpuratum and *C. × tonso-Arthurianum* are also recorded by Mr. Oakes Ames in the issue of the same journal for September 30, the former also being represented by a drawing which shows the characters to be distinctly intermediate between the parents named.

ORCHID NOTES AND GLEANINGS.

MASDEVALLIA × DORIS.

CAPTAIN HINCKS, of Terrace House, Richmond, Yorkshire, with the assistance of his gardener, Mr. Rushton, has been very successful in cross-breeding *Masdevallias*, two excellent examples of which he kindly forwards. *Masdevallia "Doris"* is derived from *M. triangularis*, and crossed with *M. racemosa* (Crossii). The seeds were sown in the summer of 1890, and the first flowers appeared at the end of 1893. The plant has flowered profusely, after the manner of both its parents, and the flowers have shown much improvement as the plants gained strength. The examples sent each bear two flowers on scapes, 4 inches in length. The flowers, which take the form of those of *M. triangularis*, are 1½ in. across the equally expanded perianth lobes, each of which is furnished with a tail half an inch in length. The flowers are nearly the same in colour as *M. racemosa*, and a marked improvement on the yellow and brown tints of *M. triangularis*. The ground-colour is of a peculiar tint of orange, and the surface of a reddish-scarlet hue. Each lobe bears three light rosy-crimson lines.

MASDEVALLIA × RUSHTONI (M. IGNEA ECKHARDI ♀ M. RACEMOSA ♂).

This cross appears to be one of the brightest and most floriferous of hybrid *Masdevallias*. The scapes are nearly 6 inches in length, and each is furnished with two flowers, borne away from each other on foot-stalks, about 2 inches in length. The form and the colour of the flowers resemble those of *M. Veitchiana*, except that they are smaller. The colour is brilliant scarlet on orange, and the lower perianth lobes, which are 1 inch in length, constitute the showier portion of the flower.

CATTLEYA SUPERBA VAR. SPLENDENS.

A flower of the ordinary form of *Cattleya superba*, and another of a very large and brilliantly-coloured form, is sent by Geo. C. Raphael, Esq., Castle Hill, Englefield Green (gr., Mr. H. Brown). The flower of the variety "splendens" is over 6 inches across, and all the segments are of considerable breadth and of stout substance. The sepals and petals are bright rose-purple; the lip dark crimson-purple and showy; and the disc of a bright yellow tint. The plant thrives suspended near the roof of a moist, warm house. Abundance of rain-water should be afforded the plant when making its growth. Like *Oncidium Lanceanum*, *Epidendrum bicornutum*, and some other plants, reputed difficult to grow, it thrives better in an ordinary plant-stove than in the Orchid-house proper.

LYCASTE DENNINGIANA.

A flower of this rare and handsome Ecuadorian species is sent by Mr. Fred. J. Thorne, gr. to Major Joicey, Sunningdale Park, Sunningdale, who considers it a very desirable plant, especially as it may be had in flower at this season. The flower-stem is nearly as thick as an ordinary cedar-pencil. The expanded flower is 6 inches across, sepals and petals creamy-white, tinged with green. The showy labellum is bright orange-scarlet, deepening towards the centre, and the fimbriated margin is of a bright yellow tint. The column is ivory-white, and altogether it is a striking flower, and very attractive. Mr. Thorne says it thrives well with the *Anguloas*, which he blooms so profusely in an

intermediate-house, and some of which are in flower with him at present. *L. Denningiana* was illustrated in the *Gardeners' Chronicle*, October 2, 1897, p. 231, from a specimen which flowered at the Royal Botanic Gardens, Glasnevin, Dublin.

LELIO-CATTLEYA × SCHILLERIANA GIGANTEA.

When one of the earliest imported plants of what was then known as *Lælia elegans* flowered, Mr. Robert Warner bloomed out of them a few which were so far superior to the others, that he named that form *Lælia "gigantea,"* and it was illustrated in *Warner's Select Orchidaceous Plants*. Since his time many varieties have been imported, but very few of them have attained the size of flower of the original. But now, out of an importation made by Mr. Joseph Broome, of Sunny Hill, Llandudno, one has flowered which is a long way in advance of the type, and exceeds in size and in the breadth of the petals most of the varieties of *Lælia purpurata*, which it more closely resembles than ordinary forms. The petals are 7 inches across; both sepals and petals are flat and of fine substance, white with a pearly-pink tinge and a few light pencillings of rose. The broad lip is white at the base, veined slightly with purple; the front lobe magenta-purple, changing to rose at the apex.

CATASETUM MACROCARPUM CHRYSANTHUM.

This pretty variety first flowered with Messrs. Linden, of Brussels, by whom it was figured in *Lindens*, vol. v., p. 13. Another example bloomed in the gardens of C. R. de la Salle, Esq., Enbridge Lodge, Newbury, Berks (gr., Mr. Geo. E. Ellwood). This plant bore two flower-spikes, one consisting of seventeen, and the other of ten flowers. The large and fleshy labellum is of a bright yellow tint, the sepals and petals of creamy-white, the sepals having a slightly greenish tinge on the reverse side, and the petals some small red-purple spots. J. O'B.

PLANT NOTES.

CHIOGENES SERPYLLIFOLIA, THE TRUE SNOWBERRY.

I HAVE just received a plant of this curious and most distinct Ericaceous trailer, sometimes called *C. hispidula*, a native of North America and Japan, from Mr. Lemoine, of Nancy. It is nearly allied to the Cranberry, and was introduced so far back as 1760, by Mr. Laycock, who grew it at Halifax, in Yorkshire, where it produced fruit abundantly. It was there planted under a north stone wall, shaded by high trees, in a border of sandy peat from an adjoining moor. The flavour of the fruit is agreeable to some, being strongly perfumed like Noyau, or bitter Almonds, and mixed with a pleasant acid. It grows wild in swamps. Knight of Chelsea cultivated it with great success. It has also been described by different botanists under the various names of *Vaccinium*, *Arbutus*, *Gaultheria*, and *Oxycoccus*; it seems to have a much stronger and more valid claim to the English name at the head of this note than the shrub which now bears it, *Symphoricarpos racemosus*, as it flowers and fruits in its native country soon after the melting of the snow; and its fruit is pure white. W. E. Gumbleton.

INDIA.

THE RECENT EARTHQUAKES IN DARJEELING.

PERHAPS the accompanying extracts from a letter just received from my son, written two days after the catastrophe, or rather series of catastrophes, in the Darjeeling district, may be interesting to some readers of the *Gardeners' Chronicle*. The scene is the Government Cinchona Plantation at Mungpoo, at an elevation of between 3000 and 4000 feet, and about 17 miles distant from Kurseong and Darjeeling. W. Botting Hemsley.

"On Sunday night we were visited by a terrible storm, in fact a cyclone. Several lives have been lost, and enormous damage done to our own plantation and the neighbouring Tea-gardens. Up to the time of writing, I have heard of the loss of twenty-two lives by houses being overwhelmed by land-slips, brought about by the very heavy rainfall of Sunday. Thirteen inches fell during the twenty-four hours ending 6 A.M. on Monday. Of this, 11 inches fell during the space of five to six hours on Sunday night.

"The consequence of this heavy fall was that the streams and rivers rose enormously, overflowed their banks, and uprooted huge trees, which were

after gust came, causing the bungalow to tremble and groan. On the side exposed to the storm a quantity of thatch was carried away, letting the water into the rooms, but this was all, and very fortunate I was, for if any small portion of the roof itself had gone it would have been good-bye to the rest and a lot of my property. Many of the poor coolies were not so fortunate, as in many cases where they escaped with their lives, they lost almost their all, in the shape of houses, cattle, or crops.

"With the bridges gone we are almost completely isolated; two roads only are open, and those only for foot passengers, as they are in a

BULB-PLANTING ON TURF.

(Concluded from p. 306.)

PLANTS for wild gardening must necessarily be very tenacious of life, robust in growth, and of considerable stature. Such, for instance, is *Eremurus himalaicus*, with massive spikes of greenish-white flowers, and *E. robustus*, with rosy-tinted flowers in tall spikes. I have grown these plants in very poor soil indeed, with some success. With good treatment, noble spikes of flowers are secured, which appear at their best when seen with a suitable background of dark-green foliage. The roots should be planted in October, four inches below



FIG. 109.—SOME OF THE CLIPPED TREES IN MR. CRISP'S COLLECTION AT FRIAR PARK. (SEE P. 321.)

carried down stream, levelling everything before them in the shape of bridges, &c. The fine suspension-bridge over the Ryang river, just at the point where it flows into the Teesta river, is gone! Mr. Pantling's suspension-bridge, finished only a few months back, is gone! The Rungbu-bridge, on the lower Darjeeling road, gone! Most of the small bridges over streams on the plantation, gone! Paths, gone! Cinchona plants, houses, cattle, crops, &c., gone! These losses have occurred in the vicinity of what were small streams, but which became raging torrents, causing land-slips everywhere.

"Accompanying the rain was a terrific wind, which threatened to overturn my bungalow, so violent was it between 10.30 and 12.30 on Sunday night, when it was at its height. But the bungalow stood, though I spent an anxious two hours as gust

shocking state, impassable in parts [for ponies. One of these roads leads to Darjeeling, and the other to Kurseong. The latter I have got orders to repair in a day or two, taking some forty to fifty coolies with me. I expect I shall stop at Suriel whilst the job is on, which will possibly last for five or six days. I am going to stop in my present bungalow for at least another year, the bricks for my new bungalow having to be made this cold weather for use next cold weather. Mr. Pantling, however, is putting up cloth ceilings, and is going to have a bamboo mat made for the sitting-room to go under my carpet. This will make the bungalow much warmer during the ensuing cold weather. Although this is being posted at the usual time, it may get stuck, as the railway is blocked in places, so you may receive it a week late. *Oliver T. Hemsley, September 9, 1899.*"

the surface, covering the newly-stirred soil with grass or bracken to keep out severe frosts. A mulch of well-rotted manure is almost necessary for the first season. The grass should be mown over with a scythe as the leaves die down, to promote ripening of the tuberous roots. Other species may probably do quite as well as these, but I have not tried them.

The Crown Imperials, *Fritillaria imperialis*, are very good plants for the "wild" garden; they are most effective in groups of several, occurring at intervals. They like a tolerably rich soil. *Lilium* of the *speciosum*, *Martagon*, and *croceum* types, will grow almost anywhere, especially the former. I have recently rooted out some fine bulbs of *L. speciosum* and *var. album* from a shrubbery border filled with the roots of Privet; from the appearance of the soil, I should think they had been

without water for two years at the least, yet the bulbs had flowered well, and were firm and of good size. I noticed that the roots at the base of the flower-stems were unusually numerous and near the surface, where a little moisture was to be found. Funkias and the stronger-growing deciduous Hellebores are suitable plants for shady places. Alstroemerias are doubtful subjects for growing in grass; they are too big for short grass, and in longer grass the sessile leaves, so essential to the building up of a fertile stem, are liable to get smothered. A. aurantiaca may succeed, it is not particular as to soil, situation, or associations; but this species, as with others, is a long time getting over the check of removal, and is likely to be pushed out of existence by strong-growing grasses. Iris xiphium and I. xiphioides are, perhaps, the best Iris for our purpose; they are rich in variety, and are very cheap. Given a good soil, they will last for years. A very wet winter, followed by severe frosts, will thin them out considerably. They should be planted in September at the latest. In boggy soils Iris Kæmpferi is one of the best plants to grow. It has been said that wet winters destroy this also, but I have not found this to be the case. I have planted this Iris extensively on the margins of a lake on a sub-soil of yellow clay; these have withstood the last four winters without loss. Geo. B. Mallet.

GOOD BORDER PLANTS.

(Continued from p. 310.)

PENTSTEMONS.—For the first time, I have employed these somewhat profusely in borders of mixed flowers, in every case planting them in good-sized groups, close to the edge of the border, though in some instances allowing them to reach to a few feet of the back. They equal in good effect any plant we grow, while the length of time—from July till the end of the season—they continue producing spikes, is not the least of their good qualities. It is, however, essential, in order to keep them in good condition, that the flower-spikes, as they get past, should be removed. I am growing the strain sold by Mr. Forbes, of Hawick. The seeds must be sown not later than one of the first days of February, and the seed-pans placed in a temperature of 55° to 65°, till the seedlings have gained strength. As soon as the latter can be handled, quite tiny things, they are pricked out into boxes, by which means growth is greatly facilitated. After staying a while in cold frames, they are ready to plant out in the end of April or in May. It is most important that early sowing, followed by pricking out the seedlings when quite small, should be closely followed. The colours range from white, shades of light blue, and pink, to dark maroon, scarlets, and crimsons; many are white-throated, numbers striped, and others have large blotches—these of all being, perhaps, the most fascinating. R. P. Brotherton, Tynningham, N.B.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart. Clare Lawn, East Sheen.

Odontoglossum crispum.—This plant is usually imported in quantity during the late autumn and early winter months, and it is a commendable practice to purchase some of each reputedly good importation, if only for the sake of obtaining greater variety in the flowers. There are those who profess themselves expert enough to pick out from the mass, good varieties and natural hybrids, such as O. Andersonianum, Ruckerianum, Wilckeanum, &c., but I cannot do this, and the only thing that I can recommend a cultivator to do is to secure good pieces, not necessarily large ones, but those with sound bulbs and dormant eyes, as the buds are termed. Speaking generally, it is from amongst the small pieces that the spotted and other high priced forms appear. Having acquired a quantity, it is a matter of some doubt with many how to proceed to procure the best results, and in their anxiety and haste to see their recently purchased treasures break into life, they are placed in warm and over-moist houses, and urged into activity before they have recovered from the ruthless treatment received at the hands of the native collectors. Where a small number only has to be dealt with, the more rational course is first to clean away all dead and

decaying portions, but not to entirely denude the pseudo-bulbs and rhizomes of their enveloping bracts, or some of the sound eyes may be injured. Then select pots just large enough to accommodate each piece, fill them to the extent of two-thirds with rather small crocks, and in order to hold the pseudo-bulbs in position, pack around it a few lumps of peat. The pots should be placed on a stage in a cool, fairly moist, but not very light house. Keep the stage under the pots moistened, but do not apply water directly to any plant until growth has advanced an inch or more, even then it is not prudent to afford water frequently, but simply to wet the peat and crocks. When roots push forth, fill the remaining spaces with peat and living moss, place the plants in a lighter position, and treat similarly to a newly-potted plant. These remarks apply to most Ecuadorian Odontoglossums.

Odontoglossum Londeboroughianum, which few growers can induce to flower, should now, i.e. on the completion of its pseudo-bulbs, commence a long and severe period of drying off. During this period the plant should be suspended in a house having an intermediate temperature, and once the leaves have fallen, no water will be needed until there is a renewal of life.

Odontoglossum Kramerii is about the only member of the family which needs the heat and other conditions prevailing in an East Indian-house. The plant requires rather dense shade and a saturated atmosphere. It has finished growing for this season, and is now about to flower, consequently much less water at the root will be needed, and until growth recommences, only water should be given sufficiently often to prevent any undue shriveling in the pseudo-bulbs.

Fogs of a more or less deleterious nature will prevail during the next few months, and the usual precautions have to be taken to prevent injurious effects so far as is possible. Near large towns it is the moist, smoke-laden fogs that injure vegetation most, and when these occur, our aim should be to have the plants and the atmosphere fairly dry, and the temperatures no higher than the recognised standard. Again, when smoke-laden fogs occur during frosty weather, drier conditions should prevail, and the temperatures allowed to drop a few degrees below the normal. No air should be admitted by opening the ventilators whilst the fog lasts; and where the blinds are in position they should be run down at night, in order to prevent heat escaping from the houses, and the fog gaining an admittance to any great extent. As soon as the fog lifts, air should be admitted to all departments. When there is no immediate prospect of its return, let all dry spaces be well damped, but afford water to the plants sparingly. The roofs of all Orchid-houses should be cleaned, and if fog-deposits render it necessary, they should be washed after each visitation.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Weston Birt, Tetbury, Gloucestershire.

Erythroniums (Dog's-tooth Violets).—These plants are very pretty in the spring, when they have developed their beautiful mottled leaves and variously-coloured flowers, and if planted in a sunny position in the rock-garden, or in small borders in sandy loam and peat, placing each bulb 6 inches apart, and 8 inches deep, they will require but little subsequent attention. Should the bulbs appear fleshy and white, they should be planted as soon as possible after being lifted or purchased.

Calochortus (Butterfly Tulip).—These are exceedingly pretty when in flower, and show to the best advantage if a position on a sunny border be chosen for them. It is essential that the soil be well drained, and is naturally comparatively dry during the winter months. Prepare the soil thoroughly by mixing with it some good sandy loam, leaf-mould, and plenty of sharp grit. The present month is the best time to procure the bulbs, and these should be planted not more than 4 inches deep. Afterwards cover them 6 inches deep with Cocoa-nut fibre, and place over this some fine meshed wire-netting to prevent the birds from scratching. The C. venusta group contains some very vigorous growing and fine flowering varieties, and they are the cheapest. If these be found to succeed, other varieties which are more expensive may safely be planted.

Autumn Tints.—Nothing can surpass the beautiful masses of colour that many of the deciduous trees and shrubs afford this month, before shedding

their leaves. The following are some of the most suitable species for planting in the park, woodlands, and pleasure-grounds, with a view to obtaining autumn effect:—*Crataegus coccinea*, C. c. maxima, C. corallina, C. crus-galli punifolia, which form fine heads, and the broad leaves turn to a lovely gold and crimson colour, and last for a considerable time. *Acer pennsylvanicum*, A. platanoides, A. colchicum rubrum, A. dasycarpum, A. rubrum, A. palustre, bright yellow; A. Ginnala, A. campestre, A. vitifolium, rich claret red; *Carpinus americana*, bronzy-red and gold; *Catalpa bignonioides*, C. speciosa, massive leaves of golden-yellow; *Fraxinus excelsior jaspidea aurea*, distinct and beautiful yellow; *Juglans lacinata*, lovely cut leaves of a bronzy colour; *Parrotia persica*, gold and crimson-tinted on the edge of the leaves; *Pyrus aucuparia*, bronzy-yellow; *Liquidambar styraciflua*, variously tinted, and very lasting; *Quercus coccinea*, Q. c. Watereri variety, intense crimson; Q. palustris; Q. rubra, red; Q. conferta, yellow; *Tilia platyphyllos aurea*, T. p. lacinata, T. p. rubra, very beautiful tints of red and gold; *Rhus glabra coccinea*, intense dark crimson; and *R. typhina*, deep blood-red. Of the smaller trees and shrubs, those most suitable for the dressed grounds comprise the brilliant Japanese *Acer*s, among which are A. septemlobum, A. a. elegans, A. palmatum, A. decompositum, intense deep crimson, blood-red, and yellow; *Euonymus atropurpureus*, E. alatus, E. europæus, E. latifolius, red and pink shades; *Amelanchier arbutifolia*, A. canadensis, A. florida, A. sanguinea, rich fiery crimson; *Berberis Thunbergi*, B. virescens, rich crimson; *Cotoneaster affinis*, C. frigida, intense red; *Spiraea Bumalda*, S. callosa var., and S. Fortunei.

Pelargoniums.—Cuttings of these that were struck in boxes and pots should now be taken from the cold frames, and placed in their winter quarters. If there be no special house for wintering them, they may be put upon a shelf or trellis in a cool vinery near to the light, and where fire-heat can be applied in the event of frost or fog. Water may be afforded them when they show signs of flagging, and all dead leaves and flowers should be removed promptly.

THE HARDY FRUIT GARDEN.

By C. HARRIS, Gardener to J. B. FORTMEYER, Esq., Drogheda, MalDENHEAD.

Raspberries.—Where the planting of new quarters is contemplated, an early preparation of the ground is necessary. As Raspberries are usually allowed to occupy the same site for a number of years, the ground should receive a heavy dressing of rotten manure, more especially if the staple be light; whilst clayey soils should receive a dressing of one of half-rotten manure, crushed bones, and mortar-rubbish well incorporated with the staple in the progress of the trenching. After allowing the land to settle, planting may take place; and early planting results in a strong start being made in the spring. The method of planting Raspberries is various: some gardeners plant against a strained wire-fence espalier fashion, the rows of wires being 5 feet apart; or three or four canes may be planted in triangular clumps at 4 feet apart in the row and trained upright to stakes, or arched over from right and left, so that one stake serves for half the canes from two clumps by tying them at the crown of the arch. Either of these methods serves the purpose of securing the canes. One of the best varieties is Superlative, which is far in advance of others in size, and the flavour quite fits it for the dessert table. The variety is almost a perpetual bearer, as it produces a few fruits well into the autumn from the lower growths which form near the base of the canes. Other good red-fruited varieties are Baumforth's Seedling, Carter's Prolific, and Semper Fidelis, the latter a very sharp-flavoured fruit, good for preserving. The yellow-fruited varieties are Magnum Bonum and Antwerp; while larger and newer varieties of yellow are found in Guinea and Golden Queen, both of which partake of the size of the Red Superlative, which in each case formed one of the parents.

The Gathering of Apples being near its finish, only fruits of late varieties, as Sturmer Pippin, should be allowed to hang as long as the weather will permit, as only by so doing will they keep fresh and plump till late in the spring.

The Cloister Fruit-Protector.—Having given these patent celluloid protectors a trial, I will, as requested, give my opinion of their uses and general suitability for the purpose of protecting

fruits, more especially Apples and Pears, from birds and other enemies. I confess I was much disappointed with them owing to the difficulty experienced in fitting them on to the fruits, the time to fix one taking about as long as that required to place on a dozen bags, and in many instances, unless the fruits stood out individually and well away from the branch, it was impossible to get a protector on to them—and especially was this the case with Apples; and there was considerable danger attending the fixing, as unless extreme care was used the Apple was forced away from the branch. As far as causing any speck or spot on the fruits through the perforations of the protector there was none, but fruits of Cox's Orange Pippin enclosed in them were less highly coloured than others on the same tree unprotected. One advantage that the celluloid has over bags, is in standing out stiffly from the fruits, so that wasps or birds cannot pierce them as they sometimes do in the case of canvas-bags when the latter rests on the fruit. With Pears there was some difficulty in fitting the fruits to the protectors, the latter being too small towards the stem for most varieties, and I should not recommend anyone to purchase largely before first experimenting with a few, as taking into consideration the time that is occupied in fixing them, the price, and other drawbacks, I prefer the thin canvas-bag.

FRUITS UNDER GLASS.

By W. STROUNELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

The Early Vinery.—Vines which are usually started at the end of the month of November or early in December, having shed most of their leaves, may be pruned and put in order for forcing. As bunches of large size are not expected from these early Vines, short-spur pruning is that commonly adopted. The laterals previously shortened, should be cut back to two stout buds. Anything left of greater length becomes in time unsightly, and is, moreover, of no more use for Grape production than a short spur. If long spurs are desired for a particular purpose in any one year, it is not afterwards difficult to prepare a shoot coming from its base for future fruit-bearing, and to which it should be cut back after it has served its purpose. The basal shoot ought not to retain more than four leaves. If mealy-bug or scale are present on the Vines, wash the rods with hot-water, to which Fir-tree oil, Gishurst Compound, or other insecticide has been added, having first stripped off the loose bark. Any greater denudation of bark is not to be advised, although in the case of Vines greatly overrun by bug or scale, it is necessary. Before proceeding with this kind of work, cloths or bast mats should be spread on the floor of the vinery, &c., in order to catch the bark and insects, these being removed and burnt. The Vines being bundled up out of the way, the roof, stages, hot-water pipes, and wall should be washed with hot soap-suds, and having done this, the surface-soil may be removed, and be replaced with fresh loam, lime-rubble, &c. Finally, the Vines may be dressed with some approved mixture if insects have been present on them. The wounds on Vines that are pruned early soon heal, and there is not much danger that "bleeding" will occur. Until the time has arrived for starting the Vines, the greatest amount of air should be allowed, and no plant should therefore be placed in the vinery that will suffer from full ventilation.

Winter Cucumbers.—The cutting of cucumbers from hot-bed frames will soon be over, the supply of fruits obtained from plants in the Cucumber-houses duly prepared for fruiting in the winter. In order to utilise these plants for as long a time as possible, they should be cropped lightly, and all crippled and unnecessary fruits being removed whilst they are quite small. The amount of forcing employed in mild weather should be very moderate, or weakly growth will result; and everything must be done at this season to keep the plants vigorous. Sufficient warmth must, however, be kept in the bed of soil as will prevent any chilling of the roots, and the air temperature well maintained, so as to develop healthy growth. Do not crowd the growths, but regulate, remove, and stop these once a week. Every leaf that is left on a plant should have full exposure to sunlight. Afford a dressing of new loamy soil frequently, and in small quantities. Succession Cucumber plants may be brought on in accordance with the demand for Cucumbers, not permitting fruiting till they have acquired strength, and the earlier plants show signs of giving out. The

ventilation of these houses needs much care, and it must soon be afforded only during the brief portion of the day when the sun shines. The syringing of the plants must likewise be modified to suit the season, it being dropped excepting once daily on warm days, a damping of the floors, walls, and other surfaces taking its place. To do this is absolutely necessary if red-spider and thrips are to be kept in check. If thrips or aphid appear on the plants, recourse must be had to fumigation with the XL-All vaporiser. The evaporating troughs on the hot-water pipes may be kept filled with diluted farmyard manure. The water afforded the plants, or used in damping down, should be warmed to 80°.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Asparagus.—The stems having assumed a yellow tint may be cut down, all seedlings extirpated, and the beds hoed and raked clean. Having done this apply a heavy top-dressing of rich, decayed manure, and then mark out the beds anew and bank up the sides neatly with soil taken from the alleys. In doing this last piece of work, do not dig deeply, so as to disturb the roots of the plants. Any preparations of the land needed for forming new beds in the spring should be made as time permits. A bed of Asparagus should not contain more than three rows, or gathering the produce becomes very laborious work. If the land is unsuitable to the growth of the plant, much may be done to make it suitable by the addition of fresh soil, road-scrappings and ditch-clearings, sea-sand, &c. The land should be trenched 2 to 3 spits deep; and if wet, drains should be cut to carry off the water. Plenty of rich manure and leaf-mould should be buried during the trenching if the land is stubborn. On land of this sort large quantities of fresh soil should be brought in, so as to raise the level, which, however, is not necessary on well-drained land.

The Jerusalem Artichoke.—The stems may now be cut down and removed, and a fortnight afterwards the tubers may be dug up, the sets separated from those kept for consumption, and the smallest tubers given to the pigs. The tubers may remain in the ground if, in frosty weather, they are protected with long litter. A fresh plantation should be made yearly, and the old plantation cleared away.

Cabbage Plots.—Let all vacancies be made good, and stir the land with the draw-hoe at frequent intervals. If slugs are troublesome, apply fresh soot and quicklime together in the evening. Let a large quantity of all the varieties grown be planted rather thickly together on a sheltered border for the purpose of making good any vacancies occurring in the rows, and for planting-out in March.

Lettuce.—Lift Lettuce and Endive from outside beds, and plant in frames and pits. Cos Lettuce may also be potted to the number of five in 10-inch pots, keeping them near the rims. Strong plants lifted at this date will prove very serviceable in late autumn and early winter. They should be afforded water sufficient to moisten the soil throughout, and be housed in a peachery or unused vinery. All these salad plants must be afforded plenty of air at all times except during frosty weather.

PLANTS UNDER GLASS.

By G. R. FIELDS, Gardener, North Mymms Park, Hatfield.

Eucharis grandiflora.—Those plants which are intended to flower during the late part of the autumn and throughout the winter, should be forthwith removed from the stove to another house having a temperature of from 55° to 60°, so as to rest them. Here they may remain for a few weeks. The season of flowering is prolonged when the plants are placed in cooler quarters in small batches, at intervals of a fortnight, and reintroduced into heat in the same order, or in accordance with the requirements of the establishment. With a sufficiently large stock of these plants, and with due attention paid to resting them in successive batches at suitable intervals, flowers may be obtained throughout the year. Before the plants are placed in a lower temperature, they should be allowed to become somewhat dry at the root, and be kept in that condition till they are returned to the stove; nevertheless, the dryness should not be such as to cause the foliage to flag, or the plants will be injured. In addition to lengthening the season during which flowers may be obtained, a certain amount of rest is essential to the health of the plants.

Cyclamens.—If seeds were sown early in the month of August, the seedlings will now be strong enough to prick off into pans, or pot singly into thumbs, if that method is preferred. The plants should be placed close to the light, in a moist pit or low house, where a temperature of from 50° to 55° is maintained. Last year's seedlings will now be coming into flower, and may be afforded a temperature of from 45° to 50°, unless early-flowering is wished for, in which case they may be placed in a temperature 5° higher than this. The plants must likewise be kept near to the glass, otherwise the foliage and flower-stems will become weak and drawn.

Herbaceous Calceolarias.—In order to have healthy and strong specimens, the requirements of the plants must be promptly met, being careful not to repot them too soon, nor yet permit them to become pot-bound, but repot when the roots have permeated the new soil. The proper moment may always be determined by turning out a few of the plants. Calceolarias should not be afforded a large shift at one time, otherwise by the time the plants arrive at the flowering-stage, they will be growing in pots of a disproportionately large size. Throughout the winter; and till the sun gains power in the spring, the plants must not be shaded, and they should be kept close to the light. A brick-pit, furnished with the means of excluding frost, and expelling damp, is a very suitable structure for them. If it were not for the excessive condensation of moisture upon the foliage that takes place in cold pits during frosty weather, when the lights have to be closely covered, these plants might be very well grown without the aid of artificial heat. The plants should be protected from slight frost by covering the pits with mats, &c., and artificial heat only resorted to when absolutely necessary. A temperature ranging between 38° and 45° will be sufficient. Air must be afforded whenever possible. Grown in this manner, the Calceolaria gives but little trouble. Aphid can be kept in check easily by fumigation with tobacco, by dusting them with tobacco-powder, or removing them with a small brush.

THE APIARY.

By EXPERT.

Bee-houses.—I have several bee-houses in use, in which stocks have wintered better than in single hives. Each house holds four hives; entrances are placed as far apart as possible, and the hives can be worked on either the storifying or combination principle. The roof is hinged to lift up; the back opens outwards by two doors, thus giving plenty of "elbow-room." The inside is simply two long trough-like frame-hives, and each stock is kept apart by division-boards. To those who do not wish to go to greater expense, I would recommend these houses, which, for the price of materials, do not exceed the cost of a weather-proof single frame-hive. The size of each is 4 feet long by 4 feet high by 20 inches wide. Materials required to make one, are four corner-posts, 2 in. by 2 in.; cross-beams, 2 in. by 4 in.; bottom and centre shelves (strictly speaking, the floor-boards), of $\frac{1}{2}$ jointed flooring; four boards $\frac{1}{2}$ in. by 9 and 4 ft. long, for hive sides; all the other work of $\frac{1}{2}$ jointed and beaded lining; and roof covered with canvas, and painted, to make all secure. For some years I have had in use an out apiary, 2 miles from home, another house, which holds twenty-two hives. The size is 9 feet long by 6 feet wide, and 7 feet high. The hives are arranged in two rows, eight on each side, and six on the front or end; the door being at the other end, all manipulation can be carried on from the inside of the building. There is no floor in it; the bottom row of hives rest on the ground, the top row rests on two stout rails. I work this house on the non-swarming principle, and frequently have had stocks in it 3 feet 6 inches in height. My experience of the house is, that all that is necessary to make it complete is to have it on wheels, so that it could be removed from one locality to another. The advantage of having bee-houses on wheels requires only to be known to be more adopted; and very often it happens that in one district bees would have better foraging ground, that it would pay to shift them, were it not for the trouble and hard work involved in packing and unpacking hives. The greatest objection to bee-houses on wheels is the cost, but there are chances that one might be able to secure cheaply a second-hand lorry, or the wheels and springs of a waggonette, or carriage-wheels and springs, which, with the cost of putting on sides and a top, to make it into a suitable bee-house, would not exceed more than a few pounds.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS.

TUESDAY,	Oct. 31	Chrysanthemum Shows at Wolverhampton (3 days), Southampton (2 days), Taunton (2 days), Teignmouth and Torquay (2 days). National Chrysanthemum, Floral Committee Meeting. Exmouth Chrysanthemum Show (2 days). Kent County Chrysanthemum Society's Show at Blackheath (2 days).
WEDNESDAY,	Nov. 1	Chrysanthemum Shows at Leyton (2 days), Penarth (2 days), Portsmouth (8 days), Bristol (2 days), Horsham (2 days), and Highbridge (2 days). Devon and Exeter Horticultural Society's Chrysanthemum Show (2 days).
THURSDAY,	Nov. 2	Chrysanthemum Shows at Highgate (2 days), Sevenoaks (2 days), Maidenhead (2 days), Woolwich (3 days), Beaumont and Leamington (2 days).
FRIDAY,	Nov. 3	Chrysanthemum Shows at Evesham, Swindon (2 days), and Battersea (2 days). Loughborough Chrysanthemum Show.
SATURDAY,	Nov. 4	North of Scotland Vegetable and Root Exhibition. Stockport Chrysanthemum (2 days).
MONDAY,	Nov. 6	Chrysanthemum Shows at St. Neot's and Totnes. Royal Horticultural Society's Committee. National Chrysanthemum Society's Exhibition at Royal Aquarium, Westminster (8 days). Chrysanthemum Shows at Birmingham, in Bingley Hall (8 days), Coventry (2 days), Brighton (2 days), Croydon (2 days), Yeovil, Plymouth (2 days), Southend (2 days), Truro (2 days), and Stratford-on-Avon (2 days). Scottish Horticultural Association Meeting.
WEDNESDAY,	Nov. 8	Chrysanthemum Shows at Kingston-on-Thames (2 days), Cambridge (2 days), Bournemouth (2 days), Ware (2 days), Chesterfield (2 days), Bromley (2 days), Lowestoft (2 days), Stoke Newington (2 days), Cardiff (2 days), Hanley (Staffordshire) (2 days), Bath (2 days), Great Yarmouth (2 days), and Bristol (2 days).
THURSDAY,	Nov. 9	Chrysanthemum Shows at Putney (2 days), Colchester (2 days), Gloucester, Northampton (2 days), Strirling (2 days), and Weston-super-Mare.
FRIDAY,	Nov. 10	Chrysanthemum Shows at Leicester (2 days), Blackburn (2 days), Stockport, Eccles (2 days), Folkestone (2 days), Derby (2 days), and Huddersfield (2 days).
MONDAY,	Nov. 13	National Chrysanthemum Society's Floral Committee Meeting. Ulster Horticultural Society's Chrysanthemum Show (2 days). Leeds Paxton Society's Chrysanthemum Exhibition (2 days). Loughton (Staffs.) Chrysanthemum Show (2 days).
TUESDAY,	Nov. 14	Royal Horticultural Society of Ireland, Meeting. York Florists' Chrysanthemum Exhibition. Aberystwyth Chrysanthemum Show.
WEDNESDAY,	Nov. 15	Tamworth Chrysanthemum Show (2 days). Carlisle and Cumberland Horticultural Society's Chrysanthemum Show at Carlisle (2 days).

THURSDAY,	Nov. 16	Edinburgh Chrysanthemum Show (3 days). Ludlow Chrysanthemum and Fruit Exhibition. Manchester Botanic Society's Chrysanthemum Exhib. (3 days).
FRIDAY,	Nov. 17	Bolton Horticultural Society's Chrysanthemum Exhib. (2 days). Bradford Chrysanthemum Show (2 days).
MONDAY,	Nov. 20	Cheltenham Chrysanthemum Exhibition (2 days)?
TUESDAY,	Nov. 21	Royal Horticultural Society's Committee. National Rose Society's Committee Meeting.
WEDNESDAY,	Nov. 22	National Chrysanthemum, Floral and Executive Committee Meet.
THURSDAY,	Nov. 23	Dundee Chrysanthemum Show (3 days).

SALES FOR THE ENSUING WEEK.

MONDAY, Oct. 30,	and the following Tuesday, Wednesday, Thursday, and Friday, Dutch Bulbs, at Protheroe & Morris' Rooms.
MONDAY, Oct. 30.	—Clearance Sale of General Nursery Stock, at the Cockmanningo Nurseries, St. Mary Cray, Kent, by order of Messrs. G. & J. Lane, by Protheroe & Morris, at 11.30 o'clock.
TUESDAY, Oct. 31.	—Important Annual Sale, by order of Messrs. Thos. S. Ware, Ltd., at The Hale Farm Nurseries, Tottenham, by Protheroe & Morris, at 11 o'clock.
FRIDAY, Nov. 3.	—Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period October 15 to October 21, 1899. Height above sea-level 24 feet.

1890.		DIRECTION OF WIND.		TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.				RAINFALL.	LOWEST TEMPERATURE ON GRADE.
OCTOBER 15 TO OCTOBER 21.	AT 9 A.M.			DAY.	NIGHT.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.					
	Dry Bulb.								Wet Bulb.	Highest.	Lowest.		
SUN. 15	F.S.E.	49.9	44.7	52.2	39.3	...	47.3	51.8	54.9	26.1	...		
MON. 16	E.N.E.	47.9	44.0	56.1	42.9	...	47.3	51.3	54.6	33.7	...		
TUE. 17	E.N.E.	44.8	44.2	59.1	42.0	...	47.8	51.3	54.4	32.0	...		
WED. 18	E.N.E.	40.0	40.0	61.7	34.0	...	47.1	51.2	54.3	25.6	...		
THU. 19	E.N.E.	43.9	43.7	57.7	36.1	...	46.8	50.9	53.9	25.5	...		
FRI. 20	E.N.E.	40.8	40.6	52.6	35.0	...	41.2	50.5	53.8	26.5	...		
SAT. 21	E.N.E.	40.0	40.0	45.2	33.9	...	45.6	49.9	53.5	25.8	...		
MEANS...	...	43.9	42.5	54.7	37.6	Tot.	46.2	51.0	54.2	27.9	...		

Remarks.—A week of dense, smoky fog, which has left a thick deposit of smut on outdoor vegetation, and caused the leaves of some hardwood plants under glass to fall. No rain has fallen since the 12th.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—45.7°.

ACTUAL TEMPERATURES:—

LONDON.—October 25 (6 P.M.): Max. 61°; Min. 48°.

Foggy-dull, fine.

PROVINCES.—October 25 (6 P.M.): Max. 59°, Valencia; Min. 50°, north-east Scotland.

The Neglect of Systematic Botany.

ON turning to the volumes of the *Gardeners' Chronicle* published some five-and-twenty or more years ago, it will be seen how frequently complaint was made at that time of the relative neglect of vegetable physiology, and of the minute anatomy of plants. So little was done in the way of original investigation at that time, that the workers might be counted on the fingers of one hand. The botany of the Cryptogamia was in an equally neglected condition, so much so, that the Rev. M. J. BERKELEY, the "M. J. B." of these columns, felt constrained to apologise and write in terms of deprecation when he published what was at the time the

most masterly summary of the knowledge of Cryptogamic botany in existence!

Botanical teaching in the metropolis at that time, and for some time previously, consisted of a series of lectures, compiled from DE CANDOLLE, LINDLEY, and later J. H. BALFOUR, illustrated with diagrams and with as many fresh specimens as residence in London would allow. Microscopical preparations in some, but not by any means in all the colleges, were shown to the students. Those who could afford to do so bought illustrative examples from the dealers, and a few really interested in the subject contrived with the aid of a friendly demonstrator or senior student to make preparations for themselves; but there were no laboratories for students in those days, and no microtomes. Staining materials were limited to carmine, and that was chiefly used in animal physiology, whilst nothing like systematic practical teaching in microscopic work was attempted. At Oxford the case was still worse.

The morphology and classification of the higher plants were thus almost the exclusive subjects of study; lecturers mostly confined themselves to those subjects, and, as we have said, the students had little or no means of studying the other departments of the science.

At that time botany formed an integral portion of the curriculum for all medical students; and the medical schools offered almost, if not all, the instruction that was to be had. What the students were expected to do and to learn in three short years, was ridiculously in excess of what they could properly do in the time. Botany was generally about the most unpopular item in the endless series of lectures. As taught, it did not appeal to the students, by most of whom it was looked on as a useless superfluity, and neglected accordingly. These circumstances led to the abolition of botany as a subject of medical education, and at present, with few exceptions, there is hardly a school or college where the study of the natural orders is conducted in any but the most elementary fashion; and as for the young gardener, unless at Kew, the means of instruction in a subject of such great importance to him are entirely inadequate.

In olden times, in spite of deficient methods of tuition, those who cared for the subject, and were interested in it really, did manage to acquire a considerable working knowledge, which was most useful in after-life. Look at the labours of that splendid roll-call of Indian botanists referred to by Sir GEORGE KING at the recent meeting of the British Association at Dover; labours as remarkable for their practical consequences and their direct benefit to mankind, as for their influence in the extension of knowledge. Almost all those men had been taught the details of botanical classification on the benches of the medical schools; so had ROBERT BROWN. Others, like Sir WILLIAM HOOKER, LINDLEY, BENTHAM, obtained their botanical instruction on similar lines, if not in the lecture-room of a medical school.

One-sided and imperfect as their education was, we do not suppose that their successors will be able to surpass them in their degree, nor that they will be enabled to contribute in larger proportion to the advancement of their science.

The pendulum has swung violently in the opposite direction; and whereas we had frequent occasion at one time to lament the little attention paid to vegetable physiology and anatomy, as taught in this country, now we have equal reason for deploring the scant



FRIAR PARK, HENLEY, THE RESIDENCE OF FRANK CRISP, ESQ.



PART OF THE ROCKWORK AT FRIAR PARK, HENLEY.

attention paid to systematic botany, and the too exclusive attention to matters which, important though they be, are little likely to concern the future gardener, forester, or doctor in his daily life-work.

We are far from wishing to decry any branch of science, or to hold up one as more worthy of pursuit than another. Still, it is impossible to withhold sympathy from Sir GEORGE KING's lament as to the imperfect equipment of the students sent to India as forest officers, and we may add as doctors. We have had abundant evidence of the truth of Sir GEORGE KING's general conclusions in other departments than the Indian forest service. We have seen students make the most beautiful preparations, and known them to be familiar not only with sieve-tubes and "synergids," but with the "chromosomes" of the nucleus, and such-like recondite subjects, and who were yet unable to recognise the natural family to which the commonest plants belong, or to give clear, first-hand information as to the differences between Crucifers and Cucurbits, or as to the medicinal or other properties to be found in the plants of particular natural orders.

Classification is by some looked at askance as being at its best arbitrary, and unworthy the attention of philosophical students. We have no need to say how ridiculous such an assumption is. Everyone admits now that "natural systems," in proportion as they are natural, have a phylogenetic basis. Classification is not a mere haphazard collocation of plants that are more or less alike, but it is in essence a genealogical statement, expressive of the line of descent from less highly organised predecessors. True, we know vastly little of the exact lines of evolution, especially among flowering plants, but it is interesting to see how the judgment of our great botanists as to the affinities of plants is borne out by later researches. We may never succeed in tracing the exact stages of descent in every case, but the principles acted on by systematic botanists, such, for instance, as the recognition of the relative degree of importance to be attached to this or that "character," must surely be essentially the same as those which underlie the labours of the phylogenist. We imagine, however, that Sir GEORGE KING had specially in view the practical applications of botany, and from that aspect it is a glaring anomaly that we send out explorers, foresters, and doctors, to our various colonies, without having previously given them the means of turning their opportunities to advantage. We have not too many botanical laboratories, but we have vastly too few opportunities for the study of morphology and classification.

LINNEAN SOCIETY.—The first meeting of this society for the forthcoming session will be held on Thursday, November 2, at 8 P.M., when the following papers will be read: Rev. Prof. HENSLAW, M.A., F.L.S., "On the Proliferous State of the Awn of Nepal Barley." Dr. W. G. RIDGEWOOD, F.L.S., "On the Hyobranchial Skeleton and Larynx of the new Aglossal Toad, *Hymenochirus Boettgeri*." Mr. HAROLD WAGER, F.L.S., "On the Eye-spot and Cilium in *Euglena viridis*."

DUNN MEMORIAL.—A meeting of the committee in charge of this fund was held on the 18th inst., and it was decided to close the fund on December 1 next. Any of the secretaries will be glad to receive subscriptions:—P. MURRAY THOMSON, Secretary, Royal Caledonian Horticultural Society, 5, York Place, Edinburgh; JAMES A. TERRAS, Assistant-Secretary, Botanical Society of Edinburgh, 21, Teviot Place,

Edinburgh; ROBERT GALLOWAY, Secretary, Royal Scottish Arboricultural Society, 5, St. Andrew Square, Edinburgh; ROBERT LAIRD, Secretary, Scottish Horticultural Association, 17, Frederick Street, Edinburgh.

JOHN LINDEN.—The inauguration of the monument erected in commemoration of JOHN LINDEN, and its presentation to the city of Brussels, will take place in the Parc Leopold in that city on Sunday, November 5, at 11 A.M.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—A concert in aid of the Gardeners' Royal Benevolent Institution will be given in the Constitutional Hall, Chertsey, on Thursday, November 2, 1899, under the patronage of the Rev. E. R. PARR, M.A. (Vicar), Lady LILFORD, Mrs. TULK, LAWRENCE J. BAKER, Esq., and Mrs. BAKER, Captain F. B. HARRISON, and others. The names of the artists who will assist afford promise of a very excellent entertainment, and it is hoped that the gardeners and amateurs residing at Chertsey and in the vicinity will attend in good numbers, and thus assist this most deserving benevolent institution. Mr. A. J. BROWN, Hon. Secretary, Jessamine Cottage, Eastworth, Chertsey, will afford all information on application being made to him.

PRESENTATION TO A GARDENER.—On the 3rd inst. a presentation was made to Mr. F. TOPHAM by numerous friends he has made during the three years he has been gardener to H. S. H. LACON, Esq., Ormesby Hall, near Yarmouth. The presentation took the form of a handsome timepiece, accompanied by an illuminated address. Mr. TOPHAM left on the 10th inst.

PRODUCE OF HOPS.—Preliminary statement, showing the estimated total production of Hops in the years 1899 and 1898, with the acreage and estimated average yield per statute acre in each county of England in which Hops were grown:—

COUNTIES.	Estimated Total Produce.		Acreage.		Estimated Average Yield per Acre.	
	1899.	1898.	1899.	1898.	1899.	1898.
	Cwt.	Cwt.	Acres.	Acres.	Cwt.	Cwt.
Gloucester	672	210	42	40	16.00	5.25
Hants ...	30,580	11,350	2,319	2,263	13.19	4.97
Hereford ...	83,950	45,316	7,227	6,651	11.62	6.82
Kent ...	418,997	229,842	31,988	33,941	13.10	7.43
Monmouth ...	...	9	...	2	...	4.50
Salop ...	906	819	138	126	7.00	6.50
Suffolk ...	34	18	4	3	8.50	6.00
Surrey ...	15,213	6,142	1,388	1,383	10.96	4.68
Sussex ...	73,807	84,292	4,949	4,829	14.91	7.10
Worcester	37,207	28,657	3,788	3,567	9.82	8.03
Total ...	661,426	356,598	51,843	49,735	12.76	7.17

The Board of Agriculture, 4, Whitehall Place, S.W., October 19, 1899.

A NEW DEPARTURE BY THE ROYAL HORTICULTURAL SOCIETY.—It is announced in the Richmond local papers that the Council of the Royal Horticultural Society has agreed to a proposition made to them by the executive of the Richmond Horticultural Society, to hold one of their ordinary meetings, viz., that on the last Wednesday in June next, in conjunction with the annual exhibition of the Richmond Horticultural Society in the Old Deer Park. This is an entirely new departure, and has been made at the suggestion of one of our correspondents, put before certain of the Richmond executive last summer. That it will be a popular one with the Royal Horticultural Society's Committees there can be no doubt, as a change from the somewhat sombre surroundings of the Drill Hall to the bright sunny cheerfulness of the Old Deer Park, just for once, at least should be very enjoyable, particularly as the Deer Park adjoins the Royal Gardens, Kew. Perhaps it may be unwise to suggest too much; still, the new

departure on the part of the Royal Horticultural Society may be productive of important results, and further invites of a similar nature may in time be given. No doubt, as Richmond is always so great in that direction, generous hospitality will rule. There can be no doubt also but that the trade will, as is always the case, readily follow where the Royal Horticultural Society leads.

ADVENTITIOUS BUDS.—"An observation of some interest in connection with recent discussions on heredity is recorded by M. CASIMIR DE CANDOLLE in a paper read before the Société de Physique et d'Histoire Naturelle de Genève. He points out a constant difference between the normal and the adventitious buds of trees. The latter he regards as new individuals of the same species as the tree from which they spring, or as apogamic embryos, while the former are simply organs for prolonging the life of the individual. It is quite common for the first leaves of a woody plant to differ in form and structure from the later leaves. Examples are given in *Eucalyptus Globulus*, the Walnut, the Horse-Chestnut, and the Hornbeam. In all these cases, the first leaves from adventitious buds resemble, not those from normal buds, but the first leaves of the young plant." *Nature*, October 5, 1899, p. 550.

MR. A. HAMSHIRE, OF BEAU MANOR PARK GARDENS.—After years of faithful service as Head Gardener to Mrs. PERRY HERRICK, of Beau Manor Park, Loughborough, Mr. A. HAMSHIRE has been engaged by the Asylum Committee of the Corporation of Leicester as Manager of the Gardens, Farm, and Grounds of the Borough Asylum at Humbertone. He entered upon his duties on Oct. 27. Upon Mr. HAMSHIRE leaving Beau Manor, the foreman, young gardeners, and garden-labourers, presented him with a mahogany umbrella-and-hat-stand as a mark of their esteem and goodwill.

JAPANESE GARDENERS IN FRANCE.—Preparations for the great International Exhibition to be held in Paris next year are being made actively, and as horticulture will play a prominent part in the festivities, it is only natural that they should conclude with a Chrysanthemum show. An international congress will be held, under the auspices of the National Horticultural Society of France, in the Palace of Horticulture which is in course of erection at the exhibition. Probably the first of the intending exhibitors are actually on the spot, or at any rate, as near it as they can get at present. Some Japanese gardeners, according to the *Nord Horticole*, have taken up their quarters in the municipal nurseries, to make preparations for a display of Oriental gardening. Chrysanthemums are to be included, and of these a thousand cuttings have already been sent from Japan as a first instalment. Others are to follow, and the plants that result from the year's cultivation will be shown by these ingenious gardeners from the far-east, and will, no doubt, excite great curiosity, especially if they adopt some of the quaint, fantastic methods of plant-culture such as are in vogue in the Imperial gardens, where huge pyramids with hundreds of blooms on each, curious fan-shaped plants, effigies, and other extraordinary specimens of their handiwork are indulged in.

WARGRAVE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT SOCIETY.—An ordinary meeting of the Society was held on Wednesday evening, October 18, Mr. W. POPE being in the chair. Mr. BAZELEY, of the Twyford Nurseries, who had promised a paper on Violets, was unavoidably absent, and a discussion on general gardening matters therefore took place instead.

THEFT OF A COLLECTING-BOX.—We have received the following communication from Mr. S. M. THOMSON, of the firm of W. THOMSON & SONS, Clovenfords:—"For several years past we have had two boxes fixed up in prominent positions in our vineries, to receive contributions from visitors in aid of the Royal Gardeners' Orphan Fund. These boxes we have been in the habit of opening once a year,

sending the contents to the secretary of the Fund. To our great regret and indignation, we find that the box fixed in the principal range of vineries has been forcibly removed. We are doing all we can to find the thief, but without much hope of success. That such a very deserving charity should suffer causes us keen regret."

THE VIRTUES OF THE TOMATO.—DR. TRUE, of Philadelphia, has made extensive experiments with the juice of the red Tomato, for the purpose of discovering its virtues as a medicine. Dr. True's investigations have led him to adopt the juice of the Tomato in cases in which the blood needs toning up. The United States Government and the German Government have also made experiments, and many facts have been discovered. During the recent war with Spain, the juice of the Tomato was utilised extensively as a health-preservative among certain bodies of troops, with results which were eminently satisfactory.

ILFORD RECREATION-GROUND.—The first prize of 50 guineas for the best design for laying out the Green Lane recreation-ground at Ilford, has been awarded, as they inform us, to WILLIAM BARRON & SON, landscape gardeners, of Elvaston Nurseries, Borrowash.

EFFECT OF ARSENIC ON PLANTS.—According to M. R. BOUILHAC (*Bull. Soc. Bot. France*, 1899, p. 64), a number of freshwater Algae which he enumerates can absorb a certain amount of arsenic acid in the form of arseniates without injury; these salts partially taking the place of phosphates. Among the Algae which possess this property are *Ulothrix tenerrima*, *Protothoccus infusionum*, *Dactyloococcus infusionum*, and *Stichococcus bacillaris*. With *Schizothrix lardacea*, arsenic acid appears to have even a more favourable effect on its growth than phosphoric acid.

LAWN PLANTS WHICH ARE PROOF AGAINST DROUGHT.—It is well known how difficult it is in very hot dry soils and seasons to maintain the pleasant green appearance of the lawn. In Miramar and in Abazia, Fiume, as well as in Florence, *Ophiopogon japonicum* is employed with great advantage in forming lawns and "grass" plots. Another enduring plant, *Carex alba*, is recommended by Professor DE LA BASTHIE in the *Revue Horticole*; and some years ago M. ED. ANDRÉ advised the planting of *Carex divulsa*.

STOCKS ON WHICH TO GRAFT THE LILAC.—In recent years many beautiful varieties of Lilac have been raised on the Continent, and to enable nurserymen to increase their stock of plants by grafting, stocks of *Syringa vulgaris* and *Ligustrum vulgare* have been employed. An admirable stock for standards is found in the common Ash—*Fraxinus excelsior*—which, like *Syringa*, belongs to the order Oleaceae. This stock being a stronger grower than *Ligustrum*, affords a better stem for standards; moreover, it attains a much greater age, and does not fall a prey to the grubs of the hawk-moth and wood leopard-moth. Budding as well as grafting may be employed. *Wiener Illustrirte Garten Zeitung*.

"LATER EXTINCT FLORAS OF THE UNITED STATES," left unfinished by the death of Professor NEWBERRY, is to be completed by Dr. ARTHUR HOLLICK.

WINE A FIRE EXTINGUISHER.—A correspondent draws our attention to what he terms a new form of fire extinguisher—viz., wine. He states that last month a fire broke out on premises attached to a large wine store in one of the great Californian vineyards. Unfortunately, no water was to be had, but the quick-witted manager at once led the hose to the great wine-tube, turned it on to the flames, and quenched them. This quenching was accomplished at the sacrifice of some forty thousand gallons of wine. Our cynical correspondent adds, "Looking at this from a broad humanitarian point

of view, perhaps this was not all a sacrifice—maybe it was a blessing in disguise!" But was it not really adding fuel to the flame?

FUMIGATION OF TREES.—The fumigation of orchard trees for the destruction of insect-pests is being extensively practised in California and other parts of the U.S.A. The tree to be treated is covered with a tent, and is subjected for nearly an hour to the fumes of hydrocyanic acid and potassium cyanide. A gang of four or five men can fumigate from thirty to forty medium-sized tents, and cover from 4 to 6 acres of orchard in a night. We should imagine that the using of such deadly poisons is attended with grave dangers to the workmen.

FIRST IMPRESSIONS.—Vendors of fruit of nearly all grades, both at home and in the colonies, are learning the lessons afforded by Continental growers and exporters in the art of presenting fruit to the eye of the purchaser, and acting upon them. The services of the gentler sex are now called in to assist in procuring a profitable market for fruits grown in the open and under glass. The training-class provided for girls in sundry Board Schools is well suited to training the eye in the production of effect, and it has been placed on record that the nimble fingers of little girls, directed by the trained eye of their instructors "tells" on the market. Great advantage is being taken of the facilities afforded by railway companies to carry and deliver small packages of fruit at a low rate of charge. Those who are engaged largely in this extending branch of business, might with advantage make a note of this, also provincial school authorities.

NYMEGEN.—It is proposed to hold an international horticultural exhibition in this city in 1901.

PUBLICATIONS RECEIVED.—*Journal de la Société Nationale d'Horticulture de France*.—*Queensland Agricultural Journal*, for September, 1899 (Brisbane: Edmund Gregory, Government Printer).—*The Century Book of Gardening*, part vii.

BOOK NOTICE.

FRUIT-GROWING IN NATAL.

IN the beautifully got-up Handbook to the Colony, by J. Forsyth Ingram, there is some very interesting information in regard to fruits grown in the South African Colony, from which we compile the following notes respecting the road from Durban to Pietermaritzburg, as a proof of the genial character of the climate. One colonist has in his grounds flourishing specimens of trees from nearly every country in the world. At Bellair, as at Umbilo, fruit-culture is greatly in evidence. As far as the eye can range over the hills, fruit-plantations are to be seen. The country around is pleasingly varied—field, dale, and wood combine to make up a perpetual series of charming views. The district of Malvern, 9 miles from Durban, is one of the most important fruit-producing depôts in Natal. The soil and climate are suitable for the production of all kinds of sub-tropical fruits; farms are much sought after, and a large proportion of the land in the district is under cultivation.

Bananas appear to be the staple production, and it is estimated there are about 500 acres under them, each acre carrying about 500 plants. Pine-apples of a superior variety have recently been introduced—the Natal Pine. Lemons form the staple, and can hardly be surpassed for flavour, though much smaller in size than some others. A considerable trade in the latter fruit is done in this district. "Naartzes" and Oranges flourish most luxuriantly. These trees come into bearing in their fifth year, and continue until their thirteenth; and as the tree ages, the fruit becomes small. By cultivating the soil, or feeding the roots, its life may be renewed, and the fruit improved. The culture of the Naartzes and Oranges is an item of considerable importance, but the industry has not been systematically carried out.

PLUM, COE'S GOLDEN DROP.

If care be exercised in gathering and storing this most useful Plum, it is possible to keep it in good condition for dessert until Christmas. The fruits should be perfectly dry when gathered, and on no account must the fruit be severed from the stalk, or decay will soon set in where the union existed. A good plan is to cut them from the tree with a pair of scissors, laying them carefully in a tray or basket lined with some soft material, and then carrying them carefully to a dry fruit-room.

In some seasons, it is necessary to cover the trees with tiffany until the fruit is ripe, to protect the fruit from wasps and large flies, it being essential that the skin be not broken. Such protection has not been necessary here this season. The trees are against a wall with a west aspect, and yield a good crop most years. They are of considerable age, and this has, doubtless, something to do with their productiveness, for I have not seen young, vigorous-growing trees of this variety fruit so freely and regularly.

Some growers wrap each fruit in tissue-paper for the purpose of keeping them sound, and I have done this, but have failed to discover any special advantage in the system, whilst extra watchfulness is necessary in such cases to detect and instantly remove any unsound fruits. It is my opinion that first-class varieties of Plums should be planted more extensively even than now, against walls, for the supply of fruits for dessert. The flavour of a well-grown dessert Plum will bear comparison with almost any fruit usually grown against walls in this country. By a careful selection of varieties, a constant supply can be maintained during many months of the year. In some gardens, room cannot be found for many Plum-trees because the space is required for other fruits, generally considered superior to the Plum.

Peaches are planted against west walls, and very rarely do they succeed, but much time is spent, and wall space lost, in pruning and training them. Such an aspect is most suitable for Plums, and given good cultivation they will yield fine and useful crops. H. T. M., Stoneleigh Abbey Gardens, Kenilworth.

HOME CORRESPONDENCE.

TOMATOS.—Several instances have occurred this season of luxuriant growth on sewage farms of Tomato-plants produced from seeds that have passed through human bodies. Not only has there been such growth, but good crops of fruit have been produced. That such has been the case, is doubtless due to an unusually warm season. But the growth of such seeds shows all the same the remarkable vitality of the seed in the passage through the human body. Should the birds take to devouring the attractive-looking fruits, as some day they may, it would be little short of a national catastrophe, seeing how the cultivation of the Tomato has extended, and how difficult it would be found by the gardener to protect this crop in the open. Moreover, the plant would then become a troublesome weed, springing up from the seeds voided by the birds. I thought it bad enough when the other day in a large garden, noting that literally thousands of Pears had to be put into muslin bags; and Apple-trees in all directions netted over to save the fruits from the birds. When such precautions are needful, what wonder will it be if brilliant red and golden Tomatos should become the prey of these depredators? A. D.

TOMATOS AS A FIELD CROP.—From the interesting notes on this subject at p. 257 of the *Gardeners' Chronicle*, it would appear that those persons who reside in [some of] the most favoured parts of England are slow to recognise the advantage of planting Tomatos out-of-doors. Yet I am inclined to think that it is previous experience which deters growers from venturing far in this direction, for it is upwards of twenty-six years ago that one grower in the Worthing district suffered a heavy pecuniary loss through the failure of some acres of Tomatos. It was the first year that any disease made its appearance. I have seen some very good

crops this season, and no doubt those who have planted Tomatos out-of-doors will be tempted to venture still more another year; but it will always be a doubtful crop in this country, except in exceptionally dry sunny seasons. Previous to diseases making their appearance, Tomatos were extensively cultivated in the open in the neighbourhood of Worthing. I believe Messrs. Pullen & Berry, of Sompning, were among the first to grow them to any extent: and although it is generally supposed that the cultivation of the Tomato in England is quite a modern institution, it dates much further back than is generally supposed—and it must be at the least thirty to forty years ago since the above-named firm cultivated them extensively. They were also grown by other Sussex market-growers. Among my earliest

GENERIC VARIATION.—With reference to your extract on p. 286, from Prof. Sedgwick's address to a section of the British Association, and especially to the remarks on bud variation, I cannot perceive any parallelism between bud sports and abnormal characters presenting themselves at particular times in the life of an organism. Prof. Sedgwick states: "thus there is nothing more remarkable in a single bud on a tree departing from the usual character at a particular time of life than on a particular hair of a mammal doing the same thing;" but surely there is an immense and vital difference between the two phenomena. In the first place, it is altogether new to me that bud variation is in any way associated with particular times of life; and in the second place, there is the fact that such bud sports may, and indeed usually do, involve a

growth and development," they should surely appear on all individuals which flourished and fulfilled their life career. I have in my mind, especially, certain varieties of Ferns which bear prolific buds. As a rule such buds reproduce the parent plant exactly, but occasionally the resulting plants are distinctly different, as the result of asexual bud variation; but this is an absolutely different case from that of Ferns which do not assume certain characters until they are adult plants, which characters are true "stages in the growth and development," while the others, the new ones, are departures. It is, furthermore, a moot point as to how far such variations are induced by environment. Prof. Henslow holds that they are the outcome of change of environment, a view which my experience of wild varietal finds renders it difficult for me to accept, though in the records of cultural selection of abnormal forms, it seems certain that close culture can induce, and permanently fix, fine dissection and fimbriation in the new sports resulting thereunder; while if the views that a Fern-spore is of the nature of a bud be accepted, my examples could be extended indefinitely. In short, if "the particular (varied) hair of a mammal" could be grown on into a complete mammal, varied to suit, the parallel between it and a permanent bud variation would be complete, but, as I venture to think, not otherwise. Surely, too, the assertion "that sexually-produced plants do not resemble the parent," is open to many exceptions, as well as that "by asexual reproduction, the exact facsimile of the parent may always be obtained." In most normal plants the seedlings are practically undistinguishable from the parental forms—at any rate, they cannot possibly be said "not to resemble them;" while, as we have seen, bulbils may produce varieties which differ materially. Chas. T. Druery, F.L.S., V.M.H.

HELENIUM AUTUMNALE STRIATUM.—It may, perhaps, be permitted me to thank Mr. Meehan for his note on p. 317 of the *Gardeners' Chronicle*. Soon after this plant was introduced into this country under the name of *Helenium grandicephalum striatum*, I stated in the columns of a contemporary my opinion that it was a form of *H. autumnale*. As other opinions were held by some whose views were entitled to more consideration than mine, I did not care to assert my view too forcibly. This plant is very unlike the *Helenium* sent out under the name of *H. grandicephalum* only a short time before the striped variety of *autumnale* appeared in commerce. It is quite probable, in view of what Mr. Meehan says, that the reason of the variation in the colouring of *H. a. striatum* is to be found in the differences caused by raising the plants from seed. It may be hoped that compilers of nursery catalogues as well as writers for the horticultural press will take note of the statement of so distinguished an authority upon the native plants of the United States. S. Arnott, Carsethorn-by-Dumfries.

THE SINGLE-FLOWERED CHINA ASTER.—On my recently visiting the gardener at Ty Coch, a fine lot of plants of this Aster was pointed out to me. Mr. Kennedy, the gardener at Ty Coch, said that he had been cutting flowers from these plants for several weeks, and they appeared likely to afford blooms for several weeks longer. The seed was obtained from the Continent. C. Tyler, Parkia Gardens, Carnarvon.

SALVIA PATENS.—My interest in the article on "Good Border Plants" by Mr. Brotherston, in the *Gardeners' Chronicle* of October 21, was enhanced from having had the opportunity of observing the plants in bloom at Tynningham. If one may be permitted to express an opinion upon the beds of *Salvia patens* and blue *Lobelia* referred to by your contributor, it is that Mr. Brotherston has, with characteristic modesty, hardly done justice to his arrangement. The beds in question were very pretty, and did not in any way mar the skilful planting of which it formed a part. The reference to this *Salvia* not proving quite hardy at Tynningham leads me to remark that this is the general experience in Scotland. It has been included in stands of hardy herbaceous plants at shows, but these exhibits have caused considerable discussion among those interested. One of my plant-growing friends holds the view that there is a hardy variety of *Salvia patens*, but after trying it I am satisfied that its standing the winter is really due to the character of the garden or the season. I do not dispute that there are some gardens in the west of



FIG. 110.—VIEW OF PART OF THE ROCKERY AT FRIAR PARK, SHOWING THE EDELWEISS IN FLOWER. (SEE P. 321.)

recollections of nursery work, cleaning Tomato-seed is, though, not the most pleasant, vividly retained, for it often happened that the fruits were in an advanced state of decay. While on the subject of Tomatos, I may mention that I have visited several establishments in this neighbourhood where they are extensively grown under glass, and find that the old style of growing them on the extension system is not quite obsolete, though the best growers confine them to a single stem, the height of which varies according to the capacity of the houses. The heavy cropping varieties (selections from the old red) are mostly in favour, though the great difference in the prices realised for these this season, compared with the smooth round-fruited varieties, may lead to a change. I have seen some very good crops of the round-fruited (a selection from Chemin) grown in pots, and although the weight would fall somewhat short compared with the corrugated varieties, I think the returns would be quite equal. A. H., Worthing.

permanent change, not in a mere excrecence of limited growth, but in a new and independent individual whose reproductive powers are also modified to enable it to reproduce its own particular type, and that not at any defined period of its existence. How can such bud variations be "probably stages in the growth and development of the organism?" In the history of such variations, we find that generally an immense number of the normal forms of the parent organisms have run the normal course of existence, from youth to old age, without presenting the new features or any trace of them at any period of their individual existences. Suddenly a solitary bud appears, it may be on a young, or it may be on an old plant, and it is found to be much modified in foliage, flower—and what is more, seed. Furthermore, one and the same species may produce on different individuals, or even on the same, as witness the recorded origin of the Moss Roses, widely different sports. If such variations were "stages in the

Scotland where this *Salvia* is hardy, but the general experience is that of Mr. Brotherton. *S. Arnott, Carsethorn-by-Dumfries, N.B.*

SEEDING OF RARE SHRUBS IN IRELAND.—Owing, I presume, mainly to the fine, dry, warm summer we have been favoured with this year, the following rare and beautiful shrubs have ripened seed here, most of them for the first time: *Chimonanthus grandiflorus*, on a very large specimen bush in an angle of my walled-in garden, which is covered with its deliciously-fragrant blooms every Christmas, is extremely shy to set seed, and only produced two or three pods and nine seeds, which take eight or nine months to ripen, but germinate pretty freely if sown at once when ripe. *Eucryphia pinnatifolia*, resembling a pure white *St. Johnswort*, a most free-blooming and beautiful shrub, ripened a fair amount of seed, and should be in every choice collection; *Adenocarpus decorticans*, the beautiful Furze-broom from the Sierra Nevada, a most free-blooming and beautiful shrub, has produced seed in former years, but though it seemed plump and good, none of it ever came up. I hope I may be more fortunate with it this year. I do not know why it bears the descriptive name it does, as its bark does not peel off to anything like as great a degree as, for instance, *Olearia ilicifolia*, often grown under the erroneous name of *O. macrodonta*, and sent out as *O. dentata*. *Hamamelis Zuccariniana*, the pure yellow-flowered Japanese species, which is very seldom met with in shrubberies, but is most free-blooming, and well worth growing. The beautiful Chinese shrub, *Xanthocephalus sorbifolia*, though it bloomed most profusely and beautifully on one of my walls, did not set a single one of its large, Horse-chestnut-like seeds. *W.E. Gumbleton.*

THRUSHES AND BLACKBIRDS, AND FRUIT.—The statement of your correspondent, Mr. J. Hart, in the issue of the *Gardeners' Chronicle* for September 30, must be taken *cum grano salis*, as we all know that thrushes and blackbirds will get at large fruit—indeed, any kind of fruit—unless well protected with herring-nets, and these must have every mesh perfect, and be made secure at the margins, or the birds are sure to get in. In netting wall-trees this is very important; moreover, the net must be kept at the distance of 1½ ft. from the face of the wall by means of shoots of Willow or Hazel, made with a slight notch or slit at the end to receive the threads of the meshes. *F. M.*

AMATEUR GARDENING.—In potting-off my *Pelargoniums* from the garden, I have come across two (distinct varieties), which have grown on one stem, i.e., the root of the one has grown on to the stem of the other, and is deriving its nourishment through this other's stem. Is this a freak, and is the bloom from this "twin" likely to be a novelty? *R. G. Bassett, 2, May's Villas, Fooks Cray, Kent.* [This is probably a "sport," and not a union of two plants. *Ed.*]

FRUITING OF SCHUBERTIA GRANDIFLORA.—I do not remember to have read any mention of the fruiting of *Schubertia grandiflora*. At the present time, there is a fruit upon this plant in the stove at Prestwold. In appearance, it resembles a Gherkin, is about 4 inches long, and has prickles similar to those of a Gherkin. The fertilisation of the flower was not assisted in any way. I should be glad to hear if this stove-climber has previously fruited in this country. *D. R., The Gardens, Prestwold, Loughborough.* [This plant is now regarded as a form of *Arauja graveolens*. *Ed.*]

EXTRAORDINARY CROPPING OF POTATOS.—It may be interesting to readers of the *Gardeners' Chronicle* to know that two crops of Potatos can be had in county Cork within a year by sprouting "Early Bird" in December, and planting the sets out in warm borders in February. This year, an experiment was made in the following manner: The sets were started as mentioned, and new Potatos were to be seen in the warehouse window the first week in May. The 1899 seed got sunned naturally, and in June were again planted in a warm border, the result being that Potato-tubers of full size were dug last week and the plants were in blossom until the frost of the 6th inst. I remember before the blight of 1846, seeing the old white Quarry Potato being dug from the soil in May, and in the same field the same month, the old Mignon and Crow Potatos were being planted; there was no blight then, and the stalks kept green

until cut down in October and November by frost. Possibly, this may be done in the Channel Islands and in Cornwall. The "Early Bird" is a Potato of my own introduction. *Wm. Baylor Hartland, Ard Cairn, Cork, Oct. 16, 1899.*

FLORISTS' FLOWERS.

AUSTRALIAN CHRYSANTHEMUMS.

It is only a few years ago since the Chrysanthemum growers of our Australian colonies started the raising of seedlings. A few of these were imported into this country, and when grown by capable cultivators proved to be of exceptional merit, some of them rivalling in point of size and colour the best of the leading continental varieties. Last season there was a large influx of these colonial novelties, and judging by the success that they met with it was only fair to assume that more would be heard of them again this year.

A visit to Mr. Wells, of Earlswood, recently, confirms this, and in his extensive and interesting collection, which comprises novelties from all sources, the visitor cannot fail to be struck with those he has received from Mr. Thomas Pockett and other Australian growers. Few raisers have done so much in so short a time as Mr. Pockett to enrich our collections, and the following, both old and new, appear to me to be in very satisfactory form this year:—Nellie Pockett, beautiful glistening white, a Japanese, with long, narrow, twisted, grooved florets; Mermaid, pure white, a Japanese, slightly flushed, rosy pink; Janet Lady Clark, very large blooms, Japanese, long quilled florets, colour deep rosy-mauve; Wonderful, also a Japanese, colour golden yellow, inside deep chestnut-crimson; Pride of Stokell, crimson; Wattle Blossom, very globular, florets long, twisted, and grooved, colour deep lemon yellow; J. R. Upton, deep yellow; Australian Belle, very long tubular florets, slightly hairy at the tips, very large, colour lilac-mauve; Miss Ida Barwood, a large, fine white Japanese; John Pockett, fine crimson, seen last year; Silver Queen, rosy-pink, very pretty long florets; Mr. T. Carrington, &c. *C. Harman Payne.*

IRELAND.

THE DUBLIN MUSEUM.

THE herbarium of The Dublin Museum has been enriched by a munificent present, the entire herbarium of the late Lord de Tabley having been presented to the Botanical Department by his sister, the Hon. Lady Leighton. The botanical collection is mainly confined to British plants, and was of great service to the deceased Lord de Tabley in the compilation of his recently-published *Flora of Cheshire*. As yet, the specimens are confined to their boxes; Professor Johnson is only awaiting the completion of some cases when he will be enabled to place them at the disposal of the many students who frequent the well-filled corridors of his department. The actual numbers of sheets of specimens is still undetermined, but a low estimate places this collection at least at 20,000 plants. This gift is actually due to the recommendation of Sir W. Thiselton Dyer, Director of Kew, who states that the herbarium will be useful to active working botanists in the Irish metropolis.

TREES AND SHRUBS.

PINUS BALFOURIANA VAR. ARISTATA.

WHEN at Welbeck recently, I was agreeably surprised at the fine specimen of the above, which stands out so conspicuously on the greensward near the Abbey entrance. At last I thought I had found a genuine specimen of the species; but, alas! on procuring a cone, it turned out to be the variety *aristata*, the cones of which have conspicuously-

hooked scales, and which you figured lately from specimens collected by me at Watford.

The Welbeck tree, though a larger tree than the Hertfordshire specimen, bears much smaller cones, and, curiously enough, the leaves are as often in fours as in fives.

Can anyone tell me where the true species may be seen growing in this country? The tree seems quite hardy wherever I have come across it, and the curiously arranged foliage—fox-tail in appearance—of the softest shade of green, might well make the tree a favourite with lovers of Conifers. I should be very grateful for a cone of the true *P. Balfouriana*. *A. D. Webster, Greenwich Park.*

NURSERY NOTES.

J. CHEAL & SONS, CRAWLEY.

WE were disappointed on visiting the Lowfield Nurseries, near Crawley, on October 12, to find that the Dahlias had already been blackened by frost. In the London district our own were fresh and bright, but 7° of frost are too much for the Dahlia, and the thermometers in the Crawley district had fallen thus low. They are fine, broad plantations of Dahlias, are those from which Messrs. Cheal obtain the fine blooms for exhibition. The visitor sees at once that the Dahlia is a specialty of the firm, and those of us who have attended the summer shows have seen excellent collections of blooms from Crawley. The firm have been successful during the present season in obtaining awards for five Seedlings, including three single-flowered and two Cactus-flowered varieties. The singles are Flame, a yellow flower, flaked and striped with orange-red, of fine form in the way of Lord Rosebery, but distinct from it; Daisy, a pale flower, flaked and pencilled with dark crimson and purple, a novel and distinct variety of finest form; and Veronica, orange-red, each floret tipped with bright amber. The two Cactus-flowered varieties are Mrs. J. H. Luscombe, of a mauve-pink tint; and Mrs. Stephenson Clark, "old gold" colour, the petals tipped with red. Except in the case of Flame, which has been distinguished by the Royal Horticultural Society and the National Dahlia Society, the awards obtained have been those of the Royal Horticultural Society.

But if the Dahlia season was practically finished, there was abundance of interesting circumstances to be observed in—

THE FRUIT NURSERIES

at Lowfield. The season has been a capital one for Apples. With such a strong, clayey soil as Messrs. Cheal's, a prolonged drought inflicts but little injury to the trees, and more than this a hot season brings many a variety to greater perfection than it attains in an ordinary summer. Many of the varieties of Apples were still ungathered, and there were particularly heavy crops upon the following amongst others: Bess Pool, a capital Apple for late cold districts, because, blooming exceptionally late, it escapes spring frosts. Collini Pippin, Emperor Alexander (exceptionally good fruits of this first-class culinary Apple); Ringer, a very pleasant Apple when taken from the tree, but not included in many collections; Golden Reinette, extraordinary crop; Hornead's Pearmain, a grand Apple extensively cultivated in Sussex, where it is much prized, and Royal Jubilee. The last-mentioned variety is a capital Apple for kitchen use until December. Messrs. Cheal regard it as one of the best of the newer varieties, being a strong grower with compact habit of growth, very late in blooming, and seldom, if ever, failing to carry a good crop of fruits. The fruits are Codlin-like, pale-lemon in colour, and keep much longer in good condition than one would judge from their appearance. Royal Jubilee is therefore worth almost the same attention that planters have at last given the variety Bismarck, whose extraordinary cropping qualities are again demonstrated in

the Lowfield Nurseries, upon the fine three-years, two-years old, and even maiden trees. Another good kitchen Apple that meets with favour in Sussex is Schoolmaster, but the fruits keep good only until about the end of November. Several good cultivators in widely-separated districts have spoken well recently of this variety. Golden Reinette, one of the most delicious of dessert Apples, was carrying an extra crop of fruits; Margil, a grand variety for bushes; and Duke of Devonshire, a dessert Apple that deserves to be much more frequently planted than is the case at present—it succeeds capitally in any form of tree. There were handsome fruits of Lord Derby, on some two-years-old transplanted trees, and it is worth remark that this and a few other Apples that are more or less angular in outline when grown in this district, lose this characteristic to a considerable degree.

These are only a few of the varieties of Apples in Messrs. Cheal's collection, which is replete with all the best new ones and standard varieties, including Armorer and Atalanta, two dessert varieties raised by Mr. C. Ross, and distributed from the Lowfield Nurseries. These were figured in the *Gardeners' Chronicle*, March 4 and March 11, 1893.

But Messrs. Cheal & Sons are not engaged in growing fruit for market. Theirs is a fruit-tree nursery, and a fine lot of trees there are for planting during the season now commenced. The stock is clean, naturally grown, free from the effects of an excessive use of manures, and the growths are thoroughly matured. They should lift very well even now, and better still if more rain should fall.

The forms of tree the firm is making a specialty of are half-standards and bushes. For these, it is said, there is a great demand. The half-standards are budded at from 3 feet to 4 feet high, and they commence to fruit early. Specimens of these and of bushes were in capital condition. But other systems of training are practised, to suit the individual tastes of the cultivators, whether it be for the large standards for orchard-planting, pyramids, or single and double cordons. Pears are not less numerous than Apples, and the 5000 or so maidens are looking very well, and have made a very satisfactory growth.

There are also in one batch about 5000 two years old Pear-trees, capital specimens in about twenty choice varieties, and some of the trees already showing bloom buds.

Cherries, either as bushes, pyramids, or cordons, are cultivated, and meet with a ready sale, as also do Plums. The one and two years old Plums have made this season the best growth of all the fruit-trees. There are excellent Plum-trees trained upon the fan system, for planting against walls.

Peaches and Nectarines seem to thrive capitally as trees, and the growth they make is as satisfactory as possible. The 1500 specimens of trained trees were a picture to behold. As previous notes in the *Gardeners' Chronicle* have described, Messrs. Cheal's nursery is divided into small fields or plantations by great hedges of Hornbeam, 10 or 12 feet high, and these are of great value to the young trees by protecting them from rough winds.

FOREST AND ORNAMENTAL TREES.

Whilst Mr. Alexander Cheal is employed in superintending the work in the nursery, his brother, Mr. Jos. Cheal, assisted by his son, carries on a very considerable business as a landscape gardener and designer. The rate at which this part of the business has increased, has led the firm to grow an increased number of hardy trees and shrubs for furnishing of new places laid out by the firm. Consequently, about half the land at Lowfield is covered with these trees, and beautiful many of them were looking in their autumn tints.

But our visit was one more especially connected with the fruit, and we must refrain from discussing this subject in detail. We cannot help remarking, however, that a bed of *Berberis Thunbergi* created such a magnificent patch of colour as we are never likely to forget.

FOREIGN CORRESPONDENCE.

GALTONIA CROSSES.

THE article in your issue of September 2 on a hybrid between *Galtonia candicans* and *G. princeps* was very interesting to me, for I have made the same cross, and have the plant now in flower. They are very accurately described in the article referred to. My object in writing is to say, that both this year and last the bulbs came into blossom about two weeks earlier than either parent, and to ask whether the same is the case at Kew. *W. H. Endicott, Canton, Mass., U.S.A., September 18, 1899.*

Obituary.

SYDNEY COURTAULD.—We learn with great regret of the death of this gentleman, on the 20th inst., at Booking Place, Braintree, Essex. His amiable disposition, uniform courtesy, benevolence, and enthusiastic love of horticulture, endeared him to his associates. He was an active member of the Council of the Royal Horticultural Society, and



THE LATE SYDNEY COURTAULD.

whilst specially interested in the cultivation of Orchids, by no means confined his attention exclusively to those plants. His name is commemorated in *Mædevalia Courtauldiana* (*M. rosea* × *M. caudata* Shuttleworthii), raised by Mr. Norman Cookson, of Oakwood, Wylam-on-Tyne.

In our number for October 4, 1890, will be found a detailed account of his garden, which illustrates his fine taste and catholic sympathies as regards plants. Mention is also made therein of the public garden presented to the inhabitants of Braintree by "Sydney Courtauld and Sarah Lucy Courtauld, his wife." An illustration of Mr. Courtauld's garden was also given in our number for Feb. 21, 1891. Mr. Courtauld was in his sixtieth year.

GRANT ALLEN.—The death of this eminent writer and enthusiastic naturalist is announced to have taken place on the 25th inst. Gifted with a picturesque and fluent literary style, he did good service in popularising the teachings of Darwin and Herbert Spencer. His vivid imagination and the fluency of his style, however, led him to treat plausible hypotheses as if they were demonstrated facts, so that his natural history studies, attractive as they were, were somewhat lacking in scientific caution. Mr. Allen was a Canadian by birth, having been born at Kingston in 1848. He

was educated at Merton College, Oxford, and afterwards engaged in educational work in Jamaica and elsewhere. His early writing brought him neither fame nor funds, but subsequently the brilliancy and lucidity of his literary style secured him a hearing as an essayist, and later as a prolific writer of fiction. Mr. Allen, who had long been in ill health, died in the fifty-second year of his age.

LAW NOTES.

ALLEGED LONG FIRM FRAUDS.

AT the Lambeth Police Court, on Oct. 17, James Piggott, 45, a decently-dressed man, who described himself as a florist, and refused to give his address, was charged on remand with obtaining £5 from John Leather by means of a certain false pretence, and with intent to cheat and defraud. The prisoner was arrested on a warrant by Detective-Sergeant Long, who found him at a house in Great Dover Street, Borough. Mr. John Leather, a florist, of Mitcham, stated that on August 25 he advertised in the *Gardeners' Chronicle* for a quantity of *Pelargonium* cuttings. In reply, he received a letter from a person giving the name of Shuttleworth, and an address in the Kennington Road, offering to sell a large number of cuttings. He eventually forwarded a cheque for £5 to the address in the Kennington Road, but he failed to get an acknowledgment, and the cuttings did not arrive. He then wrote cancelling the order, and stopped payment of the cheque. He afterwards found that the address in the Kennington Road was a shop at which letters were taken in. Further evidence was given, showing that on September 12 or 13 the prisoner cashed Mr. Leather's cheque at the "Old Nag's Head," at Mitcham. The landlord, Mr. J. R. Cheshire, cashed the cheque readily, because Mr. Leather was a personal friend of his own. Detective-Sergeant Long mentioned that the police had received nineteen or twenty complaints concerning the prisoner. Mr. Hopkins directed a further remand.

DISPUTE ABOUT NATIVE LARCH-SEED.

On Thursday, October 12, at Jedburgh, Sheriff Baillie gave his decision in the action and counter-action between J. & A. Smith, seed collectors, Forfar, and Charles Irvine, seed merchant, Jedburgh—the former suing for an account for a supply of native Larch-seed, and the latter claiming for loss owing to the seed being faulty and unproductive. The Sheriff held it proved that the seed was bad; and, in regard to the averment of non-warranty made by the Messrs. Smith, he said the onus of proof on this point, which lay upon them, had not been discharged by them. He gave decree only for items in the claim that were not disputed; and, in the counter-action by Irvine, he gave decree for £8 10s. for the loss he had sustained, and found him entitled to expenses. *North British Agriculturist, Wednesday, October 18, 1899.*

SOCIETIES.

ROYAL HORTICULTURAL.

OCTOBER 24.—An announcement made in our last issue by the officials of the Royal Horticultural Society to the effect that the Drill Hall at James Street, Westminster, would probably be unavailable for the fortnightly meeting of the Society on Tuesday last, happily proved to be incorrect. The Hall was not full of the Queen's soldiers, but, instead, very nearly full of Chrysanthemums. There were several groups of plants in pots, and a number of extensive exhibits of cut blooms. The season may now be said to have well commenced, and already many of the recognised Chrysanthemum specialists are able to say definitely when their particular collection will be at its best. But the season is a late one. Awards of Merit were recommended to five varieties, Florence Molyneux, Miss Edith Pilkington, Le Grand Dragon, Miss Alice Byron, and R. Hooper Pearson. The Floral Committee also recommended an Award of Merit to a variety of *Adiantum* named "Burnii," a variety with drooping fronds, that will be very suitable for the furnishing of suspended baskets. From

Hawick, N.B., Mr. JNO. FORBES exhibited a white flowering sport from Begonia Gloire de Lorraine, that will make a pretty companion for that excellent winter flowerer. There was a considerable display of Orchids for the date of the season, and a few awards were made to novelties.

THE FRUIT COMMITTEE had before it an unusual number of collections of hardy fruit, most of them from amateurs, but some from the trade; and excellent collections of vegetables were shown by Mr. W. Pope, gr. to Earl of Carnarvon, Highclere Castle, Newbury; and Messrs. CANNELL & SONS, Swanley, Kent. Awards of Merit were made by this Committee to a hardy Grape, Reine Olga, exhibited by Mr. WILL TAYLOR, Hampton; and to Apple Panquet, from Mr. ROSS, Welford Park Gardens, Newbury. In the afternoon Mr. GEO. MONRO gave a lecture upon "The Development of the Fruit-trade," and in illustration of the subject exhibited a large collection of the choicest market fruits.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. C. T. Drury, H. B. May, R. Dean, W. Howe, Jas. Hudson, John Jennings, J. F. McLeod, H. Selfe Leonard, D. B. Oran, J. Fraser, Chas. E. Pearson, Chas. Jeffries, C. R. Fielder, George Gordon, Chas. E. Shea, E. H. Jenkins, E. T. Cook, E. Beckett, Owen Thomas, Thos. Peed, R. B. Lowe, and H. J. Cutbush.

CHRYSANTHEMUMS.

Mr. H. J. JONES, Ryecroft Nursery, Hither Green, Lewisham, put up an extensive group of large-flowering Chrysanthemums in pots, including a number of last season's novelties. On either side of this group was a smaller one, in the one case composed of finely-cultivated specimens of Codieums, and in the other Cordylines. The Codieums especially were remarkable for their fresh appearance and fine colour (Silver-gilt Banksian Medal).

Mr. NORMAN DAVIS, Framfield Nurseries, Sussex, made a magnificent display of Chrysanthemum blooms. These were cut with long stems, and were arranged in handsome vases and other receptacles, a few trumpet-shaped glasses being about 4 feet in height. Very large blooms were shown, and also smaller ones of a decorative size. As a rule, one variety only was used in each vase. There were handsome blooms also displayed upon stands, including Mutual Friend, Mrs. White Popham, Lady Phillips, Mrs. Coombes, a lilac or mauve-coloured flower, of very refined appearance; Miss Alice Byron, a large white Japanese incurved, &c. The exhibit showed much taste in arrangement, and the quality of the blooms was good (Silver-gilt Flora Medal).

Mr. W. J. GODFREY, Exmouth, Devon, had a collection of cut blooms, for which a Silver Flora Medal was awarded. There were some excellent blooms in the stand: Le Grand Dragon was represented with half-a-dozen specially good flowers; Martin H. Tucker, crimson Japanese with gold reverse, was fine; also Mrs. White Popham, Etie Mitchell, and many others were very good. A few decorative varieties were put up in Bamboo stands, and were very pretty in appearance (Silver Flora Medal).

Messrs. W. WELLS & CO., LTD., Earlswood Nurseries, Redhill, showed a nice lot of blooms of the border variety, Nellie Brown, a dark sport from Ryecroft Glory; also, Mychett Beauty, and others. There were capital blooms in this stand of many exhibition varieties. The rich yellow Japanese R. Hooper Pearson, was shown grandly; Sir Redvers Buller, crimson Japanese, with buff reverse, is very promising; Kathleen Rogers and M. Fatzler, both novelties of last season, were well shown. Yellow International, a sport from the type, and a number of other varieties, were capitally shown (Silver Banksian Medal).

Messrs. H. CANNELL & SONS, Swanley, Kent, showed a collection of cut Chrysanthemums, including some fine blooms of Mutual Friend, Edith Tabor, Mrs. S. C. Probyn, General Paque, Ella Curtis (very nice), and Madame C. Farrier, a new Japanese variety, rosy-lilac with silvery reverse. Lady Audrey Buller, a seedling from Sunshine, promises to be a very pretty yellow Japanese; and Mrs. Frank Gray Smith, a new Australian variety, Japanese incurved, with a chestnut appearance, is promising. A plant was shown of White Quintus, a white sport from O. J. Quintus, and a useful variety for cutting from.

A Chrysanthemum named Amitié de L'Agriculture was shown by Messrs. ROSE, VERRICH & SONS, Exeter. It is a yellow Japanese, and the florets are striped in varying degree with crimson.

Mr. THOS. S. WARE, Hale Farm Nursery, near Tottenham, showed a very fine group of Chrysanthemums in pots. These were all border or decorative varieties, and were abundantly flowered, making quite a floral picture (Silver Banksian Medal).

MISCELLANEOUS.

Messrs. J. PEED & SONS, Roupell Park Nurseries, Norwood Road, London, S.E., staged a group of fine foliage plants. Choice green and variegated species were shown in clean, well-cultivated specimens. There were excellent Cordylines and Codieums, the pretty Leea amabilis, some of the choicer species of Palms, Aralias, Sonerilas, including a free-growing silver-coloured variety of the latter, named Souvenir de Louis Van Houtte.

Begonia Gloire de Lorraine was again shown as beautiful specimens by Mr. H. B. MAY, Dyson's Road Nurseries, Upper Edmonton. The plants were in 5-inch pots and abundantly bloomed. A few of the small white-flowered B. Dregel were included, and the whole were delightfully relieved with excellent specimens of Adiantum cuneatum (Silver Banksian Medal).

From J. WARREN, Esq., Handcross Park, Sussex, were shown several new varieties of Cordylines, all of them narrow-leaved. They were called Offert, Warreni, and Marchamiana; C. Offert, as shown, was the prettiest, and had the most colour.

Messrs. W. CUTBUSH & SONS, Highgate, N., were awarded a Silver Banksian Medal for a pretty group of berry-bearing plants, such as Pernettya and Skimmia.

F. W. MOORE, Esq., Royal Botanic Gardens, Glasnevin, showed flowers of Nerine Leichtlini and N. var. Lucy Douglas. This latter is a hybrid raised at Glasnevin, and has large very singularly coloured flowers, shades of lilac and salmon.

A white flowered sport from the Begonia Gloire de Lorraine named Caledonia, was exhibited by Mr. JNO. FORBES, Hawick, N.B. He had a group of these plants in small pots. In habit and in all other respects but colour, the variety is apparently identical with the type, and for use in connection with the well-known pink bloomer it will doubtless be much valued.

N. R. HOFFMANN, Esq., Thurlow Lodge, West Dulwich, S.E. (gr. Mr. Thos. Tomlinson), showed a group of seedling Cladiums in 3-inch pots, most of the plants having made four or five leaves. They were all raised from seeds obtained from a single pod, and were the result of a cross between the varieties Mrs. Harry Veitch and Alfred Bleu. The flower was pollinated on April 3 this year, and the seeds were sown on May 17. The plants showed great variety in the colour of the leaves.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, exhibited sprays of hardy shrubs showing autumn tints.

Messrs. JAS. VERRICH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, again exhibited flowers of their hybrid Rhododendrons, R. Javanico x Jasmindorum. Notwithstanding the almost continuous fog that blackened London for a week previous to the meeting, these Rhododendrons were admirable. Especially were the varieties Exquisite (yellow), Hercules (buff), and Amabile (pink), of extraordinary beauty.

Messrs. JNO. LAING & SONS, Forest Hill, London, S.E., showed a group of clipped Yews and Box-trees, also variegated Conifers, &c.

Awards.

Adiantum Burnii.—A graceful variety, with drooping fronds, exceptionally suitable for planting in baskets, and the fronds, when cut, for drooping over the exterior of vases. It might be described as like A. amabile, with much-extended fronds. From Mr. W. J. BURN, the Nurseries, Cromer (Award of Merit).

Chrysanthemum Le Grand Dragon.—A yellow Japanese, fine deep bloom, solid, abundance of flor. ts. From Mr. W. J. GODFREY, Exmouth Nurseries, Devon (Award of Merit).

Chrysanthemum Florence Molyneux.—A very large, globular, white-flowered Japanese incurved; a very high-built flower, of bold appearance, and wide florets. From Mr. N. MOLYNEUX (Award of Merit).

Chrysanthemum Miss Alice Byron.—See description on p. 336. From Mr. H. Weeks gr. to Lord Byron, Thrumpton Hall Gardens, Derby (Award of Merit).

Chrysanthemum Miss Edith Pilkington.—An immense-flowered, lemon-yellow Japanese, showing suspicion of red towards centre. The florets are wide, and the variety is undoubtedly a very fine one. It is described as a very strong grower. From Mr. N. Molyneux, gr. to J. C. GARNIER, Esq., Rookesbury Park, Fareham (Award of Merit).

Chrysanthemum R. Hooper Pearson.—A deep yellow-coloured Japanese, resembling, except in colour, the variety Mutual Friend, and figured in *Gardeners' Chronicle*, Nov. 19, 1899, p. 363, when it was awarded the National Chrysanthemum Society's First-class Certificate. It is richer in colour than any yellow Chrysanthemum, and was sent out last season by Mr. H. J. JONES. At the Drill Hall there were excellent specimens shown by Messrs. WELLS & CO., Earlswood, Redhill (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. J. Gurney Fowler, De B. Crawshaw, H. Little, E. Hill, J. Jaques, H. J. Chapman, W. H. Young, J. Douglas, H. Ballantine, F. J. Thorne, and Jas. O'Brien (Hon. Sec).

The Orchids made a very bright display, of which Cattleya labiata in variety formed the chief feature.

Messrs. JAS. VERRICH & SONS, Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver Flora Medal for a group in which were a new and pretty hybrid Cattleya, a new Laelia, and Laelio-Cattleya, for which see list of awards. Older Veitchian hybrids represented of remarkable beauty were Cattleya x Eurydice, a fine wax-like bright roe-coloured flower; C. x Wendlandiana, a very bright and showy hybrid; Laelio-Cattleya x Epicasta, a fine large form of L.-C. x Welliana; L.-C. x Hermione, and the showy little Sophro-Cattleya x eximia, with light, purplish-red flowers, the labellum of a dark ruby-red. Among the Cypripediums were a good specimen of C. x vexillarium superbum, the favourite C. x cananthum superbum, with three, and the pretty C. purpuratum, with five flowers; C. Charlesworthi, a good selection of Cattleya labiata, Oncidium Forbesii, O. varicocum, &c.

J. BRADSHAW, Esq., The Grange, Southgate, gr., Mr. Whiffen, was awarded a Silver Flora Medal for a very bright group, in which were some remarkable Cattleya labiata, and notably the singular blue-tinted C. labiata glauca, the pink and white-lipped C. l. leucocolla, and a fine white form with very bright purple blotch on the lip. In the group also were

a remarkable nearly white-lipped Oncidium tigrinum, Laelia autumnalis atrovirens, with nine flowers on a spike; good plants of Cattleya x Mantini, Laelia pumila, &c.

F. KNIGHT, Esq., Thundersley, Essex (gr. Mr. E. Marston), staged a good group of excellent forms of Cattleya labiata and Dendrobium Phalaenopsis Schroderianum, D. formosum giganteum, and Cypripedium Charlesworthi (Silver Banksian Medal).

Mr. ED. KROMER, Roraima Nursery, Bandon Hill, Beddington, secured a Silver Banksian Medal for a group that consisted chiefly of representatives of his importations of Cattleya labiata. The dark-coloured forms were especially fine, that named Bandon Hill variety having very fine flowers, and a lip almost wholly of a dark rose-purple tint. One fixed abnormal form, with pale lilac flowers, was very interesting, the petal-like lip being reduced to a narrow, ovate blade. About thirty varieties were represented. Besides these were some plants of Laelia pumila, L.-C. x Schilleriana, Cattleya granulosa, C. guttata, and other Cattleyas; Sophronitis grandiflora, with twin-flowered inflorescence; and the remarkably-natural hybrid Cattleya x venosa, &c.

SIR FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr. Mr. W. H. Young), sent Laelio-Cattleya x Gottleiana var. marmorata, a very singular form with large flowers, more highly coloured than the original, and with sepals and petals of a light rose colour, marbled with rose-purple. The fine plant bore a five-flowered inflorescence. Laelia pumila magnifica was also shown by Sir F. WIGAN.

Her Grace the Duchess of NORTHUMBERLAND, Stanwick, Darlington (gr. Mr. Higgle), sent a fine inflorescence of a good form of Vanda coccinea with twenty-two flowers, for which a Vote of Thanks was passed.

EDWIN STANLEY CLARK, Esq., Oak Alyn, near Wrexham (gr. Mr. Edwards), showed Cattleya x Mantini nobilior.

Mr. J. W. MOORE, Cragg Royd Nurseries, Rawdon, near Leeds, showed a singular form of Cypripedium Charlesworthi, with white dorsal sepal, and pale greenish petals and lip—an approach to an albino, or colour suppression.

HENRY LITTLE, Esq., Baronshalt, Twickenham (gr. Mr. Howard), showed two spikes of Cattleya Bowringiana with many flowers.

H. TATE, Esq., Allerton Beeches, near Liverpool, sent a flower of a hybrid Orchid, supposed to be between Laelia tenebrosa and Cattleya x Hardyana, and which resembled a small L.-C. x Schilleriana.

Awards.

Laelia x Mrs. M. Gratrix (cinabarina ♀, Digbyana ♂).—From Messrs. JAS. VERRICH & SONS, Chelsea. A remarkable hybrid, with flowers about five inches across. The lanceolate sepals and petals are yellow, with a very slight rose tint. The distinctly three-lobed lip also yellow, the side and front lobes tinged with rose colour, and curiously edged with an irregular fringe imparted by L. Digbyana (Award of Merit).

Cattleya x Princess (Trianel ♂, Luddemanniana ♀).—From Messrs. JAS. VERRICH & SONS. A grand flower of the typical C. labiata form, but with all the parts, and especially the petals and lip, very broad. Sepals and petals very pale rose colour; lip bright reddish-purple, with diverging orange coloured lines from the base to the centre (Award of Merit).

Laelio-Cattleya x Duchess of York (Laelia crispata ♀, Cattleya Gaskelliana ♂).—From Messrs. JAS. VERRICH & SONS. A close approach to the famed L.-C. x Exoniensis. Sepals and petals white, with a slight pearly-pink shade; lip white at the base, changing to lemon-yellow towards the disc; the elongated front lobe of which is bright ruby purple (Award of Merit).

Fruit Committee.

Present: Philip Crowley, Esq., in the Chair; and Messrs. W. Wilks (Rev.), R. Parker, Jos. Cheal, W. Poupert, M. Gleeson, W. Pope, A. Dean, S. Mortimer, J. W. Bates, C. Harin, Jas. Smith, F. Q. Lane, Geo. Reynolds, R. Fife, and Geo. Bunyard.

Mr. O. THOMAS, Head-gardener to Her Majesty the QUEEN at Frogmore, Windsor, exhibited a large and very superior collection of hardy fruits, consisting chiefly of Apples and Pears. The fruits were remarkable for size and high colour, and freedom from blemishes of any sort. Notable dishes for form, size, or colour, were seen of Cox's Orange Pippin, Ribston Pippin, Allington Pippin, new; Wellington, Manx Codlin, Nonsuch Codlin, Yorkshire Beauty, Wealthy, new; Bismarck, Queen Caroline, Newton Wonder, of very large size, and handsome; Nelson's Glory, Lord Derby, Transparent du Crocoelles, the handsome Edmund Jupp, Beauty of Stoke, Golden Noble, Stone's, Adams' Pearmain, Dr. Harvey, and Sandringham.

Of Pears there were, among numerous varieties, very fine examples of Thompson's, Van Mons Léon le Clerc, Beurre Baltet Père, Olivier de Serres, Bauré Dial, Beurre Bosc, Maréchal Vaillant, Conseiller de la Cour, Duchesse d'Angoulême, Vicar of Winkfield, Doyenné d'Ufaix, Forelle, Doyenné du Comice, Grasilin, Beurre Sterckmanns, Pince Consorti, Marie Louise, very fine; Monarch, and Beurre Six. A Gold Medal was awarded.

LORD LLANGLATOCK, The Hendre, Monmouth (gr. Mr. T. Coomber), showed a very nice selection of varieties of Apples, including Frogmore Prolific, of large size; Egremont Russet, Horned's Pearmain, Blenheim Orange Pippin, Sandringham, Newton Wonder, Peasegood's Nonsuch, Belle Pontoise, and Lane's Prince Albert, all of which were of very fine fruits, and of a high degree of colour. Of Pears, there were Beurre Hardy, Doyenné du Comice, Beurre Pouter, Louise Bonne de Jersey, Beurre Diel, Durondeau, and Beurre Bosc (Gold Medal).

T. B. FORTESCUE, Esq., Dropmore, Maldehead (gr. Mr. C.

Herrin), showed an excellent lot of fruit, mostly consisting of Apples of large size and good colour, and free from blemish (Silver Knightian Medal).

Messrs. JNO. LAING & SONS, Forest Hill Nurseries, London, S.W., made an exhibit of fifty dishes of Apples in the more popular varieties. A good collection of excellent fruit (Silver Bankian Medal).

Another excellent collection of one hundred dishes of hardy fruits, including a fine lot of Apples and Pears, was shown by JOHN WARREN, Esq., Handcross Park, Crawley (gr., Mr. Offer), and a Silver-gilt Knightian Medal was awarded.

A similar award was given for a collection of one hundred dishes of hardy fruits shown by Mr. Geo. Wythes, gr. to the DUKE OF NORTHUMBERLAND, Syon House, Brentford. There were forty dishes of Pears, and amongst them were some very fine fruits, especially of Pitmaston Duchess, Doyenné du Comice, Beurre Bosc, and many others. The sixty dishes of Apples were capital, and dessert varieties particularly so.

Mr. GEO. MONRO, salesman, of Covent Garden, London, exhibited a splendid lot of fruits, consisting of (Grapes, Apples, Pears, Peaches, Tomatoes, &c., as sent to market, a collection which admirably illustrated Mr. Monro's interesting lecture.

A splendid collection of vegetables was shown by Messrs. H. CANNELL & SONS, Swanley, Kent, for which a Silver-gilt Knightian Medal was awarded. There were forty dishes of Potatoes, fine tubers of popular varieties. Cannell's Defence Cabbage was especially good; Carrots First Prize and Prize-winner; Cauliflower Autumn Giant; Savoy Drumhead; Parsnip First Prize; Onion Allas Craig, &c., and a collection of small-fruited Gourds were the principal exhibit. A tuber of Up-to-Date Potato shown weighed 28 oz.

The Earl of CARNARVON, Highclere Castle, Newbury (gr., Mr. W. Pope), showed a collection of superior vegetables, including Tender-and-True Parsnips, a well-shaped white root; very large Prize-taker Leeks; Early Gem and Perfection Carrots; a fine-looking solid Cabbage, of the Drumhead form; Blood-red Beet; and some nice Potatoes, in several varieties (Silver-gilt Knightian Medal).

Awards.

Apple Parakeet.—A very highly coloured fruit, deep and narrow in shape. From Mr. C. Rose, Welford Park Gardens, Newbury (Award of Merit).

Grape Reine Olga.—A hardy Grape, that produces fair-sized bunches of reddish, round berries, with a flavour very satisfactory for out-of-door grown fruits. From Mr. WILL TAYLER, fruit-grower, Hampton, Middlesex (Award of Merit).

The Lecture by Mr. Monro.

In the afternoon a very interesting lecture was given by Mr. Geo. Monro, V.M.H., upon the "Growth of the Fruit Trade." Mr. Monro's position in Covent Garden affords him exceptional means of knowing the details concerning the extraordinary development that has taken place in the fruit trade during the past twenty-five years, a development that he himself has been the means of assisting in a large measure. In 1671, said Mr. Monro, there were only three regular fruiterers in the city. During the summer, when there were soft fruits to be sold, there were additional vendors, but only three maintained a trade throughout the year. In the west-end, things were little better, and most of the trade was carried on in the Central Avenue, Covent Garden. In those days, Oranges formed the bulk, and almost the whole of the trade; then there were Apples from America and other fruits. In 1880, the Haymarket Stores commenced a fruit department, and afterwards the number of fruit-salesmen soon began to increase. In 1860, Oranges, which were first sold in Pudding Lane, formed by far the greater part of the fruit to be sold, and Apples were the next largest supply. Mr. Monro described how afterwards Newtown Pippin Apples were imported from New York; then Canada sent us some, and later Nova Scotia. Subsequently, supplies came from Australia, and these were very acceptable, because they ripen in our winter.

Regarding English-grown Apples, Mr. Monro said that the supply had increased greatly, and in some cases the cultivators were to be congratulated upon the improved quality of the fruits, and the better systems of packing and grading that had been adopted. But much of the produce was bad, and it was sent to market in a very careless manner. Mr. Monro quite agreed with a remark made in an article in the *Gardeners' Chronicle* last week to the effect that British fruit-growers grow the best and the worst samples to be seen anywhere.

Respecting Pears, Mr. Monro said that the bulk of good samples is imported. In this country, and despite the fact that excellent Pears are produced here, the changeableness of the weather renders the crop an uncertain one. Next was described the extraordinary growth in the Banana trade, which was commenced about 25 years ago. A large quantity of Bananas now come from the Canary Isles, which are practically market gardens, since the Cochineal industry was killed.

In 1870, all the Pine-apples obtainable for sale were grown in English hot-houses, but since then a tremendous trade in them has been developed with the Azores.

The trade in Grapes has been completely revolutionised by the immense development of Vine cultivation at home. Thirty years ago there was only one Grape-producing establishment in Jersey, and none in Guernsey. In England, Vine-cultivation for market purposes first commenced at Worthing, where there are now 100 or more Grape-growing establishments. Scotland also used to send a supply to Covent Garden, especially of late Grapes; but Grape-growing has increased so much in the London and other districts, that more is sent North of the Tweed than we receive from there.

The greater competition brought down prices, until the margin of profit was reached, and the present prices would pay only in the best and most economically-managed gardens. In the week preceding last Christmas, Mr. Monro's firm alone sold forty tons of hot-house grown Grapes, including a few tons sent to Manchester. Mr. Monro remarked that it is said that the market growers studied only appearance and weight. This was not the case, but it is true that they have to study these qualities in a large degree, because the public will not buy any fruits that have not a satisfactory appearance. It was their endeavour to unite these two qualities with that of high quality.

Interesting particulars were next given respecting the trade in soft and small fruits, special reference being made to the importance of the large Jam-making industry of the present day, which 25 years ago was scarcely commenced. Strawberries, said Mr. Monro, are fruits for which the home cultivator will be always able to hold his own; and for forced Strawberries in particular there exists an excellent demand.

In the sale of Tomatoes, more growth has been made than with any other fruit. Twenty-five years ago, in the trade, a Tomato was something of a novelty; now there are thousands of tons grown annually in Britain. The development in the growth of Tomatoes at home has all but killed the "tin" trade, and fruits imported in a fresh state must be of very fine quality in order to command a sale at all.

The important matter of distribution, in which Mr. Monro has played a very important part, was next mentioned, and Mr. Monro again took the opportunity to offer a few remarks upon the necessity of proper packing and grading.

The facilities for transit have increased to all parts of the kingdom, though the question of railway rates still leaves something to be desired. Fruits are exported to America, Sweden, and other countries, even including France, but in the last-mentioned country the duty imposed by the French Government upon Grapes (2s. per lb.) was almost prohibitive. Means had been taken to insure a quick delivery of fruit to every part of the United Kingdom, and there were millions of persons engaged exclusively in its sale.

Mr. Geo. Bunyard, who occupied the chair, endorsed all that Mr. Monro had said, and added that Pears were admittedly an uncertain crop in this country, and those who intended to invest their money in the fruit-growing business should take care that they do not plant more than a fair proportion of these fruit trees.

DEVON AND EXETER GARDENERS'.

OCTOBER 11.—The opening lecture of the present Session was read at the meeting held in the Guildhall, Exeter, on the above date by Mr. F. J. FLETCHER, gr. to Colonel HALFORD THOMPSON, Eastcliff, Teignmouth, the subject being—

DAHLIAS.

The qualification of the lecturer to speak on the subject may be inferred from the fact, incidentally mentioned, that two or three years since, when in business near London, he used to send out about 10,000 plants, and plant out for stock for market work and for exhibition, from seven to nine acres of plants annually. He claimed for the Dahlia that it was essentially, and by right, the queen of autumn flowers, as the Rose in summer and the Chrysanthemum in winter. It was also essentially a modern flower. The great variety that exists in Dahlias to-day is the work of the present and the preceding generation of florists. Formerly there were but the single and double forms. The Cactus—double and single—and the Pompon are very modern creations. Speaking of its origin and its name, he traced its history from its first introduction from Mexico, when it was treated as a hot-house plant. In 1800 the two species known were *D. pinnata* and *D. coccinea*. The flower was named in honour of André Dahl, a Swedish botanist, and the lecturer claimed that the proper pronunciation of the name was not with the long "a," as in "dale," but with the short, as in "yacht." He explained the difference between the "show," or self-coloured Dahlia, and the variously-tipped, or "fancy," as recognised at exhibitions. For a really first-class dozen of varieties of the "show" section, he would name Colonelist, Duke of Fife, Harrison Weir, Harry Keith, John Walker, Major Cornwallis West, Mrs. Gladstone, Mrs. Langtry, Mrs. Peter McKenzie, Pioneer, Warrior, and Majestic. For a second choice, or to complete a twenty-four, the following would be his selection: Arthur Ocock, Cardinal, Ethel Britten, George Rawlings, Gloire de Lyon, Joseph Ashby, J. B. Service, Muriel, Mrs. Wyndham, Pandora, Prince Bismarck, and Volunteer. The Fancy Dahlias are only to be found in a proportion of about one to eight of the "Show" section; but here is a good selection for exhibition: Buffalo Bill, Chorister, Comte de la Sant, Comedian, Dazzler, Dandy, Gaiety, George Barnes, Rebecca, Jessie McIntosh, Matthew Campbell, Mrs. Saunders, Peacock, Professor Fawcett, and J. B. M. Camm.

Size is not everything in Dahlias, as symmetry and form are far before it. What growers should seek after ought to be flowers of the style of Mrs. Gladstone, where beauty of form, compactness of build, and beauty of colouring, combine to make an almost perfect flower. Then, we want two or three more good whites of the quality of John Walker, and yellows like R. T. Rawlings.

For cutting purposes, Mr. Fletcher thought the Pompon the most useful of all. It carried its flowers well, and did not hide them among the foliage. Among the best of them he mentioned White Aster, Brinkman, Mars, Dora, Brunette, Red Indian, Night, Jungker, Flora, and Fashion. As regards single Dahlias, their short endurance on the plants, and their tendency to shed their petals as cut-flowers, militated against them.

The single Cactus varieties have greater lasting powers, and in the near future may, when paid more attention to, become very popular. Among the best of them are Queen Mary, Maid of Bute, Meg Merrilies, Alice Lee, Sir Walter, and Bruce. Tracing the Cactus Dahlia from the original Juarezii, the essayist spoke in the strongest terms of recommendation of the usefulness of this race. He mentioned Exquisite, Starfish, Britannia, Rsnji, Magnificent, Gloriosa, Ernest Glasse, Breme, Mrs. S. Vickery, Porcupine, Regulus, Mary Service, Matchless, and Loreley, as among the best of them. What we want is one or two more whites and pale pinks, and roses of the form of Starfish or Britannia; and he thought it quite within the range of possibility that one day we may see a Cactus Dahlia rivaling the form of a Japanese Chrysanthemum! From one seed-pod of Starfish and one of Night, sown in February, ten distinct varieties have resulted, running through shades of crimson, scarlet, violet, maroon, cream, and rose; all of them being above the average in quality.

The remainder of the lecture dealt with the cultivation of the plant, which, being pretty well known to all gardeners, we may omit from our correspondent's résumé.

TORQUAY GARDENERS' ASSOCIATION.

OCTOBER 13.—The opening meeting of the eighth session of the Torquay and District Gardeners' Association was held at the Abbey Road Lecture Hall on the above date. The President, Dr. R. HAMILTON RAMSAY, occupied the chair, and there was a large attendance of members.

The President, in his opening address, expressed his pleasure at being called upon to open the eighth session of the Association. He was persuaded that members heartily approved the excellent suggestion of the Mayors, Mrs. Beavis, as to improving the larger Bath-saloon by its adornment with numerous Palms. The public gardens in general in Torquay were treated with excellent taste, and were beautifully kept. The Royal Terrace Gardens were very fine, and the view from the terrace of the blue waters of Torbay, and the line of hills beyond, formed a seascape of great beauty. Across the road there was another sight, sad to the eyes of a lover of beautiful shrubs. There Cupressus macrocarpa, which when allowed to grow naturally, was such an ornament at Torquay, was tortured into a miserable-looking hedge, apparently to hide what was one of the loveliest views in Torquay. That appeared to him to be the sole exception to the good taste prevailing in the case of the public gardens of Torquay.

The Palms at Torquay had done well this hot year, and a fine *Corypha australis*, which was, at the end of September last year 16 feet high, this year is over 18½ feet, loaded with fruit, and with numerous self-sown seedling Palms at its foot. Another interesting group of sub-tropicals rejoicing in this year's sunshine were the Cordylines, most frequently called *Dracenas* in gardens. The President has two specimens of *australis*, and two good specimens of *C. indivisa* vera. The first Cordylines at Torquay were a gift of six plants by Sir Thomas Acland, Bart., grandfather of the present baronet. Three of these he gave to the late Mr. Edward Vivian, who planted them at Woodfield, where two at any rate are now alive; and three others to the late Bishop of Exeter, Dr. Phillpotts, who planted them at Bishopstowe, where they flourished until a few years ago. The finest plant he ever had, divided into five great branches, each one carrying a splendid head of leaves. *Dracenas* did not mind frost even when rather severe, if not too prolonged; but snow, seldom if ever seen in New Zealand in their valleys, was likely to injure them. By tying the leaves over the centre, the fatal results could be guarded against, but, as his Duncan House garden was intended mostly to testify to Torquay's climate, that was not done by him. *Extract from Torquay Times*.

JERSEY HORTICULTURAL CLUB.

OCTOBER 19.—The monthly general meeting of the above Club was held on this date, the Chairman, Mr. A. Smith, presided. Mr. F. F. Le Sueur read a paper upon "Personal Reminiscences of Horticultural Exhibitions." Mr. Le Sueur was the pioneer in the matter of showing fruit from sunny Jersey; and owing to the recent exhibit of Jersey fruit at the Crystal Palace, his remarks at this juncture were all the more interesting.

Messrs. A. Smith and F. Boobyer then gave some very interesting details of their visit to the Crystal Palace Fruit Show, and also an instructive account of Messrs. F. Rochford & Sons' market-growing establishment at Turnford, Herts.

Mr. Hamill thoroughly endorsed many of Mr. Le Sueur's remarks, especially as to the marked inferiority of the Channel Islands grown Grapes as compared with the English and Scottish grown.

HIGHGATE AND DISTRICT CHRYSANTHEMUM.

OCTOBER 25.—A meeting of the Floral Committee of the above Society took place on the above date, when First-class Certificates were awarded to Mrs. A. Jones, Japanese, a seedling from E. Molyneux, exhibited by Mr. A. Jones, gr. to Mrs. WYBURN, Hadley Manor, Barnet; also to Mrs. J. T. Tilley, Japanese, exhibited by Messrs. H. CANNELL & SONS, Home of Flowers, Swanley; Madame Lucie Recoura, from the same exhibitors, which the Committee desired to see again.

The next meeting of the Floral Committee will be held on November 2, at 3 p.m., at the Northfield Hall, Highgate.

NATIONAL CHRYSANTHEMUM.

OCTOBER 25.—A meeting of the Floral Committee of this Society was held at the Royal Aquarium, Westminster, on the above date. There were not a great many varieties before the Committee. The following were awarded a First-class Certificate:—

Florence Molyneux.—From Mr. N. MOLYNEUX, Rookesbury Park Gardens, Fareham (see description on p. 334).

Miss Alice Byron.—A pure white incurved Japanese flower of large size, good petal, and much refinement. This variety will surely become a popular one. From Mr. H. Weeks, gr. to Lord Byron, Thrumpton Hall, Derby.

Miss Edith Pilkington.—See description on p. 334. From Mr. N. MOLYNEUX.

Miss Godemark.—A large incurved flower, with characteristic petals. Its colour is coppery or buff, and the petals are slightly hirsute. It should make a fine large incurved when well built up. From Mr. ROBERT OWEN, Maidenhead.

Mrs. A. H. Hall.—A seedling or sport from the variety Edith Tabor, sent out by Mr. Jones. The flower is larger than that of Edith Tabor, and is bronzy-coloured instead of yellow; the florets droop and curl. From Mr. R. KENYON, Monkham Gardens, South Woodford.

In addition to the varieties certificated, Mr. WEEKS had a fine mauve-coloured Japanese with silver reverse, and good petals. The Committee wished to see this variety again.

Mr. R. OWEN showed two good Japanese Incurveds, both of them white, with suspicion of yellow towards the centre. One was Madame Gabrielle Debie, and the other Miss Elsie Fulton.

Messrs. H. CANNELL & SONS, Swanley, showed a white sport from O. J. Quintus.

GARDENING APPOINTMENTS.

MR. FRANCIS ROBERTS, late Gardener at Amondell, Midcaldor, as Head Gardener to Sir James KING, Bart., Carstairs House, N.B.

MR. G. HERRIDGE, late of Fairmile Hatch, as Head Gardener to W. B. WILLIAMS, Esq., St. Peter's Hill, Caversham, Oxon.

MR. A. HALLETT, for the past seventeen years Head Gardener at Chad House, Birmingham, as Head Gardener to E. M. PEARSON, Esq., Edstone Hall, Wooten Warwen, Warwickshire.

MR. A. MCVINISH, who for seventeen years filled the post of Head Gardener at Lockington Hall, near Derby, as Head Gardener to Mrs. PERRY HERRICK, Beau Manor Park, Loughborough.

MR. PETER HARPER, as Head Gardener to MALCOLM INGLIS, Esq., Montrose, Donnybrook, co. Dublin, and not Foreman Gardener, as stated in our previous issue.

MR. ANDREW BROWNE, late General Foreman at Dunardagh Gardens, Blackrock, as Head Gardener to RICHARD PIM, Esq., Stradbroke Hall.

MR. NEIL McADAM, late Head Gardener at Stradbroke Hall Gardens, as Head Gardener to F. C. PILKINGTON, Esq., J.P., D.L., Westbury, Stillorgan, Co. Dublin.

CATALOGUES RECEIVED.

PLANTS, BULBS, SEEDS, FRUIT AND OTHER TREES, SUNDRIES, ETC.

G. SPRINGTHORPE, West Leigh Nursery, Leicester.

AMOS PERRY, Hardy Plant Farm, Winchmore Hill, London, N.

WILHELM PFITZER, Stuttgart, Germany.

JOHN JEFFERIES & SONS, Market Place, Cirencester.

P. LAMBERT, Treves.

A. TRUFFAUT, 40, Rue des Chantiers, Versailles.

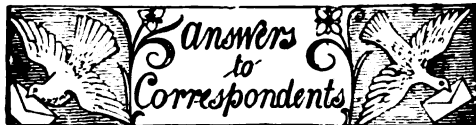
W. SMITH & SON, 18, Market Street, Aberdeen.

M. M. LEVEQUE ET FILS, 60, Rue de Liegat à Ivry-sur-Seine, près Paris.

R. C. BARTLETT & CO., 24, Hail Street, Cumberwell, London, S.E.

WM. WATSON & SONS, Clontarf Nurseries, Dublin.

WOOD & INGRAM, Huntingdon.



CHRYSANTHEMUM EXHIBITION STANDS: *W. Crossman*. The following information, taken from the National Chrysanthemum Society's schedule, will guide you: "Exhibitors must have their stands made of the following dimensions, viz., stands for twelve incurved blooms to be 24 inches wide from left to right, and 18 inches deep from back to front, with holes 6 inches apart from centre to centre, to stand 6 inches high at back, and 3 inches high in front. Two "twelve-boards" may be used for twenty-four blooms, three for thirty-six blooms, and so on. The stands for six incurved blooms to be 12 inches wide from left to right, and 18 inches deep from back to

front; for twelve Japanese blooms to be 28 inches wide from left to right, and 21 inches deep from back to front, the holes seven inches apart from centre to centre. Stands for six Japanese blooms to be 14 inches wide from left to right, and 21 inches deep from back to front. The height at the back to be 7 inches, and 4 inches in front. All stands and their supports to be painted green, and the supports must be secure."

CHRYSANTHEMUMS DISEASED; *E. T.* The plants are affected by the now well-known destructive rust, *Puccinia Hieracii*, figured in *Gardeners' Chronicle*, October 8, 1898, p. 269. See also p. 295, October 15, same volume, for reputed remedies.

DISEASED GRAPES: *Disease*. Your Grapes are affected with spot (*Glæosporium*). It is too late to do anything now, but next season spray the berries two or three times at weekly intervals before they are ripe with weak Bordeaux Mixture.

FRUITING OF STEPHANOTIS FLORIBUNDA: *F. W.* Not an uncommon occurrence in this country. The fruit is poisonous.

GRAPES GOING OFF: *F. E.* The fruit was over-ripe, like that which has been exposed to too much warmth after reaching maturity, hence, it is in a fit condition for parasitic organisms to invade it, although none was visible. The bloom was likewise entirely absent from the berries. We should advise another year the use of flowers-of-sulphur in the houses, on the hot-water pipes, in combination with lime-wash, and in pans of water placed about in the houses. The Vines should not be started earlier than will allow of the crop being eaten before it spoils, and if the weather is very hot when the Grapes are ripe, it will be advisable to bottle them, and store in a cool room.

INSERTING MUSHROOM SPAWN IN PASTURE LAND: *J. M. B.* The season is immaterial. We should, however, give preference to the summer.

NAMES OF FRUITS: *We are most desirous to oblige our correspondents as far as we can, but we must request that they will observe the rule that not more than six varieties be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. They should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*D. R. J.* 1, Napoleon; 2, Winter Nelis; 3, Dr. Trouseau; 4, Fondante du Comice; 5, Scarlet Nonpareil.—*E. C. E.* 1, Brabant Bellefleur; 2, Hanwell Souring; 3, Tibbett's Pearmain; 4, Flower of Kent; 5, Winter Greening; 6, Royal Russet.—*D. G. P.* 1, Belle Julie; 2, Jersey Gratioli; 3, Ah! Mon Dieu, or D'Amour of some pomologists; 4, Summer Strawberry; 5, Duchesse's Favourite; 6, Nelson Codlin.—*F. H.* 1, Scarlet Pearmain; 2, Jolly Beggar; 3, Tower of Glamis; 4, Whiting Pippin; 5, Aromatic Russet; 6, Scarlet Nonpareil.—*G. J.* The two Pears omitted in the reply to your enquiry are as follows—5, Besi Espersen; 6, Castelline.—*J. E. A. B.* 1, the ripe Pear was smashed by contact with the Apples; 2, Nanny; 3, Golden Spire; 4, Nelson's Codlin; 5, Cobham; 6, Plum Red Perdrigon.—*J. J.* 1, Cellini; 2, Fair Maid of Taunton; 3, Ecklinville; 4, Winter Greening, also known as French Crab; 5, a poor example of Flower of Kent.—*A. L. B.* 1 and 3, not received; 2, Scarlet Nonpareil; 4, Downton Pippin; 5, Hornead's Pearmain; 6, Gloria Mundi.—*C. L.* 1, Pearson's Plate; 2, Irish Reinette; 3, Carlisle Codlin; 4, New Hawthornden; 5, Winter Quoining; Pear quite decayed.—*F. H.* 1, Seek no Further; 2, decayed and almost unrecognisable, but it resembles Madeleine; 3, Scarlet Leadington.—*C. E. T.* 1, Striped Beesing; 2, Transparent Codlin; 3, Fillbasket, distinct from that known as the Kentish Fillbasket. Some of your specimens had the labels fixed to the eye by a piece of wood forced into the centre of the Apple. This is a bad method, as the important characters derived from that part of the fruit are thus destroyed.—*G. E. P.* We believe this to be a highly coloured fruit of Bees Pool. There is an old variety known as Tulip, or Dutch Tulip, but it is a desert variety, and quite distinct from that sent; 2, Lewis's Incomparable; 3, Hawthornden; 4, Harvey's Wiltshire Defiance.—*P. W. H.* The fruits arrived

in very bad condition, being partly decayed, but they appear to be as follows: 1, Manx Codlin; 2, Lord Suffield; 3, Ecklinville.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Alfred Gant*. *Veronica austriaca*, var. *prenja*.—*M. C.* *Sedum pulchellum*.—*E. M.* *Crataegus coccinea*.—*X.* 1, *Viburnum Opulus*; 2, *Acer campestre*; 3, *Potamogeton heterophyllus*.—*W. C. & Co.* *Lycium barbarum*.—*P. C.* 1, *Juniperus virginiana*; 2, *Thuya orientalis* var.; 3, *Juniperus Schottii*; 4, *Pinus excelsa*; 5, a *Pinus* without cones; it is impossible to name—perhaps *P. contorta*; 6, *Cryptomeria japonica*.—*L. H. F.* 1, *Eranthemum variegatum*; 2, *Eranthemum atropurpureum*; 3, *Fittonia argyrea*; 4, *Fittonia Pearcei*; 5, *Cyrtodeira fulgida*; 6, *Selaginella involvens*.—*J. H. S. H.* So far as we can judge without seeing fertile frond. It is a form of *Lomaria gibba*.—*V. & B.* *Nantwich*. The specimen is one of the garden forms of *Pteris* obtained between *P. tremula* and *P. serrulata*, probably.—*C. G.* *Leycesteria formosa*.—*J. J.* 1, *Amelanchier vulgaris*; 2, *Taxodium distichum*.—*J. W.* 1, *Berberis vulgaris*; 2, *Forsythia suspensa*; 3, *Chrysanthemum Balsamita*.—*C. E.* *Rhus toxicodendron*, very poisonous; not an *Ampelopsis*, though sometimes so mis-called.—*C. D. B.* The American Black Walnut, *Juglans nigra*; *Phytolacca decandra*.—*L. S.* The African *Crinum* will thrive in an ordinary greenhouse or conservatory; when actively growing it requires abundance of water at the root.—*J. O.* *Centaurea Calceitrapa*, introduced with foreign seeds.—*C. J. P.* *Quercus virens*.—*A Young Gardener*. *Populus nigra*.—*Grimstone*. Certainly a *Cycad*, probably an *Encephalartos*. If you send a fragment of a leaf we can tell you more certainly.

SERVANTS' TAX: *E. M.* If the men are gardeners, and not merely labourers, you are liable to pay 15s. for each per year.

SHAMROCK: *F. B.* What you send is a species of *Oxalis*. What is sold in London as Shamrock is *Trifolium repens*.

UNEARNED INCREMENT: *Correspondent*. Your proposal that the Royal Horticultural Society should share in the financial advantages accruing from the bestowal of First-class Certificates is, to our thinking, most undesirable. It would degrade the Society, and be of no use to the public. You might as well suggest that the horticultural press should benefit by the reports of the meetings, or by the insertion of illustrations of the objects exhibited. What amount of faith or respect could the public be expected to have if the Society or the press received commissions of this kind, secret or otherwise.

USES FOR EMPTY HOTHOUSES: *B. D.* You might grow Dutch bulbs, Tulips, Hyacinths, Narcissus, and force them in boxes; also, Lily of the Valley crowns, *Lilium longiflorum* Harrisii, Roses, Selaginellas, Maidenhair Ferns, Tuberoses, Mustard-and-Cress, Rhubarb, blanching it partially under a covering of clean straw; Seakale, in darkened boxes, or under Seakale pots; French Beans, and even Mushrooms. See article on the subject in our issue for October 21, p. 307.

COMMUNICATIONS RECEIVED.—*Sykes Gazette*, Birmingham.—*J. O'B.*—*J. L. Mitcham*.—One who Wants to Know.—*A. B.*—*D. T. F.*—*R. W.*—*Pomona*—*G. H.*—*H. W. W.*—*Gardeners' Magazine*.—*W. G.*—*J. G.*, Liverpool.—*Midland*—*J. Mayo*.—*A. C. B.*—*E. C. R.*—*J. C.*—*J. J. W.*—*W. E. G.*—*W. & M.*, Texas.—*W. J. B.*—*C. B.*—*W. S.*—*H. P. A.*—*W. H. S.*—*R. H. W.*—*J. W.*—"Oakdale".—*G. S. N.*—*H. F.*—*P. A. J.*—*W. J. W.*—*T. S.*, Wiltshire.—*M. A. G.*—*Sir C. S. A. M.*—*J. V.*—*E. S.*—*K.*—*S.*—*G.*—*Hunt*.—*C. W. H.*—*Grower*.—*W. R.*—*Innes Hopkins*.

PHOTOGRAPHS RECEIVED WITH THANKS.—*A. C. B.*—*E. J. L.*—*R. Lindsay*.

IMPORTANT TO ADVERTISERS.—*The Publisher* has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, considerably

MORE THAN DOUBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets and Weather, see p. xii.)



THE

Gardeners' Chronicle

No. 671.—SATURDAY, NOV. 4, 1899.

SHAKESPEARE AS A GARDENER.

SAYS Carlyle:—"I confess I have no notion of a truly great man that could not be all sorts of men. The poet who could merely sit on a chair, and compose stanzas, would never make a stanza worth much. . . . The grand fundamental character is that of Great Man; that the man be great. . . . The great heart, the clear, deep-seeing eye; there it lies; no man whatever, in what province soever, can prosper at all without these. Petrarch and Boccaccio did diplomatic messages, it seems, quite well—one can easily believe it, they had done things a little harder than these! . . . Shakspeare—one knows not what he could not have made, in the supreme degree."

One profession he might have adopted, O sage of Chelsea, with results that would have satisfied the most fastidious cultivator of Eden—the craft of Adam. Poet as he was, the practical culture of fruit and flowers was well understood by him, as his plays bear witness. We recommend all true gardeners to the study of Shakespeare; not only is the advice he gave of no small commercial value even to-day, but readers will perceive in the strain of natural philosophy that clothes his observations, some of the very thoughts which often come to themselves whilst tying, pruning, watering, or planting; and they will exclaim, as many others of diverse callings are compelled to do, "Why, that's just what I was thinking yesterday! what a marvel Will Shakespeare was?"

Every intelligent gardener resembles Shakespeare in this respect, according to his cerebral capacity. It is the fashion of Nature-lovers to connect external facts with their ethical significance. We knew a worthy old gardener, a second Mr. Oldacre, who regarded the floral world in the same manner as a human race; nay, we rather believe that flowers were more real creatures to him than his own kind, for he lived in a quaint universe of his own creating, a man to whom we delighted to listen for hours. Chrysanthemums were an abomination to him; he grew them only under constraint of orders, and the blooms failed annually! "Fantastic foreign fal-de-lals" was his contemptuous term for them. Zonal Pelargoniums he abhorred also, "gaudy wenches, a shame to any modest garden," he averred. Mignonette he loved, yet could never hold a sprig in his hand without causing big tears to roll down his tanned cheeks, and his whole frame to quiver. "My little girl's favourite blossom," he would say, chokingly, "we called her Mignonne, too! A Frenchified name, but her mother willed it. We gave her back to God twelve years ago." Roses were his chief joy, and wonderful was the skill with which he tended these "honest English laases." In such fashion did our noble old friend follow humbly after Shakespeare's natural philosophy, and weird, whimsical enchantment.

We have not sufficient space in a single paper to quote the numerous instances of our world-poet's fitness to qualify as a certificated gardener; it will, indeed, be a pleasant task for each to search out proofs in his magic pages; they are plentiful enough, and come upon us with a spontaneity at once charming and astounding. Where Shakespeare learned the craft is open to guessing; our own conclusion is that gardeners, like poets, *nascuntur non fiunt*, and that he is another proof of the fact. We will conclude with one short extract from Richard II., act iii., scene 4, which forms a good example of both practical knowledge and ethical comparison. Richard's queen overhears the head gardener and his two assistants—

Gard. Go, bind thou up yon' dangling Apricocks,
Which, like unruly children, make their sire
Stoop with oppression of their prodigal weight;
Give some supportance to the bending twigs.

You, thus employ'd, I will go root away
The noisome weeds, that without profit suck
The soil's fertility from wholesome flowers.

1st Serv. Why should we, in the compass of a pale,
Keep law, and form, and due proportion,
Showing, as in a model, our firm estate?
When our sea-walled garden, the whole land,
Is full of weeds; her fairest flowers choked up,
Her fruit-trees all unprun'd, her hedges ruin'd,
Her knots disorder'd, and her wholesome herbs
Swarming with caterpillars?

Gard. Hold thy peace:
He that hath suffer'd this disordered spring
Hath now himself met with the fall of leaf.
The weeds that his broad-spreading leaves did
shelter,
That seem'd in eating him to hold him up,
Are pluck'd up, root and all, by Bolingbroke;
I mean the Earl of Wiltshire, Bushy, Green.

1st Serv. What, are they dead?

Gard. They are; and Bolingbroke
Hath seiz'd the wasteful king. O, what pity is it
That he had not so trimm'd and dress'd his land
As we this garden! We at time of year
Do wound the bark, the skin of our fruit-trees,
Lest, being over-proud with sap and blood,
With too much riches it confound itself;
Had he done so to great and growing men,
They might have liv'd to bear, and he to taste
Their fruits of duty.

H. Grimshire Bennett.

[Our readers will hardly need reminding of Canon Ellacombe's "Plant Lore and Garden Craft of Shakespeare." Ed.]

NEW OR NOTEWORTHY PLANTS.

CATTLEYA LABIATA "MRS. R. I. MEASURES."

A few years ago, R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr., Mr. H. J. Chapman), was fortunate enough to flower a very handsome and distinct pure white form of *Cattleya labiata*, the front of the labellum being veined with clear pink colour, and which was described in the *Gardeners' Chronicle* as *C. labiata* "R. I. Measures." Nothing quite like that form has been imported since; but the same gentleman now has the good fortune to flower out of plants secured from Mr. Ed. Kromer's importation, another grand white *C. labiata*, which is in every point a worthy companion to the earlier acquisition. The flowers of the new arrival are of fine shape and substance, the sepals and petals pure white, the petals having a slightly crimped margin. The labellum is sulphur yellow on the inside of the tube, streaked with fine oblique lines of purple. The front lobe of the lip is white with a central blotch of glowing velvety purple, which looks all the more vivid for its broad, white crimped margin. *James O'Brien.*

ORCHID NOTES AND GLEANINGS.

"DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES."

THE numbers of this useful little publication for July and August, 1899, contain coloured illustrations of the following species and varieties:—

July.—1. *Ada aurantiaca*, Ldl.; 2. *A. a. var. maculata*, Hort.; 3. *Cochlidia Noezliana*, Rolfe; 4. *Cymbidium Lowianum v. concolor*, Rolfe; 5. *Dendrobium pendulum*, Roxb.; 6. *Epidendrum Frederici-Guilielmi*, W. & R. f.; 7. *Masdevallia leontoglossa*, Rehb. f.; 8. *Odontoglossum excellens var. nobilior*, Hort.; 9. *Oncidium crispum var. Lionetianum*, Cogn.; 10. *O. leucochilum*, Batem.; 11. *O. Carthaginense*, Sw.; 12. *Phalenopsis Manni*, Rehb. f.; 13. *Vanda teres*, Ldl.

August.—1. *Cattleya Mossiae v. ecerulea*, Cogn.; 2. *C. Gaskelliana*, Rehb. f.; 3. *C. G., v. alba*, Will.; 4. *Compantia macroplectron v. punctatisimum*, Cogn.; 5. *Cypripedium selligerum*, Rehb. f.; 6. *C. superciliosum*, Rehb. f.; 7. *Epidendrum vitellinum*, Ldl.; 8. *Masdevallia Harryana v. longiflora*, Cogn.; 9. *Odontoglossum luteo-purpureum v. Vuyetianum*, Hort.; 10. *Phalenopsis sumatrana*, Korth.; 11. *Renanthera matutina*, Ldl.; 12. *Vanda Parishii*, Rehb. f.; 13. *V. P. v. Marriottiana*, Rehb. f.

LINDENIA.—The two last parts, issued in one, complete the 14th volume of this important publication. They comprise illustrations and descriptions of the following plants:—

Cypripedium bellatulum var. Chotekae, t. DCLXV.—The spots on the perianth segments are of a brownish-rose colour.

Odontoglossum Wilckeanum (Rehb. f.) *var. gintoniana*, t. DCLXVI.—Flowers large, perianth flat, segments stellate, lanceolate, undulate, pale yellow, whitish at the base, heavily blotched with chocolate spots; lip obovate, oblong acuminate, white edged with yellow. It is a natural hybrid between *O. crispum* and *O. luteo-purpureum*, and has been produced artificially by M. Leroy of Armainvilliers.

Cattleya Loddigesii (Lindley) *var. Harrisoniae*, Veitch, t. DCLXVII.

Cypripedium Haumontii × (Linden), t. DCLXVIII.—A hybrid out of *C. Harrisonianum* ×, by pollen, as is supposed, of *C. Crossianum* ×; if so, it inherits the qualities of *barbatum* and *villosum*, the parents of *Harrisonianum*, and of *venustum* and *insigne*, the progenitors of *Crossianum*.

Aspasia lunata (Lindley), t. DCLXIX.

Cypripedium Parishii (Rehb. f.), t. DCLXX.—Flowers in racemes of four to six; standard obovate-oblong, pale green, with darker streaks; petals linear, 10–13 cents. long, contorted, deflexed, purplish-brown, with a few hairy warts on the edge; lip green, flushed with brown.

Odontoglossum Ruckerianum (Rehb. f.) *var. Gour-nayana*, t. DCLXXI.—Flowers racemose, each about 10 cents. across; perianth flat, stellate; segments narrowly lanceolate, whitish, heavily blotched with purplish-brown spots, and flushed in the centre with pale rose; lip elongated, with a raised crest at the base, clear yellow.

Odontoglossum Schlieperianum (Rehb. f.) *var. xanthina*, t. DCLXXII.—Flowers racemose, perianth 10 cents. across, stellate; segments oblong-acute, pale yellow, with pale brown blotches; lip with a narrow stalk, obovate, pale yellow.

CYPRIPIEDUM CHARLESWORTHII.

Flowers of the two extremes of this useful Orchid, render it difficult to believe them to belong to the same species. A flower comes from Captain Holford, Westnabirt, Tetbury (gr., Mr. A. Chapman), of a superb and richly coloured variety, and of the largest type. The dorsal sepal is 2½ inches broad, of a bright rose colour, changing to white towards the apex, the lower part being purplish-rose, which spreads upwards in feathered lines. The petals are of a pale green tint, and closely

veined with brownish-purple; the lip is tinged also with brownish-purple, and the staminode is pure white. The other extreme has flowered with J. W. Moore, Esq., Cragg Royd Nurseries, Rawdon, near Leeds, which may be described as an albino, or a form in which the colouring is suppressed. The flower is at present small in size, as also is the plant. The petals and lip are of a pale green, the dorsal sepal and staminode clear white—a very singular variety.

CATTLEYA × LORD ROTHSCHILD.

A flower of this fine hybrid, sent by Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. Murray), from a plant raised at Oakwood, well represents its fine qualities which combine the best features of both parents. In general appearance it resembles *C. × Hardyana*, but the lip is broader and rounder in outline than in that variety. The petals measure 7 inches across, and 2½ inches wide. The sepals and petals of a bright rose colour, small freckles of creamy-white appearing between the veining; and the base of the lip is of orange colour with a reddish tinge, and striations which extend into the bright crimson-purple colouring of the front lobe. On each side of the centre of the lip are bright blotches of clear yellow, which extend into the front portion of the side lobes. The side lobes as well as the front are finely crimped. It was obtained from *C. Gaskelliana* ♀, *C. aurea* ♂.

ONCIDIUM VARICOSUM INSIGNE.

In the year 1897, several very distinct and richly-coloured examples, all bearing the same characters, were taken by their possessors to be of a new type. They appeared in an importation of Orchids. Ultimately, the form, which appears to be fixed, was described by Mr. R. A. Rolfe, in the *Orchid Review*, January, 1898, p. 27, as *Oncidium varicosum* var. *insigne*, a name which, to those who know the plant, will be more reliable than the varietal name *Rogersii*, applied to another section of the species. A fine inflorescence of the true plant has been sent by Captain Holford, of Westonbirt, the individual flowers of which are as large as those of the best forms, but they are of a much darker colour; the prominent feature is a bright red-brown mark surrounding the crest. The sepals are of a dark reddish-brown tint, with a few small greenish-yellow markings.

FRIAR PARK, HENLEY.

IN our last week's issue, a descriptive and illustrated article upon the gardens at Friar Park was given. Our illustration at fig. 112, was taken on the east front of the mansion. It represents a wigwam, with the entrance to it visible from the dwelling-rooms. Crimson Rambler Rose has climbed over this little "rest," and almost screens its outlines from view. When our photograph was taken, the Rose bore myriads of crimson flowers, and the "Wigwam" had an appearance even much prettier than may be imagined from a photograph, however successfully it be taken.

THE CULTURE OF MALMAISON CARNATIONS.

It is rare to find this variety of Carnation healthy and vigorous, and I am within the mark when I say that no one has yet found a royal road to its cultivation. I have found that the chief causes of failure are too much warmth and excess of water at the root. Let the gardener obtain healthy plants in August or September, pot them in 3-inch pots, using a heavy loam, a small quantity of sand and leaf-soil. Put them in a cold frame, and keep them shaded; and when the roots touch the side of the pots, shift them into 5-inch pots, using the same kind of compost; place them in a cold frame or house, and be very careful in affording water—indeed, the soil should get almost as dry as dust; then apply rain-water copiously. The air of the house should be dry.

A damp atmosphere is the chief cause of the

spread of disease among this tribe of Carnations. The plants should be placed in slight warmth in the month of March, and be afforded water more often, not being allowed to get so dry as in the winter months; and applications of soot-water and sheep manure-water will now be necessary, the plant requiring a good deal of aid to support its very large flowers. The buds should be reduced to three, and the plants shaded at all times from the bright sun. These young plants will possess from six to eight growths, if they are properly treated; and if large specimen-plants are required, shift them, when they have done flowering, into 8-inch pots, using the same kind of compost as that before advised, but much rougher—about the size of walnuts. Pot the plants rather firmly, and stand them in a shaded place, on a coal-ash floor, out-of-doors till the end of the month of September; then

"Malmaisons," of which many have been introduced to commerce during the past six years, it may be said that they need far less care, for being the offspring of crosses with hardy garden varieties, they resist the diseases so common to those, but whilst giving us variety of colour from white to deep crimson, they do not possess the same beauty as the true *Souvenir de la Malmaison*.

The raisers deserve unstinted praise for these, among the best of which are the Churchwarden and the Shah, deep crimson; Albion, dark salmon; Lord Rosebery, dark rose; Mrs. M. Smith and Lady Rose, bright rose; King Oscar, bright crimson; Prime Minister, Mrs. de Satge, Horace Hutchinson, brilliant scarlet; Nautilus, flesh; and Nell Gwynne, white. These varieties may be afforded more warmth than the true *Malmaison*, and thus be brought into flower earlier in the

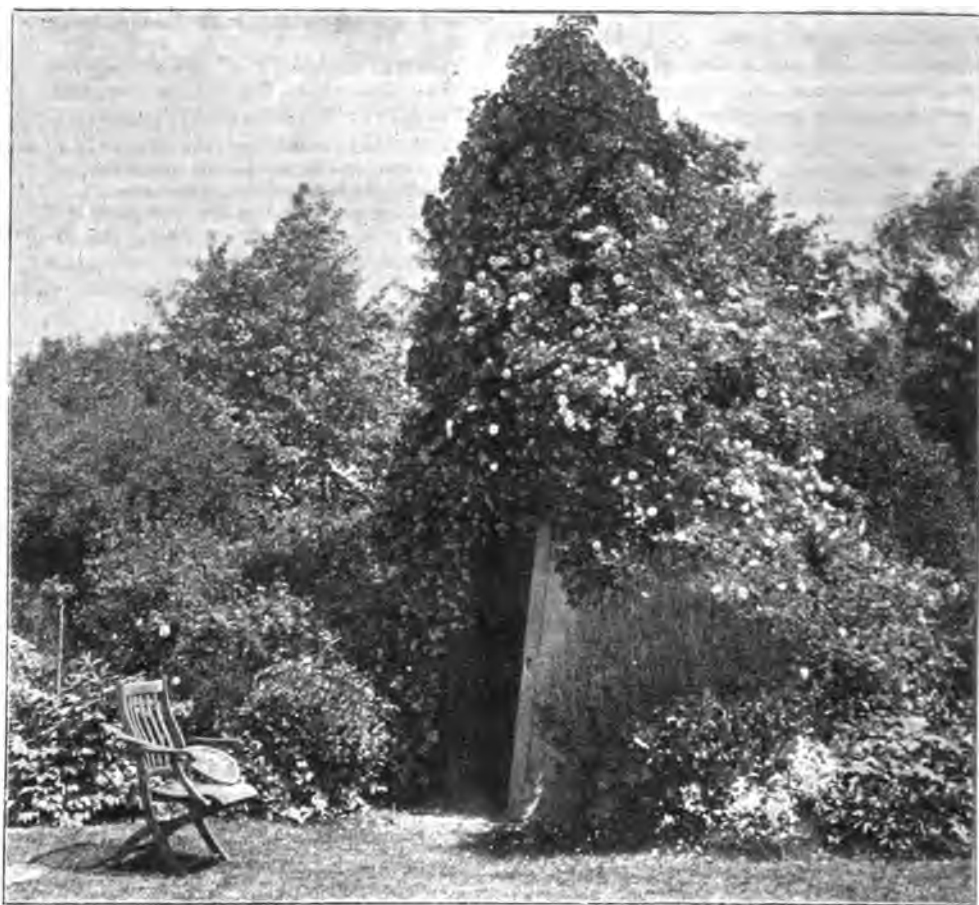


FIG. 112.—WIGWAM IN THE GARDEN OF F. CRISP, ESQ., HENLEY.

remove to a cold house, and treat as before for young plants. These plants will show a quantity of flowers at a little earlier date than the young plants.

Fumigation must be well attended to, or the leaves will get badly marked. Tobacco-powder used on the foliage at intervals of ten days is generally sufficient to keep green-fly away, and this is the only insect-pest which troubles these plants. The livid blotches and spots that are generally to be seen on the leaves are the results of puncture by green-fly in its early stage, and they are thought by some persons to be a disease; but if kept clean, the plants will not show any spots or marks whatever. Should the fungus, *Helminthosporium echinulatum* make its appearance, the plants should be dipped or sprayed with a solution of sulphate of copper; a wineglassful to a gallon of soft water. While writing these notes, I have in my mind the old bluish and pink varieties, and the striped Lady Middleton. Of the newer varieties of so-called

season. If flowers are wanted in the autumn and winter, remove flower-stems in the spring, and afford the plants a shift into pots of a larger size when necessary, and keep in a cool house throughout the summer. The plants will flower from October onwards. To sum up, the requirements of these plants are a cool rather heavy loam, to be grown in the shade and a dry airy atmosphere, and kept at all times on the dry side, not treating them as tender plants, as a few degrees of frost will benefit rather than injure them. *W. Clifford, Maxwellthugh, Kelso, N.B.*

NOTES ON SOME AUTUMN FLOWERS.

Colchicum Sibthorp.—This large and handsome Meadow Saffron well deserves to be brought more prominently before those who care for the dwarfier flowers of autumn. It is particularly valuable for the rock-garden, which is, at this season, less

attractive than earlier in the year. It is, I believe, the largest of the Colchicums, with well-marked tessellations. Its flowers are also of better form than those of the Meadow Saffron generally grown as *C. variegatum*, although less distinctly chequered. The general effect of the combination of the shades of coloration is that of a soft rosy-purple.

Here, I find this Colchicum a perfectly hardy plant, and a most free-flowering species, besides having the merit of increasing quickly. The light soil at the base of a rockery suits it in this garden, and in a few years the solitary corm with which I commenced, has become a good clump, producing some thirty flowers. As the leaves of Colchicum

that there must be some other reason for its non-success. The plant is seen growing and flowering well in gardens with strong and rich soil. On such, if it will grow at all, the Scabious will give larger flowers. The white variety, which comes in very usefully for cutting, does not always grow well, even where the coloured form succeeds. I have, however, been much impressed with the free way in which both grew and flowered in several gardens in and about Edinburgh this autumn. In one nursery I saw a large number of the coloured and the white forms, and both were very fine indeed. In a bed of seedlings I observed several plants of superior quality, and well worth selecting and

specimen, which was about 2½ feet across, one was pleased to see it so good in one of the ordinary beds in the arrangement for the use of those studying botany. Here it made quite a picture with its mound-like form, composed of little leaves covered with the small, white Lobelia-shaped flowers. In such a place one could also see, better than in an ordinary rock-garden, the creeping habit of the plant. This New Zealand *Pratia* is quite hardy, but it may be lost in times of drought unless it is liberally supplied with water. It is occasionally met with as *Lobelia littoralis*.

CROCUS ZONATUS.

As a rule, *Crocus zonatus* is not the earliest of the autumnal species to flower in this garden. This year, however, it has been in advance of all others. Whether early or late, it is ever welcome, with its soft-coloured, delicate-looking flowers. We have, indeed, few to equal it in chaste colouring among the fairly numerous autumn bloomers. *C. speciosus* and *C. byzantinus* are larger, but they have not the refined and attractive colour which makes the zoned *Crocus* so charming. It is of a soft, rosy-lilac, veined internally with a few purple lines, and showing at the base of the interior of the flower a pretty zone of orange. The anthers are white, the filaments yellow, the style branches being yellow also. It is a *Crocus* which grows freely in this garden, where it blooms annually. Readers of the *Gardeners' Chronicle* may remember the excellent illustration from a photograph by Mr. Siehe, which showed a mass of *Crocus zonatus* in its native habitat in Cilicia (Feb. 5, 1898, p. 85). We cannot all have it in such profusion, but many of us could enjoy the beauty displayed by a clump of this pleasing member of an invaluable genus. *S. Arnott, Carsethorn-by-Dumfries, N.B.*



FIG. 113.—CYPRIPEDIUM OLIVIA = *C. TONSUM* AND *C. NIVEUM*.

CYPRIPEDIUM × OLIVIA (TONSUM × NIVEUM).

OUR illustration (fig. 113) represents the pretty hybrid *Cypripedium* × *Olivia*, shown by Messrs. Hugh Low & Co. at the meeting of the Royal Horticultural Society, October 10. The introduction of *C. tonsum* as one of the parents, has produced the effect which was expected of it, by producing an attractive flower of fine substance, all the segments being well rounded. The flowers are cream-white, tinged over the face of the labellum, and the dorsal sepal with pale rose-colour, all the parts also bearing more or less heavily dotted purple lines, the dorsal sepal having pale greenish area at the base.

PLANT NOTES.

SAINTPAULIA IONANTHA.

THIS pretty plant, of dwarf growth, is adapted either for pot-culture or for planting-out in borders of the stove or conservatory, and the deep blue flowers are produced very freely during the summer and autumn months. It is easily raised from seed sown in the spring, and may also be increased from leaf-cuttings.

TILLANDSIA CARINATA, SYN. VRIESIA BRACHYSTACHYS.

This beautiful Bromeliad deserves to be more generally cultivated, even in establishments where these plants are seldom represented. It is a remarkably free-flowering plant, and, like all of the Bromeliaceous family, it is of easy culture. Probably the scarlet, boat-shaped bracts, from which the yellow flowers protrude, are more attractive than the flowers themselves. The flowers do not last many days in perfection, whereas the bracts, which are arranged in two rows at the top of the flower-spike (which is about 5 or 6 inches in height), remain fresh for a considerable time after the flowers have disappeared. Being a winter-flowering plant, it should be useful, by way of variety, for furnishing small vases where table-decoration is carried out. *J. G., Botanic Gardens, Liverpool.*

Sibthorpi, like those of the other autumnal Meadow Saffrons, are not produced until spring, the appearance of the flowers is enhanced if they rise above a carpet composed of a plant of dwarf habit. I find some of the *Aënas* very suitable for this.

SCABIOSA CAUCASICA.

One finds much difference in the behaviour of *Scabiosa caucasica* in gardens. In some, it never seems to thrive, and dwindles away without apparent cause. In others, it grows not only with freedom, but even with comparative vigour. In some gardens, also, even where it grows well, it fails to produce perfect blooms, nearly every flower having one or more imperfect petals. Nor can I ascribe this defect to any observable cause. At one time I considered that *S. caucasica* preferred a rather light soil, but after seeing a good many gardens of that nature in which it was no happier than in others, I was driven to the conviction

propagating from. In my own garden, I find that *S. caucasica* needs good feeding, and has a considerable liability to suffer from drought.

PRATIA ANGULATA.

During a visit to several gardens in and around Edinburgh in the middle of September, no other alpine flower gave me so much pleasure as *Pratia angulata* in the Royal Botanical Gardens there. As may be supposed, it is not a plant new to the writer. It is a flower which is not, however, too often seen, and then rarely so fine as the Edinburgh plant. In my dry garden it is a difficult subject, as it seems to resent having to grow in a very dry soil. Indeed, I am inclined to envy one of my friends the freedom with which *Pratia angulata* thrives in his rock-garden. I do not recollect having met with a specimen equal to that in Edinburgh in any of the numerous gardens it has been my privilege to see. Apart from the size of the

FERN - PROTHALLI.

RECENT research into the phenomena of Fern life in its inconspicuous form of the prothallus, and especially the investigations of Dr. W. H. Lang, recorded in his monograph *On Apogamy, and the Development of Sporangia upon Fern Prothalli*, issued by the Royal Society, throw so much additional light upon the subject, that a short summary may merit a space in the columns of the *Gardeners' Chronicle*, especially as the monograph itself is likely to be far more limited in its circulation.

The prothallus of a Fern is the first product of the spore, and, normally, is destined to produce organs of two classes, which are practically equivalent to the stamens and pistils of flowers, and by the interaction of whose contents there results the fertilisation of an ovum, which thereafter develops into a Fern capable of bearing spores again, and so completing the life cycle. That cycle is first spore, then prothallus, archegonia and antheridia (male and female organs), fertilised ovum, and spore-bearing Fern.

Professor Farlow, however, in 1874 discovered that this cycle was shortened in some cases, *Pteris cretica* to wit, by a simple vegetative bulbil or bud being produced on the prothallus without any sexual action at all, though this bulbil arose precisely where a fertilised ovum would have occurred. The cycle was thus reduced to spore, prothallus, spore-bearing Fern, and spore again, a very short cut indeed, and peculiar in the fact that generation after generation is produced without fertilisation of any sort being apparent. I am careful to say "apparent," because certain phenomena have been observed with regard to the nuclei of some of the cells on these apogamic or non-fertilising prothalli, which indicate the possibility of nuclear combination in the cells without the antecedent formation and connection of external organs, the result being the direct formation of a bud. In this connection, when we consider that it is the one primary cell in the spore which, by multiplication by fissure and growth, produces, eventually, both the archegonia and antheridia, and the antherozoids contained in the latter, which, to cause normal fertilisation, must traverse a space and combine with the ovum at the archegonial base, it does not appear an unlikely thing that among other vagaries, certain cells may arise in which both potencies exist in the shape of modified or double nuclei, and thus another short cut be found practicable; the non-fertilisation being merely apparent, but not actual. At present, however, this is only theory, though it certainly indicates a line of research well worth pursuing.

SPORE-CASES AND SPORES ON THE PROTHALLUS.

The most striking fact observed by Dr. Lang, was the production of sporangia and spores on the prothalli of more than one species of Fern, the prothallus itself thus fulfilling the entire life cycle, shutting out altogether the foliaceous spore-bearing phase by which Ferns are recognised as such, and reducing highly-developed species, such as the Hartstongue and *Lastrea dilatata* at one stride to the level of a *Marchantia*, i.e., always presuming that spores so engendered inherited the peculiarity, and were only capable of producing sporiferous prothalli in their turn. Here, the life cycle is reduced to spore, prothallus, spore, which seems an absolute minimum; only equalled by that of a Fern which is both aposporous and apogamous, like *L. p. m. cristata* *apospore* (D.), whose life cycle is Fern, prothallus, Fern, the frond tips bearing prothalli which produce non-sexual bulbils yielding Ferns again. In Dr. Lang's examples, however, of these sporiferous prothalli, this minimum life cycle can hardly be regarded as established as the selfsame prothallus displays its versatility by producing the usual sexual organs of both classes, in addition to sporangia; and to crown the edifice literally, the fleshy excrescence in the indentation of the heart-shaped prothallus scale, which bears all these reproductive bodies, actually buds out at the top into

a Fern of the spore-bearing generation, in the particular case in view, a Hartstongue. We have therefore all varieties of reproductive energy represented within the space of about $\frac{1}{4}$ inch: first archegonia in numbers, but obviously frustrated in attempts at fruition, since no fertilised ovum appears; next, a bunch of sporangia containing spores, and by their presence cutting out the Fern proper altogether; and then as if by way of protest, the Fern proper appears after all as a final and successful attempt of the prothallus to do its reproductive duty somehow. In this particular prothallus, therefore, we have really three concurrent life cycles, first the normal already described, second the extreme short cut also described, finally the apogamic short cut of spore, prothallus, spore-bearing Fern, and spore again.

APOGAMY.

In Dr. Lang's cultures, of which over eighty illustrations are given, there are numerous cases of apogamy developed in various ways, and the eccentricity of the prothallus is shown to be limitless, in some cases thick fleshy hairy roots proper being developed in lieu of plants by way of a novelty. Undoubtedly much of this eccentricity and of the resulting abnormal modes of reproduction are due to the mode of culture adopted, moisture only being afforded from below which is assumed to check fertilisation, since in the absence of overhead flooding the antherozoids fail to be conveyed or to make their way to the archegonia. My experience is, however, opposed to this view, it being my practice never to water cultures overhead, but only from below by soakage; fertilisation, however, takes place freely, and as the cover-glasses are usually wet with deposited moisture (though never to dripping point), there is no doubt that a similar deposition occurs on the under side of the prothalli in sufficient degree to permit the antherozoids to swim in it and reach the archegonia. I am therefore inclined to impute the non-fertilisation, which seems to be a condition precedent for the abnormalities observed, to some other cause than overhead dryness, say, a super-saturated soil or defective light, both of which might interfere with healthy, normal growth, and induce a plethoric condition, tending at once to non-fertility and abnormal vegetative growth. Curiously enough, some years ago, in my little book, *Choice British Ferns*, I enumerated the vagaries then known to occur, and suggested that spore-bearing prothalli were alone required to complete the possibilities.

THE PROTHALLUS AND ITS POTENTIALITIES.

These have now turned up, and it seems to me that the prothallus has now proved itself capable of all the functions of Fern life, and, in principle, has exhausted all possible variations, since it is seen to be capable of producing further prothalli by buds, spore-bearing fronds by buds, and last, but not least, recur to its own starting-point, and breed its own spores. The Fern proper, on the other hand, associates bulbils with its spore-heaps, bears them in its axils and elsewhere, develops them from cut surfaces, and in all these ways ousts the prothallus from its life cycle; next it develops prothalli instead of spores, or from its apical points, and so ousts the spore from the life-cycle, and in the younger stages of *Scol. v. Drummondiae*, the frond-tips bear sexual organs, and thus usurp the functions of the prothallus. Thus all the formerly presumed hard-and-fast lines are set at naught, and all possible variations in principle would appear to be discovered as existent.

Finally, I may remark that the bulk of these interesting facts have been discovered in connection with marked varietal forms of our native species; two, especially *Scolopendrium vulgare* var. *ramulosissima*, and *Lastrea dilatata cristata gracilis* (Roberte), yielding prothalli upon which, not merely in one but in numerous cases sporangia were developed. *Chas. T. Drury, F.L.S., V.M.H.*

EAST THORPE, READING.

THE RESIDENCE OF ALFRED PALMER, ESQ., J.P.

THIS charming and compact place, pleasant at all times, but particularly so at the end of April and early in May, when the spring flowers are at their best, is situated on the rising ground on the south side of Reading, and is flanked on the east by the Redlands Road, towards which the mansion faces. It is built of red brick, with terra-cotta facings, from a design by Mr. A. Waterhouse; and commenced in 1880, it was completed in 1882. The gardeners' residence is on the north side, the offices and glass-houses are in the rear. The grounds, with pleasure-garden, houses, &c., comprise about three acres of land. The houses are numerous, generally of medium size, well adapted for their several purposes, but for lack of space packed somewhat closely together, and running from north to south or east to west.

Taking the houses in their order, as seen in the spring, first comes a span-roofed building for flowering purposes, gay with Hyacinths, Tulips, Daffodils, and other spring-flowering plants. Daffodils are great favourites for cutting purposes, and the collection is increased year by year, the long Trumpet varieties and the old double varieties being greatly esteemed for various decorative purposes. Some climbers are overhead—a purple-flowered *Swainsonia*, the Nash Court variety of *Lapageria rosea*, the white variety also, and *Manettia bicolor*, which flowers freely, and blooms for a considerable time, the blossoms bright scarlet at the lower portion and the tube yellow. This house is 48 feet by 32 feet, and is kept furnished with *Richardias*, *Carnations*, *Astilbes*, *Deutzias*, *Hippeastrums*, *Primula sinensis*, *Azaleas*, *Cinerarias*, &c.; with *Cannas*, *Streptocarpus*, *Gloxinias*, &c., coming on in batches for succession, with zonal *Pelargoniums*, &c. A good specimen of *Rhododendron Countess of Haddington* in fine bloom was a feature.

From this house a descent is made into a sunken fernery, the walls of which are lined with tufa, and planted with Ferns, handsome-leaved *Begonias*, &c., with fine specimens of *Coleogyne cristata* planted near the top. From this a further descent is made to a small house of cool Orchids, constructed so as to shut out the view of a rubbish-heap. There is a good collection, and the house proves very useful for late *Cypripedium insignis*, &c. Below the stages the walls are faced with tufa, and planted with Ferns, &c.

Next comes a span-roofed, cool greenhouse for flowering plants, and here, coming on into bloom, were *Liliums*, decorative and zonal *Pelargoniums*, *Astilbe*, *Deutzias*, &c., for succession. For general decorative work, and indeed for all purposes, Mr. J. Woolford, the gardener at East Thorpe, thinks the old *Astilbe japonica* the best.

Pelargoniums form a great feature at East Thorpe in June and July, and in 48-size pots Mr. Woolford produces really wonderful examples, fully 2 to 3 feet in diameter, laden with large and bold trusses of bloom. There is no tying-out of branches, but simply a small stake placed here and there to support them. Some of the leading varieties are *Blue Beard*, very fine in blossom and colour; *Martial*, a plant fully 2½ feet through, in colour brilliant crimson, and very free; *Alice*, creamy-white, with deep blotch; *Mrs. Coombs*, pure white, with carmine spots, a beautiful variety of the finest shape; *W. C. Boyes*, of a pretty shade of salmon; *Goldmine*, rich deep orange, fine in colour; and *Edward Perkins*, deep orange, with maroon blotches. Very fine indeed are the zonals: chief among them being *Ethel Lewis*, pink; *Lord Chesterfield*, bright scarlet; *Proserpine* and *Lady Chesterfield*, shades of scarlet; *Lady Brooke*, white, with pink spots; *Princess Maud of Wales*, a very pretty shade of pink; *Charles Mason*, bright crimson-scarlet; *Lord Rosebery*, deep crimson; *Juliet*, rich salmon-crimson; *Sir Percival* and *White Lady*, two whites, the latter the better of the two; and some excellent double-flowered varieties. We are accustomed to the wonders accomplished with a 48-sized

pot in market nurseries, but here is a private gardener rivalling the cultivator for market.

Then comes a stove-house, in which a general assortment of suitable plants is grown, and also some Orchids, *Dendrobium*s principally, viz., *Dalhouseianum*, nobile, crassinode, &c.; *Cattleyas*, *Lælias*, *Peristeria*, *Angulosa Clowesii*, &c.; an interesting collection, in good character and condition, being well managed. Some specimens of *Anthurium Scherzerianum*, *Begonia falcifolia*, &c., were very fine. The Orchids occupy the north end of the house, so as to give them, as far as possible, something of an intermediate temperature. At a right angle to this is built another stovehouse that is kept a little warmer, and here may be seen an example of *Cyrtodeira fulgida*, with crimson flowers and finely-

and zonal *Pelargoniums*, among the latter, *Enid*, rosy red, of a very soft pleasing shade; *Snowdrop*, pure white; *Dr. E. Rawson*, fine crimson; and others. In all, there are eight plant-houses besides many pits and frames. The former are all provided with spacious water-tanks, and that rain water is appreciated is seen in the fact that it is utilised to the fullest possible extent. Water is also laid on in various parts of the grounds from the Reading water-mains. There are also two Vineries, each in three divisions, in which Grapes, Tomatos, and Strawberries are cultivated, with considerable success. Tomatos are cultivated in pots, for an early crop; *Ruby* and *Earliest-of-All* being the favourite varieties. In addition, there is a walled-in kitchen garden, distinct from

2000 acres at West Park, Surrey, where he shoots in the season. Since the death of his father, the late Mr. George Palmer, a portion of his estate, which is near to East Thorpe, is also cultivated by him.

Of the pleasure-grounds which adjoin the mansion of East Thorpe, it may be said they are irregular in shape, largely surrounded by a belt of trees and shrubs, in which Lombardy Poplars are prominent. The site of these grounds was formerly an old garden, and one prominent feature on the lawn is a large specimen of the Devonshire Quarrenden Apple. At the south-east corner there is a small garden of hardy plants. Spring and summer gardening is well carried out by Mr. Woolford, and as the grounds abound in evergreens, there is always an appropriate background of foliage to the floral arrangements.

Mr. J. Woolford, who took charge of the gardens in 1880, laid out the grounds from a sketch-plan provided by the architect of the mansion, and though the site was originally level, he was able to provide some gentle undulations, which afford diversity to the garden. The gardens, as well as the Shinfield estate, are under his charge, and in order to work them in a satisfactory manner he has a competent foreman at each place.

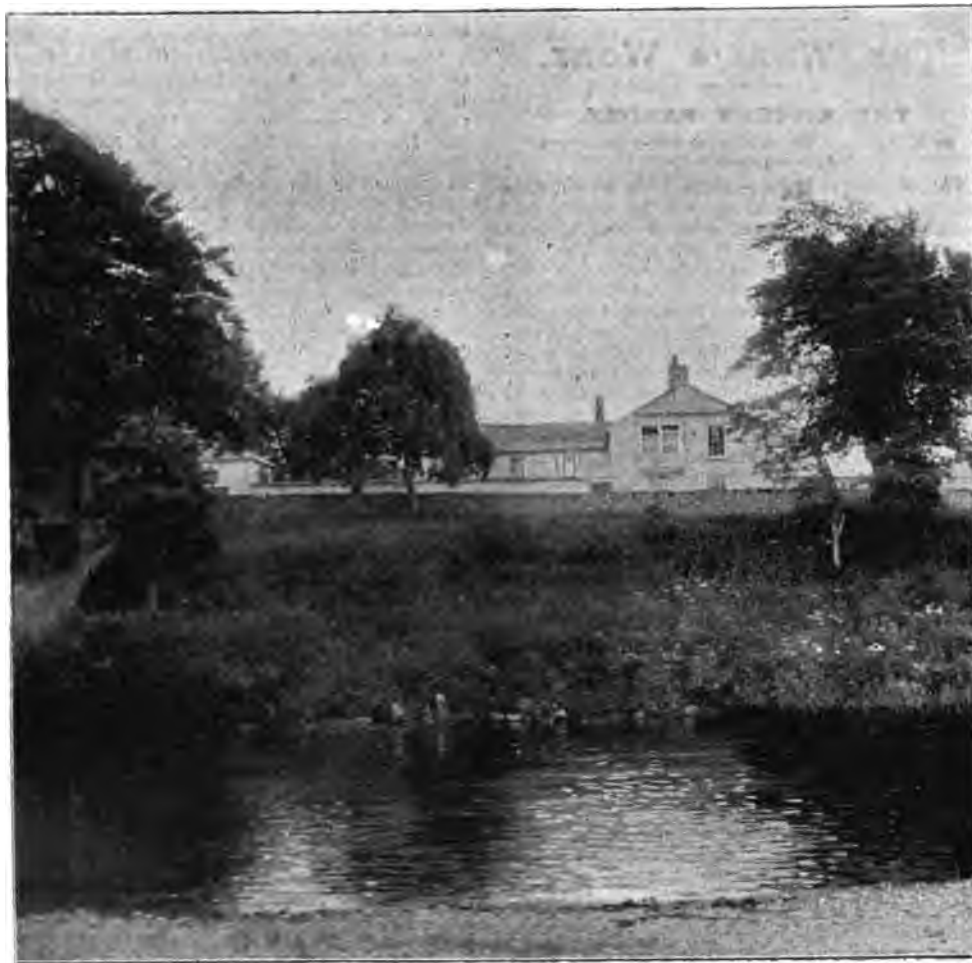
As East Thorpe ranks as one of the best-kept places near Reading, it goes without saying that every part of it is in perfect order, for on every hand there are evidences of thorough supervision and excellent culture. As an exhibitor of plants, &c., Mr. Woolford has taken many honours at the Reading shows, and his grouping especially affords excellent object-lessons to young gardeners. *R. D.*

THE SITE OF THE OLD HARTLAND NURSERY.

"THE residences of celebrated men always have an interest to their fellows, which increases as time rolls on." In fig. 114 we depict the spot where the late Anthony Trollope lived in the years 1847, 1848, and 1849, writes Mr. Baylor Hartland, of Cork. Here he penned his first two novels, viz., *McDermott*, and *The Kellys and O'Kellys*. "There was a lovely old-fashioned garden at the back of the house, planted and formed by my grandfather in the end of the last century. There were three detached houses, the centre one being rented from my mother, with the recreation of the old garden. The Weeping Ash-tree seen in the foreground of the picture is now very old. It is planted where the limestone rock comes near the surface, so does not obtain much nutriment. Several celebrated Englishmen came to live at Mallow at that time, to avail themselves of the Spa waters. The land at the back of the house formed a nursery, and is situated about 1 mile outside the town, in a lovely country, with the river Blackwater, the second largest river in Ireland, running through it on its way to the Atlantic by Lismore, Fermoy, and Youghal. My grandfather built three houses, living in one of them after coming from Kew; and he furnished and let the others at £60 or £70 each to English visitors. I think, from the historical point of view, the pioneering work of an Englishman, together with his efforts at tree-growing in Ireland 130 years ago, should be of interest to your readers. The lodge seen between the trees was a general garden and farm seed-store."

This land is still, as Mr. Hartland tells us in his characteristic style, in his occupation as a nursery, where he grows Tulips and other bulbs as good as those of Holland.

CERASTIUM ARVENSE. — Professor J. C. ARTHUR, in a recently published *Bulletin* of the Purdue Agricultural Experiment Station, advocates the use of this species as a bedding-plant. The variety employed is *C. arvense* var. *oblongifolium*. The species is common in this country, but as we should have thought, too "weedy" to be used for decorative purposes.



[FIG. 114.—THE RESIDENCE OF ANTHONY TROLLOPE.

veined leaves; and such Orchids as *Cynoches chlorochilon* flowering successively from a strong growth; *Catasetums*, *Dendrobium Phalaenopsis Schroderianum*, *D. Devonianum*; *D. eburneum*, a species which requires special treatment; the warmth-loving *Cypripediums*, including *C. caudatum* with a great length of tails; the curious hybrid *C. Perseus*, *Oncidium papilio*, *O. Kramerianum*, *Cypripedium Chamberlainianum*, *C. grande*, with three fine flowers; *C. Lawrenceianum*, &c. *Ceropegia Woodsii* was also to be seen here. A small propagating-house situated at the end of this house contained a number of seedling plants of *Clerodendron fallax*, a species which grows freely from seeds.

There are several small greenhouses in which may be seen a collection of *Streptocarpus*, in which there are very fine varieties which are valuable for table decoration, being very effective on a white cloth; also decorative

the home grounds, but near to them; it is nearly square, with the sides facing the cardinal points. Here, are glass-houses, in which stone-fruits and Pears are cultivated in pots, which, at the time of our visit, in April, were promising well. It may be said that Mr. Alfred Palmer is very fond of his garden, taking a lively interest in all departments of it, but more particularly in the cultivation of fruits. About eleven years ago he commenced the culture of Apples on one of his estates situated at Shinfield, some 4 miles away. About 3 acres were planted with popular varieties on the Paradise-stock, and about two years later two more acres were planted with trees on the Crab-stock as low standards. Root crops are also grown at Shinfield; also crops to augment the vegetable supply, and some general farming is carried on, including poultry-rearing on a small scale.

Mr. Palmer has also a fine wooded estate of some

INDIA.

THE GREAT RAINFALL AND LANDSLIPS
IN THE DARJEELING DISTRICT ON
SEPTEMBER 24, 1899.

THE following additional notes from Mr. O. T. Hemaley show that the damage is much greater in the neighbourhood of the Government Cinchona plantations than was known when he wrote two days after the events, and several of the coolies belonging to the establishment perished:—

Sureil Bungalow, October 2, 1899.

"By the above, you will see that I have changed my place of residence, and as long as I am repairing Kurseong Road, Sureil will be my headquarters.

Last Tuesday Mr. Pantling asked me when I could get some work done, which I then had in hand, in connection with the factory. I did not expect to finish till some time on Thursday, but by working hard, I got all my factory and laboratory work finished by Wednesday night. I then received orders to go off next morning and take up my quarters here, and at once proceed with the repairs to the Kurseong Road, which was very extensively damaged by the recent cyclone, as no doubt you have already learnt from the papers.

Up to yesterday, we in Mungpoo were completely cut off in every direction. This I did not know last week when I wrote, as I thought the Kurseong and Darjiling Roads were open. Such, however, is not the case; the Kurseong Road especially having been most seriously damaged, completely carried away indeed in places, leaving often absolutely perpendicular faces to the rocks. These breakages have occurred where there were watercourses, which became in a few hours awful torrents, causing by their scouring and undermining action huge landslips, extending for hundreds of feet up the mountain side. Unless you could see them you could hardly realise what sights these slips present. Huge trees, and masses of rock weighing hundreds of tons, deposited here and there.

Some time after the storm had burst, Mr. Pantling heard from Calcutta that Mr. and Mrs. Cave were starting at a certain time for the plantations, as it was not known in Calcutta how much we had suffered. Mr. Pantling immediately replied that they were to stop in Calcutta till further notice, as all the roads were impassable. But the Caves started before his letter was received, and the next we heard was, 'Have arrived at Kurseong; am awaiting orders.'

I must explain here, that although the roads were so bad, some natives, by making *détours* and climbing here and there, got through to Kurseong and Darjiling, but it took them a very long time.

Here was a to-do! Mr. and Mrs. Cave were at Kurseong, and had to get to Mungpoo somehow. This was done by sending up about 130 men on Friday and Saturday, and sixty more on Sunday, to cut a way over the impassable parts, in order to allow a pony to be sent over without a rider, so that they could ride over the passable parts and walk the rest. To help them as much as possible to-day, I sent break-fast out to a place about 5 miles from Sureil, and 9 from Kurseong, and then rode 3 miles up through the forest to meet them. I found that the roads, though passable, were in a dreadful state. Mr. and Mrs. Cave were nearly four hours doing these first 9 miles. We then had something to eat, and two hours' more travelling brought them to Sureil, where I had tea ready. A rest of an hour here, and then they entered on the last three miles to Mr. Pantling's bungalow, which, I suppose, they would reach all right, as the road from here to there is undamaged.

Mr. Pantling has been up this morning, and we inspected together the five miles of road which constitute the first section I am to repair. He has considerably modified his instructions to me, in consequence of the slips being very dangerous and still going on. I am to thoroughly repair such parts of the old road still remaining, and connect the severed portions by small paths 3 feet wide,

across the most accessible parts of the watercourses where the slips have occurred. This necessitates making very steep zig-zag paths in many places; easy gradients, unfortunately, cannot be made for the want of room.

I have not the regular garden coolies working on the road, but the 'busti-wallas' (native settlers or farmers, who pay rent for their holdings), have been ordered to turn out, one from each house. At present, I can only muster about forty, but in a day or two, I hope to have over a hundred at work.

Altogether we had five people killed by the landslide, and portions of them were found, as a leg of one and an arm of another.

All the factory buildings, water-mains, tanks, &c., were uninjured, and also the bungalows with the exception of mine, which had a quantity of thatch blown off, thus letting in the rain."

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

The Mushroom-house.—Those beds which were spawned about six weeks ago will be coming into bearing, and need an examination at short intervals of time. If the covering of soil is found to be in need of moisture, let water be applied of 80° warmth. The litter employed to maintain uniform conditions in the beds may be taken away when the Mushrooms reach the "button" stage, provided the temperature of the house can be maintained at 60°. If this cannot be done, some dry, fresh hay or stable-litter should be employed to cover the beds. Prepare materials for forming other beds by turning and mixing them twice or thrice, and throwing them together into a heap each time. Do not expose the stable-dung too much, or the valuable ammonia will escape, rendering the manure almost useless for the purpose of a Mushroom-bed. If stable-manure is not plentiful, Chestnut or Beech-leaves may be used in about equal proportions to the manure, the whole being mixed, turned, and heated a few times, as in the other case.

Cauliflowers.—These plants should be afforded plenty of air, the lights not being made use of till sharp frosts appear imminent. The Walcheren Cauliflowers raised from late sowings will winter satisfactorily if transplanted on to a sheltered border if not too large when planted, and the winter is not very severe. Such plants sometimes go through a winter in better condition than plants which have been wintered in frames, which get drawn. They are also less liable to "button." Those plants which were potted should be kept fully exposed out-of-doors, and they should be afforded plenty of space, in order to prevent drawing.

Herbs.—Chervil is in some families an article in common request, and where that is the case, a bed or two should be grown on a border, and some handlights or a garden frame placed over it. In many gardens it is almost a weed, springing up from self-sown seed. Some roots of Tarragon and Mint should be potted or boxed in quantity for forcing purposes, and stood in cold frames for the present. For convenience-sake, pot-herbs should be grown all together on a border convenient of access, so that time is not lost in going from one part of the garden to another when herbs are wanted by the cook.

Horse-radish.—The best sticks are obtained from beds not older than three years, and with a view of thus meeting requirements, a new bed should be planted every year and an old one grubbed up. The present affords a suitable season for taking up a bed or portion of one. Let every bit be got out selecting what roots are fit for use, and laying them in close together on a border. The thick thongs with a crown and ends of roots should be laid in separately for making into sets later on, and the smallest pieces thrown on to the smoulder heap, not the garden-refuse heap. Some gardeners prefer to plant crowns, that is, small roots surmounted by a bud, and of a length of 9 inches, dropping this into a hole 1½ ft. deep made with a dibber. The crown should be pared off for ¼ of an inch, so as to remove the mass of buds that would otherwise push

from that part. Land for this crop should be heavily manured and deeply trenched, the whole of the manure going to the bottom of the trenches.

THE HARDY FRUIT GARDEN.

By G. HERRIN, Gardener to J. B. FORTESCUE, Esq., Drogheda, Maidenhead.

The Planting of Fruit Trees.—As the present is a very suitable season for planting, I purpose to give in this calendar a list of desirable varieties of Apples and Pears, which may be of some assistance to beginners who may be contemplating the formation of an orchard, or adding to a collection already existing. The varieties I shall recommend are generally trustworthy in diverse localities given a favourable blossoming season. I shall refer on this occasion to such varieties as are the best adapted for garden culture, leaving orchard-planting for another time. For garden-planting, no form is better for Apples than the bush or pyramid on the Paradise stock; and horizontally-trained cordons for lining the paths, &c.

Dessert Apples, Early.—Mr. Gladstone, Beauty of Bath, Irish Peach, Devonshire Quarrenden, Kerry Pippin, Lady Sudeley, and Worcester Pearmain. Mid-season for use in October, November, and December. In this class, no Apple can be compared with Cox's Orange Pippin, which should be included in the smallest collection. The new variety, Charles Ross, is almost equal to it in flavour, but somewhat larger, partaking in this respect of the character of one of its parents, Peasegood's Nonsuch. This variety is sure to be largely planted in the near future. Others are Ribston Pippin, King of the Pippins, Blenheim Orange Pippin, Gravenstein, Margil, Adam's Pearmain, Claygate Pearmain, and Golden Reinette. The latest are Scarlet Nonpareil, Hubbard's Pearmain (although rather small, a good keeper of excellent flavour), Fearn's Pippin, Cockle Pippin, Wyken Pippin, Court Pendu Plat, Sturmer Pippin, and Allen's Everlasting.

Kitchen Apples.—Early: Lord Grosvenor, a very sure cropping variety that rarely fails to produce a good crop, succeeding where Lord Suffield is often unsatisfactory; Pott's Seedling, Ecklinville (a fine cropper with large but rather soft fruits), Stirling Castle, and Grenadier a grand September variety. Mid-season: Stone's, Warner's King, Peasegood's Nonsuch, Lord Derby, Beauty of Kent, Golden Noble, Tower of Glamis, Blenheim Orange, Mère de Ménage, and Bismarck. Late: Lane's Prince Albert, Dumelow's Seedling, Newton Wonder, Bramley's Seedling, Alfriston, and Northern Greening.

Pears for Wall Culture.—Early: Jargonelle, Beurré Giffard, Margaret Marrillat, and Fondante d'Automne. Mid-season: Louise Bonne of Jersey, Pitmaston Duchess, Marie Louise, Beurré Superfin, Beurré Diel, Conseiller de la Cour, Doyenné du Comice, one of the best; and Beurré d'Anjou. Late: Marie Benoist, Beurré du Buisson, Easter Beurré, Nouvelle Fulvie, Olivier de Serres, Le Lectier, Passe Crassane, Beurré Rance, Winter Nelis, Beurré Sterckmanns, and Duchess de Bordeaux.

Pears for Bush or Pyramid Culture.—Williams' Bon Chrétien, Clapp's Favourite, Souvenir du Congrès, Beurré d'Amanlis, Doyenné Boussoch, Triomphe de Vienne, Fondante d'Automne, Durondeau, Louise Bonne of Jersey, Thompson's, Marie Louise d'Ucole, Pitmaston Duchess, Beurré Superfin, Doyenné du Comice, Beurré Diel, Beurré du Buisson, Josephine de Malines, and Bergamotte d'Espéren.

Pears for Stewing.—Beurré Clairgeau, General Tottleben, Bellissime d'Hiver, Catillac, and Uvedale's St. Germain.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener, North Myms Park, Hatfield.

Lilium longiflorum var. Harrisii, and other bulbs.—When an examination shows that growth has taken place to the extent of 1 or 2 inches, those bulbs which were placed in beds of coal-ashes or Cocoa-nut fibre-refuse should be removed to a cold-frame or pit without delay. This will apply to all species of bulbs when covered with these materials. In order to prevent serious injury, a few points each batch should be examined at intervals of a week or ten days. If the soil in the pots is dry, a good application of water should

be afforded, and the soil kept in a moist condition for the future. A batch of *Lilium Harrisii* may be placed in a house having a night temperature of 50°; and as during the next few weeks the flower-stems will grow rapidly, a light position for the plants is very essential. Let air be admitted on all favourable occasions, to prevent the plants becoming drawn. Batches of early Tulips, Narcissus, and Roman Hyacinths, may be introduced into a similar degree of warmth, in such quantities and at such intervals of time as the requirements of the place demand, the temperature at the end of a fortnight being increased to 55°. No bulb should be forced which is not well furnished with roots, and the forcing should be gradual, any attempt to hurry them into flower usually ending in failure.

Pot Roses.—If any of these were not repotted at the usual time, no time should now be lost in top-dressing the plants now instead of repotting them. After putting the drainage in good order, remove the surface soil with a pointed stick to the depth of about 3 inches, and replace it with a compost consisting of good fibry loam, rotten manure in small quantity, well burnt garden-refuse, with bone-meal at the rate of a 6-inch potful to one wheelbarrowful of the compost.

FRUITS UNDER GLASS.

By W. STANWELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

Pot Vines.—Those canes which are intended to fruit in the late spring should have been stood outside for some short time, in order to mature and rest before being forced. Younger ones grown from "eyes" this year should also be standing outdoors, arranged preferably in the front of a sunny wall. The weather of late has been such in this part of the country, that an occasional application of water has been necessary in order to prevent the premature fall of the leaf; but from this date, however, no more water will be needed. Those that are shortly to be started may now be repotted or top-dressed accordingly as they may need, having regard to their condition, age, and size of pot. The compost employed should be of the best, but not necessarily rich in animal or chemical manures, but sufficiently so as to afford nutriment as soon as the plant needs any; more being afforded in the form of liquid-manure and manurial top-dressings when the growth becomes active. If scale, mealy-bug, &c., have been present on the Vines, be careful to wash the canes with hot water, to which Gishurst's Compound-soap, in not greater quantities than 3 ozs. to one gallon of water, Fir-tree oil, or some other suitable insecticide has been added; and if necessary, a further dressing may be afforded before the plants are placed in the forcing-pits. Pot Vines early started are the better for bottom-heat being provided, either by a bed of fermenting tree-leaves and dung, or hotwater-pipes. The proportion of stable-dung to leaves may be one wheelbarrowful of the first to three of the second, and the whole should be got into a sweet and warm state, fit for use when the Vines are started. The use of this mixture in close-fitting pits and small houses needs much care, as the rise of heat is sometimes very rapid in mild weather, and it may do much harm to the roots if it be not watched. It is safer to partly plunge the pots in the bed at the first.

Early Figs in Pots.—Many of the foregoing remarks apply also to early varieties of Figs grown in pots. With a suitable house and the proper kind of treatment, Figs in small pots may be made to give a large quantity of fruit. The St. John's Fig, and the variety Pingo de Mel, from Portugal, are excellent for forcing for the earliest crop; moreover, their fruits are not so liable to be cast as are those of most of the other varieties. Potting, or repotting, will have been performed whilst the plants were in growth, but with care these operations may still be carried out. The soil in which the Fig is potted should be made firm, and it should contain an eighth part of lime-rubble, plaster, &c. The insects which infest the Fig are mealy-bug and scale. It is, however, not a difficult matter to clean Figs when the leaves have fallen. Scale-insects, both brown and white, adhere partly to the rind. The leaves should be gathered up as they fall, and burnt, and the stems and shoots sponged with warm soap-suds, in which petroleum, in the proportion of 1 to 200 has been mixed. In the case of mealy-bug, every part of a plant should be examined, and washed with the same. The immature tips of the

branches require careful treatment, being easily injured. Until the house is ready for their reception, Figs are the better for being left out-of-doors, or in a cool-house or shed, where they are merely protected from rain and snow.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart. Clare Lawn, East Sheen.

Lælia (Brassavola) Digbyana.—Since the flowering of the lovely *Lælia-Cattleya Digbyana-Mossiae*, this curious but otherwise unattractive Orchid has leapt into popular esteem as a subject for the hybridist. It is a plant fairly easy to grow for a few years after being imported, but to keep it in a sound and vigorous condition for an indefinite period requires very careful treatment during the present—its resting period. It may be grown in shallow baskets and pans, or on bare blocks of wood, the only drawback to the latter method being that when the block decays, it is no easy matter to substitute another for it. How, or in whatever receptacle it may be placed, the chief care is to guard against any stagnation of moisture at the base of the plant. Water in abundance is essential when it is growing freely, but the rooting materials should be so scanty that dryness should occur readily and often. At this season, although the basal buds show activity to a small extent, but little moisture other than that obtained from the air of the house should be afforded. The plants should be suspended in a light position in the East Indian-house permanently.

Cattleya superba.—In many respects this bright-flowering species requires similar treatment to the plant previously named, especially during the winter. It grows the best in perforated pans, suspended in the same house, and in the same position. Severe drought will do less injury than affording too much water, which generally causes decay of the roots, or of the last pseudo-bulbs formed.

Cattleya Lawrenceana is another unsatisfactory subject to deal with during the winter months, and, in fact, at any time, without the greatest care on the part of the cultivator. As growth does not occur until late in the season, a warm position in the East Indian-house has to be selected for the plants, so as to encourage the growth and finish it before the hours of sunshine get very short. Having now about finished to grow, the plant should be removed to the warmer part of the *Cattleya*-house, where every ray of sunshine reaches it, and the atmosphere is dry. Let water be afforded only when the shrivelling of the young pseudo-bulbs is feared.

Lælia flava and longipes.—There being found in most collections of Orchids many more favoured *Lælias*, *L. flava* and *L. longipes* are seldom found in any number in the generality of collections. Being small, compact-growing plants, they occupy but a small amount of space; moreover, their requirements are few. The plants succeed when fixed to rafts of Teak, with a thin layer of peat and moss under them. The rafts should not be suspended in a horizontal position, moisture being then retained for too long a period, but they should slightly incline to one side. The best place for *L. flava* and *L. longipes* will be found at the coolest part of the *Cattleya*-house. Let the plants be afforded abundance of water when rooting, but at the present season, growth having ceased, a small quantity now and then will keep their pseudo-bulbs plump.

Lælia cinnabarina and L. harpophylla should be accommodated in pots. The former requires the temperature of the *Cattleya*-house, and all the light obtainable; and the latter succeeds with much less warmth. *L. cinnabarina* having matured its pseudo-bulbs, an occasional application of water will keep them from shrivelling too much; and *L. harpophylla* having thin reed-like pseudo-bulbs, should not be allowed to remain dry for any length of time.

Oncidium macranthum, undulatum, loxense, and others of this section, usually thrive in the coolest department, where moisture and shade are abundantly afforded during the sunnier portion of the year. In many instances the long, trailing spikes will be in course of development, and to keep these within bounds two or three neat stakes should be stuck in each pot, and as the spikes lengthen twining them round the stakes and making them secure. Any plant emitting roots may, if conditions warrant it, be afforded equal proportions of fresh peat and moss; water being then afforded rather sparingly till the days begin to lengthen. Plants which

have not been disturbed will need just sufficient water as will keep the materials moist.

Oncidium inculptum (metallicum) is another cool-growing species, and one that likes a rather drier atmosphere than the foregoing, especially during the resting period. On one occasion, here, a long spike was trained to a wire near the roof-glass of a very cool house, and when the side branches had developed their buds, a severe frost ensued, and a coating of ice formed on the inside, in which, for the space of a week, the tips of numerous flower-buds were embedded. These, strange to say, afterwards developed satisfactorily, and without being injured. The plant itself was 4 feet distant from the glass.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Anemones.—If a stock of Anemones has not been raised from seeds, bulbs should now be procured, and if planted at once in good rich soil, they will form roots before winter, and flower profusely in spring. Failures are often due to inserting the bulbs too close together; a distance of 10 in. at least should be allowed, and 12 in. between each row, planting them at a depth of 3 inches. The Giant French Poppy Anemones produce the largest blooms, have a great range of colour, are very free flowering, and not so apt to produce double flowers as the St. Bridget variety. The ordinary single forms are very pretty, and are most useful for cutting purposes, especially the white variety (The Bride). The single Peacock Anemones (*A. stellata*) flower early when planted in a sheltered position, but in cold seasons many of the blooms are damaged by the late frosts. *A. apennina*, *A. alba*, and *A. blanda* are pretty planted in clumps in the rock garden; *A. pulsatilla* (the Pasque-flower), is very pretty in borders, but requires 2 feet deep of soil.

Spring Bedding Plants.—All the plants for furnishing the beds should be planted soon after this date, according to the latitude of the place, early planting tending to early establishment in the new quarters, and the consequent ability to resist frost, and to produce flowers early in the spring. The flowering season is so very short, that there is very little time for growth. Let only good masses of each plant be put out, and these so placed that they cover the bare earth at once.

Foremost amongst these are the Primroses, known as Dean's Superb Strain, which withstand well our severest winters. They are very effective in geometrical beds when massed in diverse colours. Before planting them it is advisable to add plenty of cow-manure and a slight sprinkling of soot to the staple, substances that favour rooting and prevent flagging in dry, windy weather, and during strong sunshine, tending also to the production of robust flower scapes, and preventing exhaustion from excessive flowering. The new blue Primrose G. F. Wilson is a very pretty and suitable variety for making small beds, or massing in the borders, but the aspect chosen for it should by preference be a shaded one, or the flowers soon pale. *Primula rosea*, for the short time it lasts in flower, is deserving of a place in the rock garden, but it requires a moist position in order to thrive. The double-flowered forms of *P. vulgaris* in their different shades of white, purple, red, and rose do not lend themselves to bedding, but in the rock garden, in shady and moist nooks, where special treatment can be afforded, they are very handsome when in bloom.

Violas.—In order to make a fine show of these plants, healthy, good-sized clumps should be planted in the beds or borders which later on are intended for the reception of Begonias, Violas lasting in perfection, till at the least, the commencement of June, and will then not need to be disturbed for the other occupants. They may also be employed as a groundwork to beds of Tulips, but, in order to make them flower at the same time, the plants must be wintered in a cold frame, and planted just before the Tulips open their flowers.

Routine.—After this date the mowing of lawns should cease, but in order to keep them in good condition a weekly sweeping will be necessary to scatter the worm casts. If the surface be tolerably even, it need not be rolled much, and the surface-water will then pass quickly through it. See that all fallen leaves are swept together and cleared away, as, if allowed to remain on the grass, they are apt to ferment and destroy it.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, Nov. 4	Loughborough Chrysanthemum Show. North of Scotland Vegetable and Root Exhibition. Stockport Chrysanthemum (3 days).
MONDAY, Nov. 6	Chrysanthemum Shows at St. Neot's and Totnes. Royal Horticultural Society's Committee. National Chrysanthemum Society's Exhibition at Royal Aquarium, Westminster (8 days). Chrysanthemum Shows at Birmingham, in Bingley Hall (3 days), Coventry (2 days), Brighton (2 days), Croydon (2 days), Yeovil, Plymouth (2 days), Southend (2 days), Birkenhead (2 days), Truro (2 days), and Stratford-on-Avon (2 days). Scottish Horticultural Association Meeting. Mr. J. J. King's Exhibition of Roots, Cereals, and Vegetables, at Coggeshall, Essex.
TUESDAY, Nov. 7	Chrysanthemum Shows at Kingston-on-Thames (2 days), Cambridge (2 days), Bournemouth (2 days), Ware (2 days), Chesterfield (2 days), Bromley (2 days), Lowestoft (2 days), Stoke Newington (2 days), Cardiff (2 days), Hanley (Staffordshire) (2 days), Bath (2 days), Great Yarmouth (2 days), Ascot (2 days), and Bristol (2 days).
WEDNESDAY, Nov. 8	Chrysanthemum Shows at Putney (2 days), Colchester (2 days), Gloucester, Windsor (2 days), Northampton (2 days), Stirling (2 days), Lancaster (2 days), and Weston-super-Mare.
THURSDAY, Nov. 9	Chrysanthemum Shows at Leicester (2 days), Blackburn (2 days), Stockport, Eccles (2 days), Folkestone (2 days), Derby (2 days), Sheffield (2 days), Altrincham (2 days), and Huddersfield (2 days).
FRIDAY, Nov. 10	

SALES.

MONDAY, Nov. 6, and the following Tuesday, Wednesday, and Friday.—Dutch Bulbs at Protheroe & Morris' Rooms.
TUESDAY, Nov. 7.—Clearance sale of Nursery Stock at the Nursery, Grove Park, Lee, by order of Mr. G. Hind, by Protheroe & Morris, at 11.30 o'clock.
WEDNESDAY, Nov. 8.—Clearance sale of stock at the Old Park Nursery, Buckland, Dover, by order of Messrs. G. & A. Clark, by Protheroe & Morris, at 11.30 o'clock.
WEDNESDAY, Nov. 8.—Great Sale of Japanese Lilies, Continental Decorative Plants, Carnations, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, Nov. 8.—Clearance Sale of Nursery Stock, Glass Erections, &c., at 206, Goldhawk Road, Shepherd's Bush, by or of Mr. Thomas Budge, by Protheroe & Morris, at 12 o'clock.
FRIDAY, Nov. 10.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period October 22 to October 28, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.				LOWEST TEMPERATURE ON GRADE.
OCTOBER 22 TO OCTOBER 28.	At 9 A.M.		DAY.	NIGHT.	At 1-foot deep.	At 2-foot deep.		At 4-foot deep.				
	Dry Bulb.								Wet Bulb.			
										Highest.	Lowest.	
SUN. 22	E.N.E.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.		
MON. 23	N.W.	43.8	43.8	54.0	39.1	...	46.4	49.9	53.8	39.0		
TUE. 24	W.N.W.	47.5	47.5	59.9	42.5	...	47.1	50.2	52.9	38.1		
WED. 25	E.S.E.	49.7	47.9	59.7	39.8	...	49.1	50.5	52.9	34.9		
THU. 26	S.S.W.	55.1	52.6	57.2	44.9	0.21	49.7	50.9	52.8	33.9		
FRI. 27	S.W.	57.8	56.3	60.2	53.9	1.08	51.8	51.3	52.8	31.5		
SAT. 28	S.S.W.	58.8	57.2	62.7	57.1	...	54.2	52.1	52.8	31.9		
MEANS...	...	50.8	49.7	58.1	45.5	Tot. 1.29	49.8	50.7	52.9	40.1		

Remarks.—Another week of dull, sunless, mild weather, with thick fogs during the first three days.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—43°.

ACTUAL TEMPERATURES:—

LONDON.—November 1 (6 P.M.): Max. 50°; Min. 47°.

November 2.—Rain—mild.

PROVINCES.—November 1 (6 P.M.): Max. 56°, S. Counties; Min. 49°, E. Counties.

A suggested cause of sporting in Chrysanthemums.

M. GHYS* suggests a new cause of sporting in this flower. Alluding to the frequency of colour-sporting in Chrysanthemums, and to the method of propagating them, as follows:—"All the shoots are out off excepting the one carrying the sport; then as this shoot develops buds, it can be propagated by them, as each will reproduce the sport in question;" he observes that no flower, excepting the Azalea, presents such frequent cases of dimorphism as the Chrysanthemum; that while one variety will give a white flower if it blossom in September, and a rose-coloured one in October, another will have shown glabrous flowers from the first crown buds, and downy ones at the terminal buds. Hence, M. GHYS considers the seasons as well as the positions of the buds as influencing the form and colour.†

As to the predominating colours of sports, he noticed that if the normal flower be of a composite colour, one shade may become accentuated, thus overpowering the others. Thus, in Mrs. H. Payne, Madame E. Teston, red predominates; while in Madame L. Rémy it is white. Sports of a pronounced red are rarer. Pure white varieties only give yellow sports. But he mentions Annie Clibran, a sport from Mdle. Lacroix as an exception, in being of a rosy tint on expanding in complete sunshine.‡

A feature worthy of remark is, that varieties which, as Louis Boehmer, contain several dimorphic representatives, pass gradually to white, finally terminating in yellow. This, the author observes—as we have also done—is probably due to atavism, or reversion to the primitive colour, from which the name Chrysanthemum is derived, *chryso* being the Greek for "gold," and he adds that a pure yellow Chrysanthemum, obtained either by seed or sport, will no longer give a red-tinted, or white.§

M. GHYS then asks—What are the causes of dimorphism? A change of climate and soil are usually suggested; but he thinks there is another very important factor, and that is the taking cuttings from a plant in full vigour. "I have always been surprised," he remarks, "at the rarity of sports observed by amateurs, and at their complete absence among those who renew their collections every year by the division of the old plants (presumably by dividing the root). M. DELANOY has upwards of 450 varieties, and has never had a sport since 1832." The author's procedure is as follows:—The plants, as soon as they have done flowering and are still full of sap, are cut down to furnish the first shoots. An endeavour is then made to keep the plants vegetating, which should normally have been in repose. As soon as the young shoots appear, the points are removed; the new lateral shoots undergo the same treatment.

The vegetative growth out of its proper season, and the sudden arrest of the sap produced by the repeated amputations, are two factors of which account must be taken. Following the cuttings through their course of development, they soon become well-rooted in

appropriate soil, and make a good start. As soon as they enlarge, and grow stronger day by day, and cover themselves with foliage, if all of a sudden the flow of sap be stopped by cutting a strong part of the plant, a profound disturbance in all parts of the plant is inevitably induced; and the equilibrium between absorption and evaporation of water is disturbed. Now it is in these conditions that sports are not infrequently produced.

New varieties are more prone to dimorphism than those which have been established for many years. Thus it is, that Madame A. Cordonnier and Madame Deis have given M. MONTIGNY, of Orleans, a sport in the first year they were sent out.

"Does it not explain why all the most approved varieties, as Viviani Morel, Mrs. C. H. Payne, Madame Carnot, and L. Boehmer, have given rise to a number of sports, by reason of the great demand for these varieties, and in consequence, their greater multiplication?"

Without excluding other causes, the author gives the following conclusions:—

1. That the cutting taken from an important part of a Chrysanthemum, when in full vigour, is a cause which induces dimorphism.
2. That a new variety has a greater aptitude than one of long standing for giving rise to sports.

EUCHARIS ELMETANA x.—In a recent illustrated article on the species and varieties of *Eucharis*, presumably accidentally reproduced in the *Semaine Horticole* without acknowledgment, E. Elmetana x was omitted. By the courtesy of Messrs. SANDER & Co. of St. Albans, who forwarded us a specimen, we are now enabled to give an illustration (fig. 115, p. 345) of this variety. It was raised by Mr. BONSALE, gr. to H. KITSON, Esq., Elmet Hall, Leeds, and is stated to have been raised from E. Sanderi crossed with E. grandiflora. It is stated to grow more freely, and to be of easier culture than E. Sanderi, and to be well suited for "button-holes" and the formation of wreaths. It was introduced into commerce by Messrs. SANDER in 1896, the first mention of the plant being in their catalogue for that year.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, November 7, in the Drill Hall, James Street, Westminster, at 1 to 4 P.M. A lecture on some of the plants exhibited will be given by the Rev. Prof. G. Henslow, M.A., V.M.H., at 3 o'clock.

AMPELOPSIS HOGGI.—We have had frequent occasion to warn gardeners against a climber which was unfortunately sent out as an *Ampelopsis* by oversight. The plant so called is generally nothing else than *Rhus toxicodendron*. We hear that a son of Mr. SMITH, of Newry, has suffered severely from handling some cuttings. The autumn coloration is so beautiful that it is unfortunate it should have such evil qualities. Some people are more subject to its virulence than others.

ROYAL GARDENERS' ORPHAN FUND.—At the usual meeting of the Executive Committee on the 27th ult., Mr. WILLIAM MARSHALL, presiding, the following special contributions to the fund were announced:—Wimbledon Horticultural Society, sale of flowers, £6 10s.; Sandringham Estate and Cottage Garden Society, per Mr. MARELLAR, £5 5s.; Betchworth, Brookham, and Buckland Horticultural Society, £4 6s.; The Rev. A. LOWE, The Vicarage, Rangemoor, Burton-on-Trent, collection at harvest festival, £4 10s.; Mr. A. D. CHRISTIE, half of the amount collected through throwing open the gardens at Ragley, near Alcester, £2 9s.; Worcester County Council, one-third of the amount realised by the sale of fruit at the annual Exhibition of Art and Technical Work in

* *Le Chrysanthème, au point de vue du Dimorphisme: Bull. de la Soc. d'Hort. de Loir-et-Cher* (Troisième trimestre, 1899, No. 35, p. 9).

† See Rev. Prof. HENSLOW's paper on "Chrysanthemum Sports," *Journ. Roy. Hort. Soc.*, read Dec. 14, 1897.

‡ That yellow is frequent from white, was known, nineteen cases being mentioned; but it is not exclusively so, as *Cedo nulli* gave rise to yellow, lilac, brown, and two whites. Three cases of sporting from white to pink are mentioned. *l. c.*, p. 542.

§ No such sports occurred here either; but three bronzes from yellow are mentioned. *l. c.*, p. 540.

connection with the above, £1 17s. 4d. ; and sale of flowers at Chislehurst Show, per Mr. J. LYNE, £4 6s. The annual general meeting of subscribers to the fund was fixed for Friday, February 16, 1900. A hearty vote of thanks was passed to those contributing the foregoing special donations, and also to the chairman for presiding.

PARIS UNIVERSAL EXHIBITION, GENERAL OFFICIAL CATALOGUE, 1900.—Mr. C. WILKES, 29, Ludgate Hill, London, has been appointed General Manager and Sole Agent for the British Empire (Canada excepted), for all English advertisements

decorative, being stocked with Palms, Crotons, Orchids, and other ornamental plants. The centre of the house is to be furnished as a boudoir, reception-room, or smoking or billiard-room, the plants being grouped down the sides and at the ends. The name of "Five o'Clock" has been given to this conservatory because it is peculiarly well adapted as a lounge in which to serve the afternoon meal of which foreigners have adopted the above designation. Daintily furnished and stocked with the taste peculiar to our Belgian and French neighbours, the Five o'Clock is an elegant and comfortable salon or winter-garden, and finds much favour.

to the man of science ; it absorbs the scanty funds of his libraries, and steals away his poor hours of leisure. . . . As the wise man said : " Hardly do we guess aright at things that are upon earth, and with labour do we find the things that are before us."—Dr. Langley, in *Transactions of British Association, Dover*.

DEATH OF A PATRIARCHAL ORANGE-TREE.—The great Bourbon, as the oldest of the Orange-trees at Versailles is called, died last year at the age of 477 years, as we learn from a French contemporary. The seeds of a particularly flavour-



FIG. 115.—EUCHARIS ELMETANA X : HORT. SANDER. (SEE P. 344.)

or publicity in the General Official Catalogue of the Paris 1900 Universal Exhibition ; also for the French and English guides and other publications issued by Messrs. LEMERCIER & Co., Official Contractors to the French Government and Exhibition Board.

THE "FIVE O'CLOCK HOUSE."—The *Bulletin d'Arboriculture, de Floriculture, et de Culture Potagère* for September, describes a greenhouse planned and erected by M. OMER VAN LIEKDE, in the garden of the Ghent Exposition Provinciale. This building is modelled somewhat on the lines of an English conservatory ; that is to say, it is not intended for propagating purposes, but to be solely

THE IMPERFECTIONS OF SCIENCE.—Those who have occasion to enter into the depths of what is oddly, if generously, called the literature of a scientific subject, alone know the difficulty of emerging with an unsoured disposition. The multitudinous facts presented by each corner of Nature form in large part the scientific man's burden to-day, and restrict him more and more, willy-nilly, to a narrower and narrower specialism. But that is not the whole of his burden. Much that he is forced to read consists of records of defective experiments, confused statement of results, wearisome description of detail, and unnecessarily protracted discussion of unnecessary hypotheses. The publication of such matter is a serious injury

some Orange were sown in 1421 by LEONORA DE CASTILLE, Queen of Navarre. In 1499, Queen CATHERINE sent a specimen to ANNE of Brittany this specimen was passed on to the Constable DE BOURBON at the Château de Chantelle, whence FRANCIS I. moved it to Fontainebleau in 1531. LOUIS XIV. had it transplanted from Fontainebleau in 1684, and placed in the orangery at Versailles, where it remained until its death recently.

CLASSIFICATION OF PLANTS.—"There will be much difference of opinion as to minor points, for many smaller groups, through lack of adequate investigation, had to be "lumped," but in the

judgment of the reviewer the main lines of evolution suggested will stand, which are in brief as follows: A passage from the spiral arrangement and indefinite numbers to cyclic arrangement and definite numbers; of naked flowers to the differentiation of calyx and corolla; of apocarp to syncarp; polypetal to sympetal; hypogyny to epigyny; actinomorphy to zygomorphy. That cases of "reduced flowers" occur there can be no doubt, but that the great majority of so-called cases of reduction are really primitive in character seems hardly less doubtful." *J. M. C., in Botanical Gazette (a review of Engler's Pflanzenfamilien).*

F. W. LOUDON, a well-known American raiser of fruits, who brought out the Strawberry Jessie and Raspberry Loudon, died on October 2 in Jamesville, Wisconsin, U.S.A.

J. BRIGNOT, an amateur gardener, the raiser of the favourite section of "Brignot" Pansies, died on September 15 last at Saint Briene, France.

WHAT VARIETIES OF APPLE ARE SUITABLE FOR PLANTING AS BUSHES?—There are a few varieties of the Apple which crop so heavily for years together that their growth of shoots is greatly restrained in development, and as a consequence they are not so well adapted for forming standard trees, but form shapely bushes by a sparing use of the knife. Many of these varieties will occur to our readers, and we may mention the Red Calville, Hawthornden, Frogmore Prolific, Manx Codlin, Hoary Morning, Downton Pippin, Yellow Ingestre, and Cellini.

IMPORTATION OF PLANTS, SHRUBS, ETC.—The importation of plants, shrubs, trees, and flower-roots into the United Kingdom has been steadily increasing during the past twenty years; in 1879 the value of these imports was returned at £137,000, in 1884 it reached £212,000, in 1890 £308,000, whilst in 1898 it was £436,600. Of this last-named sum the imports from Holland accounted in 1898 for more than half, viz., £221,800; Belgium, France, and Germany each sent goods valued at between £40,000 and £50,000; the importations from Japan, the United States, Colombia, and the Channel Islands were each returned as worth over £10,000; while Brazil and India sent shipments valued at £6,300 and £4,900 respectively. The figures given above do not include cut-flowers, which were imported in 1898 to the value of £219,000, so that the combined value of plants and flowers imported into this country in the past year amounted to over £650,000. The countries to which plants and shrubs of British production exported are sent are not separately distinguished, but the total value of these exports in 1898 amounted to £35,500, whilst the re-exports of foreign plants amounted to £10,805. *Journal of the Board of Agriculture.*

ESSEX FARMERS IN HOLLAND.—We have already alluded to the visit of certain Essex farmers to their brethren in Holland. They were received with the utmost cordiality, and were struck with the thrift which they consider to be at the root of Dutch prosperity. This is shown in the preservation and use of manure, the utilisation of every inch of land, the clean cultivation, absence of weeds, and care in packing for market. In some districts the market-gardeners and fruit-growers combine into a co-operative society, which publishes price-lists, and circulates other useful information. Attached to the inn in every village is an auction-room for the daily sale of market-produce. What is not sold by private contract is sold in the evening to buyers from the great towns. These marts have been of the greatest service to the growers, and it would be well if something of the kind were organised here. In matters relating to education, both general and technical, the Dutch, like most other nations, are well ahead of us.

"THE PROFITABLE FARM AND GARDEN."—This is the title of yet another gardening paper. Its object is sufficiently indicated by its name. Its price is one penny weekly, and it is published by

Messrs. COLLINGRIDGE, Aldersgate Street. When we say that it is edited by Mr. W. T. SANDERS, we have said enough to prove its value to the cultivator who has to make a living out of the land. Old-fashioned farming has gone, or is useless as a profit-making business. The cultivator must in future adopt the practices familiar to the gardener.

NOMENCLATURE.—We are glad to find M. COGNIAUX, the editor of the very serviceable *Dictionnaire Iconographique des Orchidées*, and a botanist of large experience and great judgment, shares our opinion as to the inconvenience of attaching more than one word as a specific name. The great simplicity of the Linnean nomenclature resides in the adoption of one name for the genus and one name for the species. When speaking of a species, the two words, generic and specific, cannot be detached; they really form one name, and each is incomplete without the other.

M. RODIGAS.—As a sequel to the fêtes held in commemoration of the fiftieth anniversary of the Ghent School of Horticulture, M. RODIGAS has been promoted to the dignity of Officer of the Order of Leopold. Those who know with what energy and perseverance M. RODIGAS has worked in and for horticulture for a long series of years, will feel that this honour has been more than well earned.

DELASAU.—This name is familiar to us as one belonging to a family of French refugees established in Canterbury at the time of the revocation of the Edict of Nantes. It appears from the *Revue de l'Horticulture Belge* that the name is now written in France as Delassaulx or Dussaulx, and that it originally meant "of the Willow," from the Latin, *salix*; French, *saule*. The Flemish equivalent is Verwyghen. We do not think the translation of names from one language to another is desirable if the results are to be like those cited.

NATIONAL ROSE SOCIETY.—A meeting of the Soil Analysis Committee will be held at the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, the 7th inst., at 2 P.M., to consider Dr. BERNARD DYER's report on the analyses of five different Rose soils. H. HONYWOOD D'OMBRAIN, EDWARD MAWLEY, Hon. Secs.

MR. MALCOLM DUNN.—The library of our lamented correspondent is to be sold by auction on November 16, at Dowell's Rooms, Edinburgh.

HOME CORRESPONDENCE.

PROTECTING PEACH BLOOM.—A correspondent under the signature "A Traveller," redirects attention on pages 289, 290 of the *Gardeners' Chronicle* to this important matter. In a couple of sentences he puts some of the more potent causes of failure and of cure, thus:—"In certain districts an abundant rainfall, frequent sea-fogs, and the mildness of the climate. The only cure was triennial lifting, root-pruning, shallow planting, and a restricted use of manures. Experience has proved these to be hindering processes; both checking the vitality of the trees, and hastening time. Lift, root-prune, transplant Peach, Nectarine, and Apricot trees early in October, and we hold back growth for a month or more; and this forcible interregnum of growth often proves more than sufficient to save our fruit blossoms from destruction." I quite agree with "A Traveller" so far as he goes. Triennial lifting and root-pruning are likely to save the bloom every third year from destruction. But the principle and practice of the forcible holding back the flower-buds of stone-fruits, root-pruning and lifting, and a spare diet, may surely be applied oftener than once in three years. [Usually it is sufficient for the purpose. Ed.] Not a few of our best growers have so educated these trees into portable ways that they move many of them annually (?), and thus not only delay the flowering season and secure the maturity alike of wood and flower-bud. The restricted use of manure, either liquid or solid, is beneficial in restraining the energies of the trees until such time

as the period of spring frosts be passed by. Nor must it be forgotten that local circumstances are a very potent factor in the safe setting of Peaches and other stone fruit. It will sound strange for those whose lot has been cast in East Anglia to read "A Traveller's" experience in the counties which he enumerates, "that he had never to water a Peach-border either with clear-water or manure-water during the ten years of his residence in these three counties." How often have residents in dry counties had to flood their borders during the same period? But then we may have a forcing season to contend with, as well as multitudes of flower-buds allured into bursting by great sun-heat in the spring. Can we do anything to check the energy of the latter? We can. At first sight it might seem more possible to divert the Gulf-stream. But through the simple and sensible expedient of changing the aspects of our walls we may moderate the energy of our solar heat sufficiently to keep back the opening of fruit-buds to safety-point in our fickle spring. Apricots, Nectarines, Peaches in some districts, are safer in the spring months on an east than on a south wall; while in most districts they are safer from injury by frost on a west than on a southern wall. Why? Simply because the fruit-buds are several weeks later in opening. When in bud, Peaches, Nectarines, and Apricots defy spring frost. Keep them closed by surrounding them with a cooler local atmosphere, root-pruning, lifting, or under-feeding, until danger of frost is past. It will be quite easy to supply all their needs afterwards, and grow these fine stone-fruits in the open air, as well or better than our forefathers could grow them. *D. T. Fish.*

STARWORTS (ASTERS) AT STONELEIGH ABBEY, KENILWORTH.—The large number of plants of the perennial Asters now flowering profusely in these gardens present a gorgeous, yet graceful sight; the gardener, Mr. H. T. Martin, makes a specialty of them. On entering the kitchen-garden by the main entrance from the abbey, the visitor sees a bed containing between fifty and sixty distinct species and varieties, all of which are well grown and vigorous. Although due regard has been paid to the disposing of the tallest of the species at the back, yet they are so arranged that any degree of formality is entirely absent. The habit of these now popular plants is most diverse, and the numerous shades of colour and general contour of the plants are best displayed by a system of massing. Mr. Martin has many plants in the herbaceous borders dotted here and there among other subjects, and these are very effective; but it is when seen in a mass that the full beauty and utility of the plants for the embellishment of a garden in autumn is seen to best advantage. *M. D., Leamington Spa.* [Our correspondent sent with the above note a list of the best varieties in bloom at the time. Ed.]

APPLE, RIBSTON PIPPIN.—Enquiries were recently made by a correspondent in the *Gardeners' Chronicle* respecting our tree of the Ribston Pippin whether it was still living. I send you with this note four fruits from this tree; it bore about five dozen this year. It is getting very old, and is a sucker from the original tree which was raised here from a pip sown in 1709, and blown down by wind in 1834. The sucker has never been shifted, and stands in the park on a slope facing south. *John McClelland, Ribston Hall Gardens, Wetherby.* [Very good specimens from such a veteran. Ed.]

GREEN TOMATOES.—At this season there are many green Tomatoes left on the plants which have been grown in the open. The utilisation of these remnants is of some importance. It is already known that they can be turned into a very nice jam, resembling somewhat that of Greengages. But here are two other modes of utilising them:—(a) Simply cut them in halves transversely, and fry them in lard with a sprinkling of finely-chopped Garlic and Parsley. Thus treated, they are very nice, and in flavour resemble that of fried Aubergines. Of course, they require longer cooking than ripe Tomatoes. (b) Parboil them first, then cut away the stalk-top, and scoop out their interior. Make a mince of any left meat or fish, or of sardines; fry it slightly in butter with some finely-chopped Onion, and a chopped clove of Garlic and some chopped Parsley (in the absence of Parsley, Thyme or Sage will do); add pepper and salt, and let it cool. Then mix up with it a beaten egg and

some bread-crumbs, fill the green Tomato receptacles with this stuffing, and bake them in a dish smeared over with lard. They can also be stewed in a little savory stock. *E. Sonavia, M.D.*

AN ASH-TREE STRUCK BY LIGHTNING.—I have noticed what seems to me rather a curious occurrence. An Ash-tree growing here was struck by lightning, the electric fluid running from the top to the bottom of the bole. This happened in September last year, and the leaves dropped off it in about three days afterwards, and we thought that it was killed. This year, however, the tree bore a very large crop of good seeds. I do not know why it should bear such a wonderful crop of seed-vessels, as the leaves are not of the natural size of the Ash, but very much smaller; in fact, the leaflets of the compound-leaf are no larger than those of an ordinary Dog-Rose. I have noticed something similar in a case of a Laburnum-tree: it never used to have much bloom on it, but one day some goats got into the shrubbery where the tree was growing, and gnawed off the bark with the exception of a strip of about 1 inch in breadth. However, the following year it bore a numerous blossom, and after ripening its seeds died. *Observer.* [These are examples of the contrast between the vegetative and the reproductive energy: check the one, the other has an opportunity of developing. *Ed.*]

THE SONG-THRUSH.—I see from your columns that the character I gave of the colony of thrushes that frequent the garden and grounds here, and which appeared in your issue of September 30, has been received by some of your correspondents with incredulity or suspicion. To make the matter perfectly clear, perhaps I should have said I was speaking of the song-thrush. Well, all I said of these birds, as they have come under my observation here is absolutely true. What they may do or not do in other and distant parts, and under different conditions of life, I do not pretend to know. I only speak what I know, and testify of what I have seen, and I can say that the song thrushes here have not injured a Pear or Apple on standard, pyramid, espalier, or wall, though quite unprotected, for twenty years. At the same time, they have not been slow to claim a share of Currants, Gooseberries, Strawberries, and Raspberries; but the large fruit, including Apricots and Peaches, they have never touched. As for blackbirds, I find that wherever they are a little time about a place, or become familiar with it, they go, especially in dry weather, full tilt at everything. But these black thieves have been kept thoroughly down here, at much trouble and not a little expense. This has freed my darling thrushes from evil companions and their bad practices. Whether it has had anything to do with their good behaviour I am unable to say. It may be, however, in the feathered, as in the unfeathered biped, that evil communications corrupt good manners. *John Hart, The Manse, Aberlady, East Lothian.*

TOMATOS AS A FIELD CROP.—The notes on Tomato-growing in the *Gardeners' Chronicle* of last week, are both interesting and instructive, and there is no doubt, that given a favourable season, there is more or less profit to be derived from Tomato-culture in the open fields in the warmer districts of the south and south-west parts of England, even when grown at a distance from the markets in the large towns. If the prices which have ruled the market here in Hawick held good in other towns, then ought there to be a decided balance on the right side this year, at any rate. The lowest I have seen priced in the fruiterer's windows this season was 8d. per lb. One thing I would warn would-be growers of, and which is well worth consideration in what may seem to be a favourable district for their cultivation. That is sea-fogs, which on some of our coasts are frequent and dense in the autumn. When living near the mouth of the Severn, where the soil is admirably adapted for Tomato-cultivation, I found in several seasons that we got very dense fogs early in September, and sometimes the whole month more or less, which brought on the disease in a wholesale manner. I have seen the plants loaded with moisture three-parts of the day for several days in succession in the open garden, but not quite so badly against the walls. Their cultivation in that district was attended with no difficulties except the one mentioned, and even in a wet season we secured a plentiful set of fruit, only to be swept off in quantity during the time mentioned if we had a visit

of the fogs. Some seasons we would escape, and were able to pick first-rate fruit in quantity well into November. I have tried many varieties, but Conference was the most trustworthy, being a freer setter than some of the larger-fruited sorts. Some of the individual fruits of the large varieties I have seen turn the scale at 1½ lb., but I do not think varieties which produce such weighty fruit are nearly so profitable as those of which Conference is the type. *R. T. S.*

SALVIA PATENS.—I can fully bear out Mr. S. Arnott's statement at p. 331, that this beautiful blue-flowered Salvia is one of the most effective of plants in the flower-garden. Every good garden should possess a bed of it, and if this is furnished with a white edging, either white leaves or white flowers, the effect is much enhanced. I edge with white-leaved Pelargonium; I prefer seedling plants, sowing the seed early in February, in heat, and prick off the seedlings into cold frames early in the month of April, and in the middle of May I take them up with good balls, and plant in the beds. As soon as they begin to cover the ground, I peg down the shoots. The beds were masses of beau-



EUGENE BEEKMAN

tiful blue flowers all the summer. I have never found it to be a hardy plant; I take up the old roots and put them into boxes filled with sand, in which they remain till March, and then pot them, and as soon as the shoots are large enough to make cuttings, I strike a quantity of them in bottom heat. *Wm. Smythe, Basing Park Gdns., Hants.*

AWARDS OF MEDALS TO HARDY FRUITS AT THE DRILL HALL.—I scarcely expected that there could be room for complaint with respect to the exhibiting of collections of Apples and Pears at the Drill Hall, where very few conditions are imposed on those who take such collections there, beyond the exclusion of duplicate dishes, and the condition that the space filled be that duly allotted. But a grower of high reputation, I find from a note from him, referring to his own experience on some occasion, states that when medals are awarded for the various collections, the Fruit Committee seem to be impressed with those where large dishes or baskets of a variety are shown, rather than by the average excellence of the samples displayed. In that respect I feel an error is committed, as on the last occasion, when medals were awarded the smaller collections of Apples and Pears from The Hendre, Monmouth, a very remote place, was, although the various dishes were each of about six

fruits, placed equal in the award of a Gold Medal to the much larger collection of 100 dishes from Frogmore. My correspondent does not object to nurserymen showing as many fruits in a dish as they like, but I think that if the awarding of medals is to be assumed to carry with them any competitive aspect—and there is undoubtedly some such aspect about them when several collections of these fruits are staged—that nurserymen may be restricted to twelve large fruits or eighteen small ones of each variety; and private growers to six large ones or nine small ones of each variety; and without doubt such restriction, whilst enabling the grower from a distance to keep his hampers of a moderate weight and dimension, would all the same cause the average samples to be of higher excellence. Of course, the matter is one for the Council to determine, and judging by what was observed at the last meeting, when every inch of table space was crowded, such proposal merits attention even on the ground of economy in table-space. *A. D.*

GALTONIA HYBRIDS.—I am interested to learn that like myself, Mr. W. E. Endicott, of Canton, Mass., has raised a hybrid between *G. candicans* and *G. princeps*, and in reply to his inquiry whether my hybrid was in flower before the parents, I beg to say that it opened later than *G. princeps*, but earlier than *G. candicans*. There is the difference of about a fortnight in the flowering of the two species here, but the one lasts until the other is well in bloom. Mr. Endicott, in referring to Kew, makes a mistake for Cambridge. *R. Irvin Lynch, Cambridge.*

LIQUID AIR AS A REFRIGERATOR.—This method of preserving fruit, &c., would appear to be making way in California—in those parts especially where sub-tropical fruits are in the ascendant. Thus we learn that Mr. Bobrick, of Los Angeles, has visited Professor Tripler's laboratory in New York city, and says that after some twenty-five day's study therein, he has come to the conclusion that liquid air will replace ice just as gas and electricity have replaced the old oil lamp—it is only a question of time. Oranges were placed in liquid air and frozen solid, then pulverised like a piece of marble. After thawing somewhat, the juice was extracted by squeezing, then concentrated by cold produced by liquid air in the following manner:—First, Mr. Tripler froze the water contained in the juice, and removed it as ice. Certain acids contained in the juice froze at a lower temperature, and these also were removed in the form of ice. Subsequently the purer juice itself froze at a still lower temperature, leaving an acid which required a much lower temperature for freezing. The acid was poured off, and the frozen syrup, absolutely pure, in a concentrated state, was used for making ice-creams, &c. No statistics connected with first-cost have come to hand. *E. Cottam, 86, Coocross Street, E.C.*

HYBRIDS AND THEIR RAISERS.

AMONG the many distinguished hybridisers whose portraits we have given in the present volume, there are few better entitled to a place than M. Eugene Beekman. This gentleman has had charge of the hybridising department of M. Linden's establishment, now called "L'Horticoles Coloniale," at Brussels, for the last twenty years. During that time he has carried out all the important work connected with that subject; and many more promising hybrids raised by him are yet to come.

Of plants of Mr. Beekman's raising, mention may be made of *Cypripedium* × *Beekmani*, figured in *Lindenia*, xiii. p. 51, said to be raised from *C. bellatulum* × *C. Boxalli* superbum, which obtained great admiration, and led to some discussion as to the parentage; but in any case it is one of the finest of the hybrid *Cypripediums*; *C.* × *Winczianum* (*Harrisianum* × *Haynaldianum*), also a fine variety; *C.* × *Wiertzianum* (*Lawrenceanum* × *Rothschildianum*), very fine, figured in *Lindenia*, xiv. p. 43.

These are, we think, among the best, but there were several other meritorious crosses, most of which are known to visitors to the meetings of the Royal Horticultural Society, who have seen them when shown there, including the singular bigeneric hybrid *Zygobatemannia* × *Mastersii* and *Batemannia* Colleyi × *Zygopetalum* crinitum (see *Lindenia*, xiv. p. 69).

CHRYSANTHEMUM NOTES.

NONIN'S CHRYSANTHEMUMS.—It is only during the past two or three years that this French grower's name has become familiar to English cultivators. During the present season several of his novelties have been met with, the most promising being *M. Raymond Deaforest*, a large, solid, compact, incurving flower, with grooved florets, colour reddish velvety-crimson, with deep golden-yellow reverse; *Madame F. Daupais*, pure white Japanese, incurved, with broad grooved florets; *M. Gatellier*, dull terra-cotta, golden straw reverse; *Corcoran*, very deep in build, a Japanese incurved with grooved, pointed florets, colour pale blush-pink, shaded deeper, something in the style of *Lady Isabel*; *Jules Bernard*, very large Japanese, velvety, deep rosy-amaranth, reverse silvery-pink.

MORE AUSTRALIAN CHRYSANTHEMUMS.

The French seedling raisers have had many competitors in their day, but none seem to be more formidable than our cousins in the Australian Colonies. To-day I have just seen a new batch of Colonial novelties, many of which are from a firm of growers in Melbourne. Of these, *Sydney Brunning*, a large Japanese, with long, broad florets, slightly incurving in the centre, colour deep reddish terra-cotta, with bright golden reverse, is a striking flower. Then *Marjory*, a pretty bright rosy-pink flower, with narrow florets, comes next. *Sir H. H. Kitchener* has flat, medium-sized florets, is a bright reddish-crimson, with a golden reverse. *Hector Brunning* is a Japanese, colour dark, deep, velvety crimson, with a metallic reflection; reverse golden. *Mrs. Frank Gray Smith* is a large, globular flower, with narrow grooved florets, close and compact—deep golden yellow, shaded crimson. *Admiral White*, something like *Old Avalanche*, is another. *C. H. P.*

WOODHATCH LODGE, REIGATE.

The continued interest in the cultivation of the Chrysanthemum, exhibited by such amateurs as *Mr. T. B. Haywood*, of Woodhatch Lodge, is an indication that the popularity of the plant is not decreasing.

The Woodhatch Lodge collection is always one of much interest, and exhibits the same high class cultivation, as do other plants in this well-managed garden. The number cultivated each season varies little, but the collection from year to year differs more or less, according to the number of varieties added or discarded.

The flowers will be just at their best when this note is in the hands of our readers.

Of the new white ones, that of *Annie Prevost* is very promising. It is a Japanese incurved, pure white, except a slight lemon tinge in the centre, and reminds us of the build of *Western King*.

But there are older and excellent white Japanese, more or less pure in colour, in *Madame Philippe Rivoire*, which makes a very deep and fine exhibition flower; *T. B. Haywood*, rather too early as a rule, for the November shows; *Mrs. H. Weeks*, remarkable for its broad florets and bold build; *Mrs. J. Lewis*, *Madame Gustave Henry*, *Mutual Friend*, *Pride of Exmouth*, *Souvenir de Petite Amie*, *Madame Carnot*, *Mdlle. Thérèse Rey*, *Madame Louis Rémy*, &c. Against such varieties as these and others equally good, now white ones must be exceedingly good to find a place. There is another new one, however, that promises to become valuable: its name is *Nellie Pocket*, an Australian seedling. It grows barely 5 feet high, has a grand habit, and is a first-class Japanese incurved.

Of the yellow Japanese, the richest coloured of all, and possibly the largest, is the new one of *Mr. Jones*, *R. Hooper Pearson* (see *Gard. Chron.*, Nov. 19, 1898; fig. 108, p. 369). *Mr. C. J. Salter*, who so skillfully cultivates *Mr. Haywood's* plants, has several exceptionally good blooms of this glowing variety, and he describes it as a capital "doer." Another new yellow variety, but widely distinct from that just mentioned, is *Le Grand Dragon Calvat*. Its colour is more orange-yellow, and

when well shown, the florets are more or less lined with red; it produces an immense flower, and is of good habit. Some fine flowers of *Phœbus* and *Edith Tabor* were nearly developed at the date of our inspection, and of *Oceana* and others. When speaking of yellow varieties, mention may be made of *Lord Ludlow*, a variety shown last season by *Mr. Wells*. It is a very deep flower of a soft, yet rich shade of yellow, and the florets should be margined with red; the tips of the petals are spoon-shaped, and the build of the flower generally is most attractive. Cream-coloured flowers were represented by fast-developing blooms of *Mrs. Mease*, the sport from *Madame Carnot*. Of pink Japanese incurveds, *Mrs. S. C. Probyn* and *N. C. S. Jubilee* were both good, but the latter, from our point of view, is the more refined flower.

Madame Boudoin (Calvat), white Japanese, marked rosy-purple; *General Paquie*, a smooth-petalled, very distinct coppery-red coloured flower; *Beauté Grenoblois*, white, shaded violet; *Mrs. White Popham*, and *Mrs. Barka*, are novelties that are doing well. Of better-known sorts, *Australie*, *Charles Davis*, *Chenon de Leché*, were especially good. High coloured varieties included *W. Seward*, *Werther*, *Ed. Molyneux*, and the novelty *H. J. Jones*, which at present we have not seen so fine as when shown by *Mr. Weeks* at the Aquarium late last season. There is an exceptionally bright crimson seedling (Australian) in *Mr. Salter's* collection. The tips of the florets are incurved, and have a buff reverse, and should our opinion of it be correct, its value will be great.

The truly-incurved varieties, and the *Anemones*, though later than the Japanese, were developing satisfactorily, and *Mr. Haywood* had a very fine display to exhibit to his friends who were invited to Woodhatch on Thursday last.

The Orchids and other choice plants are looking very well; and it is a pity that the fog a fortnight ago should have injured the splendid show of zonal *Pelargoniums* in pots, which, but for this, would have been exceptionally fine. In the vinery were hanging splendid bunches of *Black Alicante Grapes*, and the well-stocked fruit-room indicates that the Apple crop this season at Woodhatch has been a capital one.

C. ETOILE DE FEU.

Those who want a very bright, good decorative Chrysanthemum for supplying blooms for cutting, or to be used as decorative plants in a group, will do well to procure *Etoile de Feu*, a continental variety we saw recently in *Messrs. Wells' nursery* at Earlswood, Surrey. From terminal buds the flowers are bright red, exactly the colour to produce effect when interspersed with white and yellow varieties. They are quite large enough on the terminal bud, but if the crown bud be selected, the effect of the flower is spoiled, as half the florets are likely to be gold-coloured. In the best coloured terminal flowers, the gold colour also shows itself a little upon the reverse of the rolled florets in the centre. The habit of the plant is good.

MRS. WHITE POPHAM.

This new, large Japanese incurved is proving quite equal to the promise it gave last season, and some extraordinary blooms may be anticipated at the large shows to be held on Tuesday next.

HOME-RAISED CHRYSANTHEMUMS.

are coming greatly to the front. If present appearances are maintained, in a season or two many of the best novelties will be varieties raised in England from English-grown seeds, or Australian introductions.

LONDON COLLECTIONS AND THE RECENT FOG.

With a view to seeing how far the fog of the third week in October had injured Chrysanthemums in the river district of London, we visited the collection at Dover House Gardens, Rochester, the property of *Mr. (Pierpont) Morgan*. As was only to be expected, we had not far to seek for the fog's baneful influence. The best cultivated collection of Chrysanthemums *Mr. McLeod* has had, has been

in a measure crippled. A week's fog that hardly lifted during that period, at a time when the fast-opening florets need every bit of sunlight possible to develop good colour, was sure to inflict a check upon them, and this, despite every effort of the cultivator. But it is interesting to find that whilst certain varieties were greatly injured, others were much less so. The flowers of the Australian *John Pockett*, were spoiled, and the florets withered as by a flame. Even as far removed from London as is *Swanley*, the same variety was cut down after the fog as useless for the season. The effect upon many other varieties has been much less direct, being that of a general check to the plants, causing the florets to open less kindly, and many of them to "damp."

But *Mr. McLeod's* collection is a very fine one, and the plants have a healthy appearance and carry an abundance of fine foliage. The large flowered varieties are grouped in a vinery and Peach-house, and, though the plants are not by any means excessively tall, the trellis-path has been raised, so that now the flowers can be inspected with easy convenience. The back wall is covered with *Myrsiphyllum asparagoides*, and the effect is pretty. A few days ago the bush-grown plants were still out of doors, and in several of the other houses were additional large-flowered varieties developing bloom.

In the two show-houses the following varieties were represented by fine exhibition blooms—*N.C.S. Jubilee* and *Mrs. S. C. Probyn*, very similar Japanese incurveds, the former the prettier; *M. Chenon de Leché*, *Madame Rosette*, reddish-purple, Japanese, the florets spoon-shaped at tip; *Edith Tabor*, much damaged by fog, but is usually very good in this collection; *Pride of Maidenhead*, a fine white Japanese, with long drooping florets; *Madame Philippe Rivoire*, a white Japanese, very deep flower, and especially well grown; *Dorothy Seward*, a brown shade of red Japanese incurved, with buff reverse, a pretty variety, and possessing a good habit; *Australie*; *Lady Oporto Tait*, a deep yellow Japanese, with very wide florets, a variety distributed by *Messrs. Cannell & Sons*; *Le Grand Dragon*, with four large well-developed blooms of this fine novelty upon one plant; *Madame M. Ricoud*, deep, solid blooms of a beautiful shade of pink; *Lord Brooke*, uncommonly good; *Sunflower*, in typical character, and rich golden-yellow; *Vivian Morel* and its sports, *Mutual Friend*, *Madame S. Brunt*, *Mrs. H. Weeks*, *G. C. Schwabe*, and many others. The incurveds are a little later, but several varieties were building up very satisfactory.

THE CHELSEA COLLECTION.

None of the nurserymen have to grow their Chrysanthemums under less satisfactory conditions than do *Messrs. Jas. Veitch & Sons*, *Royal Exotic Nurseries*, *King's Road, Chelsea*. It is easy enough for them to raise good stock, and to cultivate first-class plants; but, when the month of October has run its course, the subsequent weather that past experience has taught us to expect in this locality is the very worst possible for the flowers. Even October itself is not always a "good" month in the heart of London, and this year the third week was remarkable for heavy fogs.

In spite of all this, however, *Messrs. Veitch* do contrive to obtain a nice show of bloom, and that for the present season is just looking its best. Its purpose is to serve as an index of the very best varieties up to date, whether old or new, and therefore it is very representative. Representative, that is to say, of all sections of the Japanese varieties, for incurved, pompons, *anemones*, and single-flowered varieties, are not cultivated for the production of large blooms, though stock is kept of all. Speaking broadly, the Chrysanthemum is an excellent "town" plant; that its blooms will not sustain without injury a London November fog is no proof that it is not so.

But there are certain varieties that are much more likely to succeed under these unsuitable con-

ditions than others, and the following varieties, we judged from the collection now on view, to be among the best. Our conclusions are borne out by Mr. Weeks, who has had charge of the collection for some years:—Mrs. C. Bliok, Nellie Pockett, Mrs. Weeks, Mrs. J. Lewis, Lady Byron, Chatsworth, all white, or nearly white, Japanese varieties; Louise, M. Chenon de Leché, Mr. T. Carrington, Mrs. Falconer Jameson, Souvenir de Petite Amie, and N.C.S. Jubilee. The black list includes Thomas Wilkins, Joseph Chamberlain, Madame Carnot, and all its sports (it being impossible to preserve the foliage upon these), Col. W. B. Smith, which generally "damps," and John Pockett. These, and especially the last-named variety, seldom succeed even moderately in similar districts to Chelsea. Some of the newest varieties have done very well here this season, and will possibly do so in succeeding ones. These include Annie Prevost, a fine white Japanese; Mrs. Barkley, a pink Japanese, raised by Mr. Weeks, of Thrumpton Hall Gardens, R. Hooper Pearson, Rayonnante, a very distinct variety, with fluted, ray-like florets of pale mauve colour; Reginald Godfrey, a flat-petalled red Japanese, with orange reverse; Emily Towers (white), a dwarf and good-habited plant; Hon. W. F. D. Smith, a variety sent out last season by Mr. Wells, a red flower with buff reverse. The first florets appear fluted, but later ones are flat; Hugh Crawford, a sterling Japanese, distributed by Mr. Jones two seasons since; &c. A promising new incurved variety is Major Mathew, bright rosy-purple in colour. The new green-coloured Japanese, Madame Edmond Rogers, had two blooms of considerable size.

Another house contained a fine lot of bush-plants, exactly the kind of specimens for the furnishing of dwelling-rooms, &c. The old reflexed variety, Emperor of China, figured well amongst these, and is suitable for the purpose, and for cultivation in the out-door border.

EXHIBITIONS NEXT WEEK.

In our list of appointments on p. 344 there are particulars of upwards of forty Chrysanthemum shows to be held next week, and this does not include a large number of minor shows in various parts of the country. Tuesday next will be especially busy, for, as last year, the Royal Horticultural Society's Committee will meet upon that day; the National Chrysanthemum Society's Exhibition will be opened at the Royal Aquarium, and there will be large shows at Birmingham, Plymouth, and other places.

LAW NOTES.

STOLEN CONTRIBUTORS' BOX.

THE man who stole the Gardeners' Orphan Fund Box at Tweed Vineyard, Clovenfords, N.B., has been caught. He pleaded guilty at the Selkirk Sheriff's Court, and was awarded due punishment. It is some satisfaction to Messrs. Thompson that some of the stolen money has been recovered.

ACTION AGAINST A MARKET GARDENER.

At Brentford County Court on Tuesday, Oct. 31, before His Honour Judge Bagshawe, Q.C., and a jury, Wm. Waller, of Frogmore, Wandsworth, sued John Smith, of Grove Park Gardens, Chiswick, market gardener, and Robert Beach, his foreman, for £50 damages for false imprisonment.

Mr. Percival Smith was for the plaintiff, and Mr. W. A. Bird for the defendant.

Plaintiff was a crane-driver engaged in the operation of filling up some marshland on the banks of the Thames, to which defendant's garden adjoined. On July 12, he took a pail and went along the marshland to pick the Mushrooms which grew wild there, and Beach, who had been on the watch, jumped out on him and charged him with stealing Mr. Smith's Mushrooms. He dropped his pail and ran, and Beach, by means of a whistle, called P.C. Owen across the river from Barnes. When the

constable saw the dropped pail was on the marshland, and was told the plaintiff dropped it directly he was caught, he refused to take the charge; but eventually Beach got another policeman to take plaintiff to the Chiswick Station, and thence to the police court. The charge was dismissed, but plaintiff was put to £7 expenses, he lost time, and suffered indignity.

The defence was that the defendant Beach had reasonable and probable grounds for arresting the plaintiff. He saw plaintiff come into Mr. Smith's garden with the pail and pick the Mushrooms, and then called to him. Plaintiff ran off, and dropped the pail when he got near his crane, and the reason P.C. Owen would not arrest him was that it might endanger life if the crane-driver was away from his engine.

A mass of evidence was taken on both sides. His Honour left it to the jury to decide the questions of fact whether plaintiff was in defendant's garden picking his Mushrooms, whether Beach had reasonable ground of suspicion, and the amount of damages. The jury found for the defendants on these issues, and judgment was given for them with costs.

Obituary.

RICHARD MOORE.—We regret to have to announce the death of Mr. Richard Moore, Western Sub-divisional Magistrate of Rangoon, late Officiating Assistant Superintendent S. Shan States, which took place on August 18 last, at the age of thirty-nine years. The *Rangoon Gazette*, September 4, says: "It is presumed that the Red Sea passage proved too much for him. He had been in bad health for months past—suffering from attacks of malaria, and went home (to England) in May on a three months' leave. Mr. Moore came out from home about eighteen years ago as teacher in the Rangoon College High School. There he remained for some years under the late Mr. Gilbert and in 1888 was appointed to the Subordinate Commission. Much of his service was in the Shan States. Four years ago he came to Rangoon as Magistrate of the Western Sub-division. Mr. Moore had made a special study of Orchids, and knew the Orchids of Burma probably as well as any man."

Later intelligence gives the information that Mr. Moore was ill from fever when he left England. This was intensified by a chill caught by sleeping on deck in the Red Sea, and heart trouble caused further complications.

To most Orchid growers Mr. Moore is known for his discovery of the *Cypripedium Charlesworthii* and its albino; also *Cypripedium bellatulum album*, *Vanda* × *Moorei*, and the introduction of fine types of many of the showy Burmese Orchids, which he sent to his brother, Mr. J. W. Moore, of Rawdon, near Leeds.

GEORGES WAROCQUÉ.—The issue of *La Semaine Horticole* of October 28 announces the death of M. Georges Warocqué, which took place at Pekin, China, where he was journeying, and at the time when he was about to return home. M. Georges Warocqué was well known throughout Europe for the active part which he took in horticultural matters, and the cultivation of plants, more especially of Aroids and Orchids, of which he had one of the most extensive collections in Belgium, and which supplied the grand group which he staged in opposition to M. Jules Hye Laysen at the Ghent Quinquennial Show, April, 1893.

His gardens at the Château de Mariemont, near Charleroi, were described in the *Gardeners' Chronicle*, November 29, 1890, p. 631.

The death of M. JOSEPH MAWET, a member of the firm of Mawet & Postula, of Liège, is announced.

The death of M. ED. DE LANGHE, of Ghent, is also recorded.

SOCIETIES.

WILD FLOWERS IN THE GARDEN.

THE subject which I am allowed to introduce to-night was suggested by an incident which occurred last summer. A foreign visitor to my nurseries in the leafy and floriferous month of June remarked frequently, when specially beautiful objects were brought to his notice, "Yes, pretty; but weeds, mere weeds."

Well, "weed" is, after all, but another name for a plant which is out of place in garden and farm crops, however beautiful it may appear in its own element; and it then struck the horticultural part of my conscience that we as gardeners had neglected many beautiful British subjects in our eagerness for exotics for enriching our gardens, which "foreigners" were, of course, weeds in their native lands. Then a vision of many lovely combinations in Dame Nature's landscape gardening rose before me; for instance, next to my farm is a Chestnut wood, on sandy soil, where the background was the tender young foliage of the Spanish Chestnut, while the foreground was a mass of the wild Hyacinth—the Bluebell of one's childhood—which for some three weeks kept up its lovely and enchanting display, and as it faded a graceful crop of Campion (*Lychnis diurna*) succeeded it, and formed an equally charming effect. In another case, for some half mile ahead, while travelling in Wiltshire, I saw a mass of rosy-purple peeping out between the dark green foliage and nut-brown boles of a Scotch Fir grove. Here, to my surprise, the ground was covered with *Epilobium angustifolium*, and my driver said it was thus glorified every season. These are but two examples of many hundreds, as before a body of horticultural experts I need hardly mention the Buttercup fields, and the Primrose and Anemone woods.

I shall rather call to mind some wild British plants that seem to me deserving of garden culture, if not in the herbaceous border, yet as masses in the wild garden and woodland walks, where often masses of introduced exotics seem to mock the natural sylvan beauty. It has been noticed that masses of the same colour frequently follow each other, yellow being the prevailing late spring colour, while blue is the first in the series, and yellow returns again in autumn. One reason for the neglect of wild flowers is doubtless the difficulty of collecting the plants at the right season for transplanting, when many are lost among the surrounding herbage and grasses; but probably the best method would be to collect their seeds and sow them in nursery beds for transplanting afterwards. One knows from experience that very few plants collected on holidays ever come to perfection.

It may be as well to start with spring flowers, among which the blue Hyacinth before-named holds a conspicuous place and may well be massed in the front portions of shrubberies, or underneath deciduous shrubs, as they will there be at home, and will not in any way interfere with garden-flowers. The Primrose can be naturalised in any moist position, and should not be shocked by contact with the coloured garden kinds, as its simplicity and its modest beauty need only its own foliage as a relief. We must not omit Violets and the later Dog Violets; while the German Speedwell (the Cat's eye of the children) is a weed with striking blue flowers, and patches on the rockery will not be out of place. The yellow Nettle (*Lamium galeobdolon*) is one of our first spring flowers. I have noted in a park entrance large masses of the Bugle (*Ajuga*) produce a pleasing effect, and I have noted a white form, and one of a pinkish shade.

While on the subject of woodland drives and grassy-edged roads leading to mansions, I may mention that much of the beauty of the natural flora is destroyed by too close mowing, and would suggest that a 12-feet bordering is enough to be mown; and beyond that, if cut over or cleared once a year, the natural flowers would flourish in the grass, and lend a charm to the scenery, and in a small way reproduce an alpine meadow. Here Cowslips, Cuckoo-flowers (*Cardamine*), the Centaury, Bugle, and *Fumaria*, with the Primrose and yellow Toad flax, are seen to advantage with patches of wild Heather and Foxgloves.

In summer the wild Orchises give us both striking flowers and interesting species for massing in special positions. *O. maculata* and its numerous varieties are good, and I have seen *O. maculata* in Scotland called *O. magnifica*, which was specially grand. The Butterfly Orchis (*Habenaria*), with its elegant spikes of pale scented primrose flowers, delights in a shady nook. The Twayblade, the Man Orchis, and the less common *O. fusca*, *O. pyramidalis*; while *Ophrys sphegodes*, *O. muscifera*, and *O. latifolia* are worth close inspection, and for shady places the *Epipactis* are well worth prepared stations in the garden, affording them leaf-soil, chalk, or sandy loam as required. *Trollius europaeus* is already an established garden favourite, while the Foxglove (*Digitalis*) is one of our grandest natives, and can be easily propagated by seed, and forms glorious masses for backgrounds. The Mulleins are worthy of culture, with their flannel-like foliage, and long conspicuous flowering spikes of yellow blooms. The Teazle is a bold subject for a bed, and is not only pretty in flower, but fine subjects for winter decoration are provided by its honeycomb-like head of seed-vessels. What shall I say for the Corn Poppy, with its glorious scarlet flowers all too evanescent? We must always have a tender remembrance of this as the parent of our super-elegant Shirley Poppies. In the west the

yellow Welsh Poppy is frequent near streams; and there is nothing in rich blue flowers that can approach the Viper's Bugles—seen in masses on sand and shingle near the sea it is superb, and deserves a prepared spot in the garden, where its gorgeous racemes can be thoroughly enjoyed. For a border plant *Geranium pratense*, with its lavender flowers, is well known. The various Hawkweeds—mouse and cat's ears—are pretty yellow and primrose flowers. The Wild Palm is a fine subject for banks, and runs into many varieties. For positions under trees the Periwinkles, major and minor, are suitable, and look well all the year round; while *Melampyrum sylvaticum*, the Wood Cow-Wheat, is fine in masses. In North Wales there seems to be a larger variety than is found in Kentish woods. The Woodruffe also makes a pretty carpet plant, and in early spring the yellow *Celandine* is very bright.

Among the Thistles are many worth a position in gardens some for foliage, as the Carline Thistle, others for noble growth, and others for flower. All can be readily raised from seed, and if care is taken to remove the flower-heads before they become downy they will not become a nuisance. There is also the Musk and Plume Thistle. Columbines are not infrequent on our chalk hills, and are attributed to the Romans, who esteemed the plant because the upturned flower resembled eagles nestling. Among maritime plants the Sea Holly and the horned Poppy take readily to gardens, and are distinct both in foliage and flower; while *Mathiola incana* is a lovely subject, with its lavender-pink flowers. The Thrift is well known as a neat border edging, and the white Popweed, *Silene inflata*, is useful. For hanging vases, the small Blindweed, and the Creeping Jenny or Moneywort are worth attention. Among the low-growing gems of our flora, the yellow *Cistus* holds a first place for arid soils and rockery, and the various coloured forms of the Milkwort claim our attention. *Hypericum humifusum* is also a small pretty subject. The Eyebright (*Euphrasia*) is interesting, and the pink *Celandine* (*Eythra*) always strikes me as a good garden flower. The Sea Campion just named, with its white flowers, is not averse to rock-garden culture.

For sandy soil the Rest Harrow, with its rosy flowers, is worth culture, under which it assumes a bush form. The yellow Anthyllis and its relatives, the Hippocrepis, with *Lotus corniculatus* (Bird's-foot Trefoil), and *Tormentilla*, are admirable creeping plants for chalky soils. *Saxifraga granulata* is one of our best subjects for dry, sandy banks. *Chlora perfoliata* (yellow) is a gem on the chalk in August. The Chicory is a grand blue flower, and will succeed in any dry soil. *Campanula glomerata* is not uncommon on downs; while for old walls the common *Celandine* is a good subject, its apple-green foliage being light and elegant. The Harebell is always a welcome flower, and the Ivy-leaved Lettuce (*Lactuca*), with the yellow Wallflower, and some of the Stonecrops and native Sedums, all make an old wall interesting. Nor must we forget the red Valerian, which is quite at home where nothing else can grow; also the Cornish Moneywort. The wild Roses, either the Sweet Briar of our hills, or the small bushes of single Burnet Rose (*R. spinosissima*), which are common on all our chalk hills, are well worth culture; and few subjects in our wild garden are more esteemed than our Dog Rose, elegant in its simple flowers, and striking when its haws become ripe. For a climber, few subjects equal the Woodbine or wild Clematis (*C. vitalba*), and those who have seen the way it grows at Belvoir Castle grounds over the gardener's house and surroundings can never forget the pleasing effect produced; it is at all times beautiful in leafage and flower, and especially when set with its silvery-grey masses of feathery seed-vessels in autumn. The Honey-suckle, Bryony, and the climbing Vetch are all good trailers while the white *Convolvulus* (Moonflower) is a fine subject, running over shrubs and low trees.

It is, however, I fancy, when we come to our natural aquatic and riparian plants that we find especially striking subjects suitable for embellishing our streams and pond margins and the damp spots in our gardens. The glorious Loosestrife (*Lythrum*), the pink *Epilobium hirsutum*, with its pretty but evanescent cup-shaped flowers; the long spikes of *Lysimachia vulgaris* (Moneywort), the Tansy, with its handsome foliage and golden umbels of flowers; our Water Forget-me-not (*Myosotis palustris*), with its amethystine umbels, are all universal favourites. There are also the Yellow Flag (*Iris*), Water Plantain, Figwort, the flowering Rush (*Butomus*), with its head of rosy-purple flowers; the Bog Bean, the elegant Arrow-head, and the glorious Reed Mace or Bulrushes. The white and yellow Water Lilies, the Water Hyacinth (*Hottonia*), with its soft blue spikes resembling some choice Orchid, are worth care to establish. The white Water Ranunculus is a striking floating plant. The tall masses of the Meadow Sweet (our native *Spiraea*), the King Cup (*Callitha*), with its golden masses of intense yellow flowers set on showy green heart-shaped leaves, are all beautiful for water gardens. All these water-loving subjects respond to careful treatment, and many of them are freely used—but why not more?

In autumn, *Hypericum perforatum*, with its foliage and golden flowers, is one of our best plants; and in sandy wastes the Ragwort is quite a feature, equal to many cultivated plants of its colour. The tall *Campanula Trachelium* is handsome, and the rosy-bloomed Soapwort (*Saponaria officinalis*) is a grand subject for masses, and flowers over a long period. The Mallows are also striking, and the tree form does well near the sea; while the Musk Mallow makes a grand show, and the commoner striped *M. sylvestris* is not to be despised. The Marsh Mallow is also suited for the bog garden. *Achillea millefolium* (Milfoil), as a red garden plant is well known, and the wild forms range from white through bluish to rose colour. The Scabious tribe are very good border plants, and affect our chalk-hills in the species *S. arvensis* and *S. columbaria*; the Devilbit Scabious (*S. succisa*) is a feature with its tall stems and blue flowers. The Harebells continue to flower until

October. *Spiraea filipendula* is often found on upland pastures. The blue Cornflower (*Centaurea cyanus*) is in flower all the summer and autumn; and the yellow Corn Marigold is a showy flower. *Coryza squamosa* (Shepherd's Spikenard) is very striking on chalk or clay pastures, and rises some 3 feet, covered with pretty yellow starry flowers. All these come to us annually, and we welcome them as old friends. May we not hope to see them tended and cared for in our flower-gardens, where they will respond readily to loving care and attention?—Lecture delivered by Mr. George Bunyard, F.M.H., at a recent meeting of the Horticultural Club.

DEVON AND EXETER GARDENERS' ASSOCIATION.

DRESSING CHRYSANTHEMUM-BLOOMS.

OCTOBER 25.—A large attendance assembled at the Guildhall, Exeter, on the above date, to witness a demonstration on dressing Chrysanthemum-blooms for exhibition. The manipulator, Mr. GEO. STYLES, gr. at The Grove, Teignmouth, is a well-known exhibitor at West of England exhibitions, and during the time he has been competing—about ten years—has been the winner of numerous leading prizes. He had before him about twenty blooms, all of them more or less defective. He passed round to the audience a few of the roughest of them, and then explained wherein they were defective from an exhibition point of view. After that he "dressed" the blooms at the table, in order to show the audience how it was done, and when a show-board had been finished, filled with the blooms, it was passed round to show the improvement effected. The meeting was strictly confined to the members of the Association, and, as an object-lesson, was quite a success. Councillor Ham, an honorary member and well-known amateur, presided, and introduced a profitable discussion. A hearty vote of thanks was passed to Mr. Styles for his demonstration and instruction.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

OCTOBER 26.—On the occasion of the meeting of the Committee, on Thursday, A. WARBURTON, Esq., Vine House, Haslingden (gr., Mr. T. Lofthouse), exhibited a distinct variety of *Odontoglossum crispum*, called "Sir Redvers Buller," to which the Committee awarded a First-class Certificate. In form the flower is of middle size, and of the round type; it is peculiar in its markings, being evenly spotted with bright crimson all over the petals. The same exhibitor sent *Cypripedium* × *Milo*, a hybrid remarkable for the richness of the colouring of the dorsal sepal (First-class Certificate).

T. STATTER, Esq., Stand Hall, Whitefield (gr., Mr. R. Johnson), showed a plant of *Cattleya* × *Wendlandiana*, *C. gigas* × *C. Bowringiana*, a not very remarkable hybrid, which shows the traces of its parentage very plainly.

J. LEMMANN, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), showed a fine group of plants, amongst which were many good hybrids, nice forms of *Cattleya labiata autumnalis*, *Odontoglossums*, *Cypripediums*, &c. *Laelio* × *Cattleya* × *Ada* (*L. elegans alba* × *C. Luddemanniana*) was awarded a First-class Certificate. It is a pretty flower, in which the characteristics of *L. elegans*, one of the parents, predominate, and it is easy also to discover traces of *C. Luddemanniana* or *speciosissima*, the colour throughout being of a soft, rosy tint, and with a pale citron tinge in the throat that enhances the beauty of the flower. Other good plants from this exhibitor were *L. C. × Nysa*, *Cattleya Mantini superba*, *Cattleya Bowringiana* "Hardy's var.," and a fine plant of *Angreum articulatum*. The group was awarded a Silver Medal.

G. SHORLAND BALL, Esq., Ashlands, Wilmslow (gr., Mr. Gibbons), sent a good variety of *Cypripedium Charlesworthi* var. *rubescens*, and a choice cross in *Cypripedium* × *Actenus* (*C. insignis* Sanders × *C. Lecanum superbum*). An Award of Merit was made to this cross. *C. × Milo* also came from this exhibitor, and, in common with Mr. Warburton, it was awarded a First-class Certificate. Mr. Ball also exhibited a grand form of *C. × Lathamianum magnificum*, in size and character superior to anything hitherto shown of this type. No award was given.

R. ASHWORTH, Esq., Newchurch gr., Mr. Pidsley, exhibited an *Odontoglossum crispum*, var. "Ashlandense," which received a First-class Certificate. The colours are bright, and the sepals stained right through by the colouring.

Mrs. BRIGGS-BURY, Bank House, Accrington (gr., Mr. Wilkinson), showed a wonderful plant in *Cattleya labiata*, var. *autumnalis*, var. *Peetersii* var. *marmorata*. It is distinct from the rare *C. L. Peetersiana*, and possesses better proportions, although the colouring is not so deep. The plant has a decided purplish tint in its foliage, which should be a good guide to purchasers of new importations of this plant. The plant was awarded a First-class Certificate.

W. THOMPSON, Esq., Walton Grange, Stone (gr., Mr. W. Stevens), staged a group of about one dozen *Odontoglossums*, among which was a plant of *O. crispum*, var. *Katie*, with about thirty-five flowers on a branched spike (Vote of Thanks).

Messrs. JAS. VEITCH & SONS, London, staged a set of hybrids, principally *Laelio* × *Cattleyas*, and a plant of *L. C. Welliana* (*C. Trianae* × *L. purpurata*) received an Award of Merit. *Laelia* × *Mrs. M. Gratrix* (*L. cinnabarina* × *L. Digbyana*) was perhaps the most interesting plant of the collection.

Hitherto hybrids of *Laelia* and *Cattleya*, in which *L. Digbyana* figured, have been welcomed; but this, the latest one observed, whilst showing an enlarged cinnabarina flower, has a lip that is scarcely of a proportionate size. Still, we may see some good forms of this cross which will be welcome Award of Merit. *Cattleya* × *Princess* (*C. Luddemanniana* × *C. Trianae*) received an Award of Merit. A Vote of Thanks was awarded for the group.

Mr. JOHN ROMSON, Altrincham, staged a large plant of *Epidendium vitellinum*. F. W.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

THE fortnightly meeting was held in the club-room of the Old Abbey Restaurant, when Mr. C. B. STEVENS presided over a good attendance of members. The subject of the paper for the evening was "How to keep a greenhouse gay from Oct. 1 to March 31," by Mr. Blake, foreman, East Thorpe Gardens, Reading.

It was unanimously decided by the members that a Memorial should be established to the memory of the late Mr. James Martin, and that it should take the form of providing for a child, to be placed on the Gardeners' Orphan Fund, and to be known as the "James Martin Memorial Orphan." A Committee was formed to carry out the scheme.

During the evening Mr. William Baskett, for many years head gardener to the late Mr. W. I. Palmer, was made a life-member of the Association, this being the first occasion the life membership rule had been acted upon.

ROYAL HORTICULTURAL OF SOUTHAMPTON.

OCTOBER 31, AND NOVEMBER 1.—Brilliant weather favoured the opening of the Chrysanthemum show, which was held, as usual, in the Skating Bink, a building especially suitable for such a purpose. The entries were numerous throughout, and the classes for cut blooms were well filled. Admirable arrangements had been made by the courteous secretary, Mr. C. B. FURDOR, and exhibitors at the Southampton shows can have little to complain of in regard to the arrangements for their exhibits.

PLANTS.

For the best collection of Chrysanthemum plants grown in pots, occupying a space 10 feet by 6 feet, Mr. E. BROWN, jun., New Alma Road, Southampton, an amateur, was well to the front, with a splendidly-arranged group of plants, carrying blooms of high-class quality, and of fresh appearance. Especially noticeable were the varieties *Bride of Marford*, Mrs. Coombes, Mrs. White Popham, Lady Hanham, Mr. Weeks and Louise. Mr. HOSSEY, gr. to J. C. E. d'Esteiro, Esq., Elmfield, Southampton, 2nd.

The competition in the class for a central conservatory group having Chrysanthemums as a prominent feature, was good. Mr. E. WILLS, nurseryman, Shirley, was a good 1st. Mr. Peel, gr. to Miss Todd, Shirley, 2nd.

CUT BLOOMS.

Cut blooms were very numerous, and the general quality was good. In the class for twenty-four Japanese, in sixteen varieties, Mr. N. H. MOSE, Belmont Nursery, Sholing, led with splendid examples of *Edith Tabor* (2), *Mutual Friend* Suzie, *Phœbus* (2), *V. Morel* (2), *Australis*, *Madame Carnot* (2), *Chenon de Leché*, *Madame × Rey Jouvin*, *E. Molyneux*, *N. C. S. Jubilee* (2), *Pres. Nonin* (2), *Duke of Wellington* (9), *Pride of Exmouth*, and *Lady Ridgway*. Mr. J. WASLEY, gr. to J. B. TAYLOR, Esq., Sherfield Manor, Basingstoke, was a close 2nd, showing in fine form *Chenon de Leché*, *Oceana*, *R. Powell*, *Australis*, Mrs. White Popham, and *Lady Ridgway*. Mr. G. Hall, gr. to Lady Ashurst, Melchet Court, Romsey, 3rd.

For eighteen Japanese, distinct, Mr. MOSE again led, with finely-finished and well-coloured blooms of first-class varieties. Mr. WASLEY was 2nd; and Mr. J. AGATE, Havant, 3rd.

The entries in the classes for incurveds were less numerous than usual. For eighteen varieties, Mr. W. NEVILLE, gr. to F. W. FLIGHT, Esq., Cornstiles, Twyford, Winchester, was 1st with *Globe d'Or*, *C. H. Curtis*, *Jeanne d'Arc*, Mrs. J. MURRAY, and *Perle Dauphinoise* as his best. Mr. J. AGATE, Havant, 2nd. For twelve incurveds (distinct), Mr. N. H. MOSE led with fine blooms of Mrs. N. Molyneux, Prince Alfred, and Mrs. Coleman. Mr. G. Nobbs, gr. to Her Majesty THE QUEEN Osborne, 2nd; and Mr. J. AGATE, 3rd.

In the class for twelve Japanese (distinct), Mr. J. WASLEY, Mr. G. HALL, and Mr. G. NOBBS, were placed in the order named.

For six yellow Japanese blooms in two varieties, the competition was keen. Mr. J. King, gr. to H. J. G. LLOYD, Esq., Itchel Manor, Crondall, was 1st with *Edith Tabor* and *Oceana*. Mr. H. H. LEE, 54, Cedar Road, Southampton, was a very close 2nd with *Phœbus* and *Mons. Pankoucke*.

For six whites, Mr. L. DAWES, gr. to Mr. J. BILVIE, Rosecroft, Hambledon, was 1st, with Mrs. J. Lewis and *Mutual Friend*; and Mr. Goss, gr. to W. G. RAY, Esq., Ma chwood, 2nd.

AMATEURS.

The section confined to gentlemen's gardeners and amateurs produced some good blooms. For eighteen blooms, Mr. A. J. MARSH, gr. to M. HOBSON, Esq., Kingsworthy, Winchester, was placed 1st with first-rate blooms of *Lady Hanham*

Phœbus, Chenon de Lecht, Aust. Gold, and Mrs. Coombes; Mr. J. Kink, 2nd.

In the same section for twelve Japanese in eight varieties, Mr. E. Brown led with well finished and highly coloured blooms.

In the class open to amateurs only, for twelve Japanese blooms, distinct, a silver cup was presented by Mr. E. Brown, jun., and this trophy was secured by Mr. H. H. Lums, who showed excellent examples of Lady Hanham, Oceana, Phœbus, N. C. S. Jubilee, Mutual Friend, and Mrs. W. Mease; Mr. E. Brown, was 2nd; and Mr. J. T. Ross, Oak Road, Woolston, 3rd.

For six Japanese, distinct, Mr. Lums again led, and Mr. Brown, was 2nd.

MISCELLANEOUS.

The miscellaneous classes, and those for fruits and vegetables, gave additional interest to the show, and some capital collections of vegetables were shown for the prizes offered by Messrs. Webb & Son, Stourbridge; and Messrs. Fidler & Son, Reading.

Mr. J. KEY ALLEN, F.R.H.S., exhibited a capital collection of culinary and dessert Apples, not for competition, which gained a well merited Certificate. W. H. L.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 1.—A meeting of the Floral Committee of this Society was held at the Royal Aquarium, Westminster, on Wednesday last. There were not many exhibits, and the only award made was that of a First-class Certificate to the following variety:—

Chrysanthemum Lady Temple.—An Anemone-flowered variety, flower 5 inches across, pale red in colour, good cushion, in which the pale yellow reverse is evident. Shown by Mr. R. OWEN, Maidenhead.

Mr. OWEN also exhibited a large white Anemone-flowered variety, with pale lemon cushion. It is named Mrs. Chas. Trinder. Also two large-flowering Japanese varieties, one named George Stanton, and the other Lord Cromer.

Mr. H. WEEKS, Thrumpton Hall Gardens, Derby, exhibited a Japanese incurved, named Mrs. Bagnall Wild, almost identical colour of N. C. S. Jubilee.

A number of single-flowered varieties were shown by Mr. H. Reddin, gr. to G. W. BIRD, Esq., Manor House, West Wickham, Kent.

Several other promising Japanese varieties were submitted to the Committee by different raisers.

BRIXTON AND STREATHAM HILL CHRYSANTHEMUM.

NOVEMBER 1, 2.—The fortieth annual exhibition of this Society was held in the Streatham Town Hall, which, although a capacious building, was not any too large for the occasion. The quality of the exhibits was good throughout. The exhibits of foliage plants, both large and small, add greatly to the general appearance of these autumn shows, and this Society sets an admirable example in this respect.

For a Group of *Chrysanthemums*, to occupy a space of 8 feet by 6 feet, plants not to be over 6 feet in height, and every bloom to stand clear, Mr. Howe, gr. to Sir HENRY TATE, Bart., was an easy list with an extra-fine group, the tallest not exceeding the limit in height, whilst the front plants were no more than 1 foot, with foliage down to the pots. Almost every flower was fit for an exhibition-stand, whilst all the plants were grown in 6-inch pots, from spring-struck cuttings; the best were *Souvenir de petite Amie*, W. Shrimpton, *Gustave Henri*, Viviani Morel, and Chas. Davis, the new R. Hooper Pearson, deep yellow, being also specially fine; 2nd to Mr. MURSELL, gr. to Mrs. BURTON, whose group also contained some fine blooms, whilst others were not well developed.

Plants.—Pompons, four plants: 1st to Mr. Gidner, gr. to Major SAUNDERS, with plants of medium size, and well flowered.

For Japanese varieties, Mr. WESTON was 1st with freely flowered examples. For six plants not trained, Mr. MURSELL stood 1st with capital decorative, well flowered examples.

CUT BLOOMS.

Mr. HOWE was 1st for twenty-four Japanese varieties, distinct, with solid blooms, very fresh and bright, the best being R. Hooper Pearson, extra fine; Madame Gustave Henri, Mrs. Mease, Mrs. Harman Payne, Modestum, Louise, Mrs. G. W. Palmer, Emily Silsbury, and Lady Hanham; 2nd, Mr. MURSELL.

For twelve varieties of broad-petalled, incurved Japanese, Mr. MURSELL was a good 1st; the best being Lady Byron, Australia, Mrs. Weeks, and Duke of Wellington. 2nd, Mr. W. HOWE.

For twelve blooms of any Japanese, Mr. H. Banks, gr. to J. C. COVELL, Esq., was 1st with fine fresh flowers. With two vases, five blooms in each, with own foliage (a suggestive class), Mr. MURSELL, gr. to Mrs. BURTON, was easily 1st with one vase of whites, and another of yellows. The other competitors in this class showed their flowers, the effect not being so good.

For twelve cut blooms, to be shown as grown, with stems not less than 15 inches in length, Mr. HOWE again stood 1st, the foliage adding greatly to the effect.

For six blooms, any white variety, Mr. MURSELL won rather easily from Mr. HOWE, both of whom staged Lady Byron; the premier lot being specially fine.

For six blooms, any variety except white, Mr. HURST was 1st with Australia, in very fine form.

INCURVED FLOWERS.

The exhibits in this section were very limited, no exhibitor competing in the larger class. Mr. Hill, gr. to G. W. RYDER, Esq., was 1st for twelve varieties, with moderate blooms of the standard varieties.

Mr. HOWE was 1st for six blooms any variety, with Chas. Curtis, very good flowers; and Mr. HILL 2nd with Baron Hirsch, very good examples.

OTHER CLASSES FOR CUT BLOOMS.

For six cut blooms of Japanese varieties, to be shown as grown in glasses or bottles, Mr. H. BANKS was a splendid 1st, with well-developed flowers.

Mr. BANKS also showed well in a class for twelve varieties Japanese (both of these classes being for single-handed gardeners).

Basket for Effect, with Ferns and Grasses, &c.—1st to Miss ONOOK, Palace Road; this lady depended upon one variety only, W. Seward, with which the autumn-tinted foliage blended well.

A miscellaneous exhibit, not for competition, by Mrs. KNIGHT, Aorist, Streatham, calls for special comment; a basket of yellow *Chrysanthemums*, with sprays of *Quercus coccinea*, being very effective.

MISCELLANEOUS.

Orchids are always shown well at this exhibition. On this occasion the best six came from Mr. Ransom, gr. to J. T. GABRIEL, Esq., who had *Liparis longipes*, excellent. The best three were from Mr. Fulbrook, gr. to B. B. BAKER, Esq., who was also 1st for a single specimen with *Cattleya labiate*, with about twenty flowers. Palms and other foliage plants, Ferns, &c., helped to give a better effect. These were shown best by Mr. Chalk, gr. to A. NORMANDY, Esq.; and Mr. HILL (foliage plants); Mr. Wright, gr. to J. A. WILLARD, Esq.; and Mr. HILL (Ferns); and Mr. FULBROOK (Palms).

Fruit and vegetables were worthy of a country show, rather than one in a suburban locality. Grapes were shown best by Mr. MILSON and Mr. HOWE; Apples and Pears by Messrs. MORGAN, HOWE, and PEARCE.

Mr. W. ROUSELL, the energetic and practical Hon. Sec., is to be congratulated upon the results of his labours. It is not an easy matter, as many know, to keep a society fresh and vigorous after forty years' existence. H.

MARKETS.

COVENT GARDEN, NOVEMBER 2.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Ferns, small, per 100	4 0-6 0
Arboretum, var., doz.	6 0-8 0	Ficus elastica, each	1 6-7 6
Aspidistra, p. doz.	18 0-26 0	Foliage plants, var., each	1 0-5 0
— specimen, each	5 0-10 6	Heliconia, each	15 0-105 0
Croton, per doz.	18 0-30 0	Lilium Harrisii, doz.	30 0-40 0
Dracæna, var., doz.	12 0-30 0	Lycopodium, doz.	8 0-4 0
— viridis, per doz.	9 0-18 0	Marguerite Daisy, per dozen	8 0-12 0
Erica, var., per doz.	18 0-36 0	Myrtles, per dozen	6 0-9 0
Eucalyptus, various, per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var., per dozen	4 0-18 0	— specimens, each	21 0-63 0
Ferns, in variety, per dozen	4 0-18 0	Pelargonium, scarlet, per dozen	6 0-8 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per bushel:		Lemons, Naples, per case of 420	20 0-30 0
— Kings ...	4 0-7 0	— Malaga, chest...	18 0 —
— Ribston ...	6 0-11 0	Lyches, Chinese, new, pkt., 1 lb.	1 0-1 2
— Blenheim ...	4 0-7 0	Mangoes, doz.	2 6-3 0
— Nova Scotia, various, barrel	12 0-18 0	Medlars, in box	3 0 —
— Pippin, bushel	8 0-14 0	Melons, English, each	0 6-2 0
— Warner's King, bushel	4 0-6 0	Oranges, Teneriffe, case of 80 to 100	6 0-7 0
— Wellingtons, bah.	4 0-7 0	— Jaffa, case of 140	10 0-12 0
— Various Cooking, per bushel	1 6-3 0	— Lisbon, case	14 0 —
Bananas, per bunch	7 0-10 0	— Jamaica, case	10 0-12 0
Blackberries, 12 lb.	2 0 —	— in barrels	20 0-22 0
Chestnuts, per bag	8 6-4 0	Pears, Californian, cases	8 0-8 6
— in sacks	8 0-12 6	— Catillac, Dutch, basket	2 0-3 0
Cobnuts, per lb.	0 6-0 6½	— French Duchesse, case of 40	9 0-11 0
Cranberries, each	11 0 —	Persimmons, per doz.	2 0-3 0
— kegs (Russian)	2 0 —	Pines, each	8 0-4 6
Custard Apples, per dozen	9 0-12 0	Plums, English, Fruite, p. sieve	7 0 —
Figs, per dozen	1 0 —	Pomegranates, case of 120	8 0 —
— Italian, in boxes	2 0-3 0	Quinces, per sieve or half bushel	3 0-4 0
Grapes, English, Alicante, per lb.	0 6-1 0	Walnuts, Grenoble, shelled, p. bag	6 0-7 0
— Gros Colmar, per lb.	0 9-1 8	— French, sacks, shelled	11 0-18 0
— Muscata, A., per lb.	1 0-2 6		
— White, Mercia, boxes	2 6 —		
— Almetra, bls.	12 0-18 0		

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen blooms	8 0-10 0	Maidenhair Fern, per doz. bunches	4 0-
Asparagus "Fern," bunch	2 0 2 6	Odonatoglossums, per dozen	4 6-9 6
Carnations, per doz. blooms	2 6-5 0	Marguerites, p. doz. bunches	8 0-4 0
Cattleyas, per dozen	15 0-18 0	Mignoneites, dozen bunches	4 0-6 0
Bucharis, per dozen	6 0-8 0	Roses indoor, per dozen	2 0-6 0
Gardenias, per doz.	2 6-5 0	— Tea, white, per dozen	2 6-8 6
Gladiolus Breuchleyensis, 12 spikes	4 0-6 0	— Yellow, Perles, per doz.	8 0-6 0
Lilium Harrisii, per dozen blooms	6 0-9 0	— Safrano, per doz.	2 0-2 6
Lilium longiflorum, per dozen	5 0-8 0	Smilax, per bunch	8 0-4 6
— lancifolium album, per dozen	6 0-4 0	Tuberose, per doz. blooms	0 8-0 9
— lancifolium rubrum, per doz.	8 0-4 0		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe, per doz.	8 0-4 0	Leeks, per dozen bunches	1 6-2 0
— Jerusalem, per sieve	2 0-2 6	Lettuces, French, Cabbage, per dozen	0 8-1 0
Asparagus, Spruce, per bundle	0 8-0 9	— Cos, dozen	2 0-3 0
Beans, Channel Islands, Dwarf, per lb.	0 6-0 8	Mint, per dozen bunches	2 0 —
Beetroot, new, doz.	0 6-0 9	Mushrooms, house, per lb.	0 8-0 10
— in bush	1 6 —	— outdoor, per lb.	0 2-0 3
Brussels Sprouts, p. sieve	1 6-2 6	Onions, bags	4 0-4 6
— per bushel	8 0-4 0	— Onions, picklers, in bags	2 6 —
Cabbage, tally	5 0-7 0	— Valencia, cases	5 6-6 0
— dozen	1 0-4 6	Parley, per dozen bunches	1 0-2 0
— Savoys, p. tally	6 0-8 0	— per sieve	0 9-1 0
Cardoons, each	1 9 —	Parsnips, per dozen	0 6-0 9
Carrots, English, p. dozen bunches	2 0-2 6	— bag	8 6-4 0
— good, cwt. bags, washed	8 0-8 6	Potatoes, Hebrons, Snowdrops, &c.	60 0-90 0
Cauliflowers, dozen	1 0-2 0	— per ton	
— tally	4 0-8 0	Radishes, round, breakfast, per dozen bunches	1 6 —
Celeriac, per dozen	1 6 —	Salad, small, punnets, per dozen	1 8 —
Celery, red, p. roll	0 10-1 2	Salsify, bundle	0 4 —
— white, do.	0 9 —	Shallots, per lb.	0 2½
Colewort, p. bush	1 0-1 3	Spinach, New Zealand, per peck	1 0 —
Orees, per dozen punnets	1 6 —	— sieve	2 0 —
Cucumbers, doz.	1 6-2 6	Tomatoes, English, per lb.	0 2½-0 4
Endive, new French, per dozen	1 0 —	— Channel Islands, p. lb.	0 2-0 2½
— English, p. score	1 6 —	— Canary, deeps.	2 3-2 6
— Batavian, doz.	1 6 —	Turnips, per dozen bunches	2 0-2 6
Garlic, new, per lb.	0 2 —	— cwt. bags	2 6-3 0
— per cwt.	14 0 —	Watercress, p. doz. bunches	0 4-0 6
Horseradish, Eng. lish, bundle	2 0-2 6		
— loose, doz.	2 0 —		
— foreign, per bundle	1 0-1 3		

POTATOES.

Hebrons, Puritans, Main Crop, Up-to-Date, &c., 60s. to 90s. John Bath, 32 & 34, Wellington Street.

REMARKS.—In our last report Schwetzen Plum should have read per basket, not barrel, the capacity of the basket is about two-thirds of a bushel; the fruit is in shape like the mussel. There is a limited supply of good home-grown Pears, of Calabasse, &c., but it is not regular. Brussels Sprouts and Cauliflowers or Broccoli are down in price, and the supply of vegetables, such as Sprouts and Cauliflowers is quite equal to the demand. Chestnuts and Walnuts of foreign growth in bags and sacks of various size are coming in large quantities.

SEEDS.

LONDON: November 1.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, E.E., write that there were but few buyers on to-day's market, with very little business passing. Meantime, Clover-seeds all round, although quiet just now in demand, keep steady in value. Some good samples are showing this week of new English Cow-grass. To-day's cablegram from Canada ask more money for Alsike. Italian Rye-grass, in spite of being less active, is firmly held. There has been a good trade doing in new Königsberg Tares. The tendency of sowing Rape-seed is upwards; whilst Mustard-seed is strong. Rind-seeds move off slowly on former terms; but Blue Peas and Harico Beans favour holders.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending October 28, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 4	28 1	+ 0 9
Barley	28 8	27 4	- 1 8
Oats	16 8	16 3	- 0 5

(For remainder of Markets and Weather, see p. xii.)

GARDENING APPOINTMENTS.

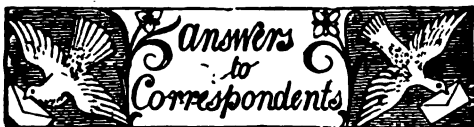
Mr. GEORGE S. CAST, for more than two years Gardener to Mrs. TAYLOR, Ashdown, Apperley Bridge, as Head Gardener to EDWARD ACKROYD, Esq., at the same place.

Mr. WILLIAM F. PALMER, for a number of years General Foreman in the Gardens, Dalkeith Gardens, N.B., as Head Gardener to the Earl of WARWICK, Warwick Castle.

Mr. J. DAVIS, late Indoor Foreman at Downside, Stoke-Bishop, as Gardener to H. THOMAS, Esq., Iva House, Redland.

Mr. H. MALE, late Out-of-door Foreman, Downside, Stoke-Bishop, as Gardener to T. DAVEY, Esq., Bannerleigh, Leigh Woods, Bristol.

Mr. W. BROOKS, for the past four and a half years Foreman in the Gardens at Heckfield Place, Winchfield, Hants, as Head Gardener to Sir THOMAS C. MEYRICK, Bart., O.B., Apley Castle, Wellington, Salop.



ASTER SEEDLING: J. G. Varieties have become so numerous that we cannot undertake to name them. Send them to some grower.

BOOKS: T. Lewis. *Manual of Coniferous Plants*, by Messrs. J. Veitch & Sons, Royal Exotic Nursery, Chelsea; and the Conifer Conference Report, contained in the *Journal of the Royal Horticultural Society*, 117, Victoria Street, S.W.

CHRYSANTHEMUM-BUDS: Grower. There is no evidence of external injury, and the defects are due to the development of the plants having received a check from some cause. Exercise extreme care in the application of manures.

CORRECTION.—On p. 321, column 1, in our last issue, for Mrs. Wilson Noble, read Mrs. John Noble.

GLADIOLUS THE BRIDE: Pomona. These may be brought on, if in pots, in cold frames at first, and taken in the greenhouses afterwards. Gladiolus will not stand much heat in the winter, and it is better not to afford much. When required early, the corms should be planted as soon as they are obtainable, preferably in the open ground, afterwards covering them with ordinary garden-frames, successions being planted at intervals. Such frames may be lined with stable-dung if very early flowers are wanted. Those which you have in pots may now be brought on in the greenhouse, and when roots have formed in some quantity, the plants may be introduced to warmth of 55°, night maximum. This variety is a form of G. Colvillei, itself a cross of G. gandavensis and G. tristis.

HARDY ASTERS: H. B., Godstone. Your communication was acknowledged under initials "H. B." in our issue for October 14. See reply to J. G. this week.

LILY BULBS, CARBOTS, ROOTS OF HARDY PRIMULAS, &c.: S. S., Gliffa. The items sent show that the soil abounds with numerous insects injurious to roots and bulbs, which might be extirpated or much reduced in numbers if radical measures were taken. There are Julius (false wireworms), the true wireworms, grubs of weevils of species, the second and the last-mentioned pests being the worst offenders; Julius merely feed on any kind of decaying vegetation. We would advise the removal of all the plants from the affected area, and then to dress the land heavily with unslaked lime or with gas-lime and salt, trenching it as deeply as it will bear, and let it lie fallow for half a year. Do not apply any manures, it being, as it seems to us, too much manured already; rather stir more unslaked lime into the surface-soil some time during the winter. If ducks, fowls, or gulls were put on the land and the surface stirred twice a month myriads of the insects would be devoured by them. The insects live mostly at or near the surface of the ground, and when the latter is trenched these go to the bottom of the trenches with the top shovellings and the first spit; still, very many do not, and these the liming will destroy, and the birds secure. For some years after replanting depend more on dressings of loam that has been in clean stacks for one or two years, than on farmyard or other animal manures.

LILY OF THE VALLEY: H. J. Ross, Florence. The corms are treated on what is known as the retarding method, i.e., whilst still dormant they

are placed in a cold store, such as is used to keep meat in a fresh state, and thus the growth of the plants is quite arrested. They are taken out in batches and forced into bloom at any time from June to the end of the year. It is not a new practice in England.

LOAM: C. W. H. We should certainly prefer the stiffer sort for making the Melon bed, for although retentive, it contains plenty of fibre, which, on decaying, would afford passage for the water applied which need not be much, and of nutrient likewise. The lighter sample would do admirably for Cucumber-growing.

MARKET GARDEN: Midland. Plant Larch, Austrian Pine, and pyramidal Poplar, and common or Portugal Laurel as an undergrowth. The Conifers may stand 6 feet, the Poplar 12 feet, and the shrubs 3 feet apart. They should go nearer the boundary line than 12 feet, if the house does not belong to you. *Richardias*, "*Arum Lilies*." These if well rooted after making early growth, may, if pot plants, be started in warmth of 50° maximum at night, and 55° by day. No bottom heat is needed. Let the temperature be increased weekly by 1°. Remove to a cooler house when the spathes show. If you hurry them much they will be spoiled.

NAMES OF FRUITS: We are most desirous to oblige our correspondents as far as we can, but we must request that they will observe the rule that not more than six varieties be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. They should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.

Pomona. Cornish Aromatic. — W. E. M. Pear, Swan's Egg. — R. E. C. 1, Horsham Russet; 2, Wheeler's Russet; 3, Knobbed Russet; 4, Hawthornden; 5, Greenup's Pippin; 6, Calville Rouge d'Hiver. — A. R. E. 1, White Doyenné; 2, Beurré Bosc; 3, Fondante de Nees; 4, Surpassé Virgouliou; 5 and 6, not in condition for determination, but they will be kept for future reference. — T. J. & Sons. Early Spice. — W. O. Your fruits were excellently packed and conveniently labelled, the best example of careful attention to this matter that has come under our notice; in fact, you have only overlooked one of the points in our instructions. As a guide to other correspondents your method is here described. A layer of fine wood-wool surrounded by tissue-paper was wrapped round each fruit, a label was tied by string to the stalk and brought outside the packing material on to top of the respective specimens. The fruits were packed firmly crown upwards in a single layer in a shallow box. The varieties were as follows:—1, Striped Reinette; 2, White Westling; 3, Boes Pool; 4, Scarlet Leadington; 5, Herefordshire Beefing; 6, Acklam's Russet. — S. B. 1, Louise Bonne of Jersey; 2, Comte de Lamy; 3, Paradis d'Automne; 4, Autumn Bergamot; 5, Golden Russet; the Apple is Lord Suffield. — C. P. 1, Caroline; 2, Winter Greening; 3, rotten, no characters distinguishable. — Enigma. You have missed the point of the remark. The statement was not questioned that both fruits came from the same tree, but that we should like to see leaves and wood of the branches which bore the respective fruits. — A. M. F. 1, Norfolk Beefing; 2, Hollow Core; 3, Golden Pippin; 4, Lord Suffield; 5, Calville's Maltingre; 6, Scarlet Nonpareil. — E. D. M. 1, Summer Pearmain; 2, Belle Bonne; 3, Golden Noble; 4, Rymer. — M. A. G. 1, Nelson Codlin; 2, Lewis's Incomparable; 3, De Neige or La Fameuse; 4, Calville Blanche d'Hiver; 5, a pale coloured Tyler's Kernel; 6, Benwell Pearmain. — J. B. 1, Gansell's late Bergamotte; 2 and 3, decayed and unrecognisable.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—One who wants to know. 1, *Adiantum cuneatum elegans*; 2, *Pteris serrulata cristata*; 3, *P. argyrea*; 4, *P. cretica albolineata*; 5, *P. cretica variegata*; 6, *Crataegus pyracantha*. — J. Coupland. *Polyporus intybaceus*. — J. J. C. *Juglans nigra* (black Walnut). — H. Watson. *Taxodium distichum*. — Old Subscriber. *Aloe socotrana*. — H. O. *Sevenoaks*. *Epidendrum cochleatum*. — T. R. *Gomesa recurva*. — Young Gardener. Not *Ficus*, but 1, *Codium elegantiissimum*; 2, *Codium longifolium*. Turfy loam

suits them best. — H. W. *Taxodium distichum*. — W. R. J. H. *Encephalartos horridus*, syn. *Zamia horrida*. — Enquirer. *Bupleurum fruticosum*, a shrubby Umbellifer. — *Scoticum*. 1, *Cineraria maritima*; 2, *Ruellia Portellae*; 3, *Cotoneaster affinis*; 4, *Tsuga canadensis* (Hemlock); 5, *Cephalotaxus pedunculata*, fastigate variety; 6, A scale insect, which we will endeavour to name next week. Burn the plant. — A Farmer. A species of *Oxalis*, with a tuberous root like the Oca, once recommended for cultivation instead of the Potato. — J. A. 1, *Viburnum Opulus*; 2, *Cupressus Nootkatensis*; 3, *Juniperus Scholli*; 4, *Potamogeton heterophyllus*; 5, *Alisma plantago*. — Edinburgh. *Cattleya Loddigesii* var. *Harriersonia*.

NOTICE TO LEAVE EMPLOYMENT: J. L. The gardener being in law a domestic servant is entitled to and must give a month's notice. If he must quit forthwith, his employer must pay him a month's salary, and if he have a cottage and perquisites, the value of these for that period must be paid him. The gardener may, for misconduct, be discharged at a moment's notice.

ORCHARD-HOUSE FRUIT: J. Best. Question 1; the flowers set as well as out-of-doors, no better, and they are protected by the glass against injury by frost. During the flowering period, a large amount of ventilation must be afforded night and day, when there is no frost. 2; the trees carry heavy crops for their size—too many usually. 3; the flavour is better from outside trees, except in the case of some few varieties of late maturing Pears, Plums, and Peaches.

PARIS WHITE COS LETTUCES FORCED IN A HEATED GREENHOUSE: A. J. F. Doubtless the plants would grow satisfactorily, provided there be ventilation afforded in accordance with the state of the weather, that the house or at the least the border has plenty of sunshine, and the warmth at no period of the winter and early spring exceeds 55° at night and 65° to 70° by day.

STRAWBERRIES AND PEAS AT CHRISTMAS: Anxious One. If you have a stock of the new perpetual bearing Strawberry, St. Joseph and can get the blooms to set in November, you might have ripe fruits at the time named. Peas forced thus early are not productive by reason of the blooms not setting.

TREATMENT OF CARNATION BED INFESTED WITH EELWORMS: Carnation. Our advice to bake or scald the soil was intended for soil to be used in pots rather than that of a bed in the open air. It would be a rather big job to bake or apply scalding water in such quantity as would clear the soil of the eelworms. Quicklime dug in at the rate of $\frac{1}{2}$ peck per square yard, would do some amount of good, but it is not calculated to destroy the whole of them; nor have we any more faith in the use of gaslime, except after repeated applications. We should advise the planting of the Carnations in quite another part of the garden.

COMMUNICATIONS RECEIVED.—Webb & Sons.—Attwood & Co.—J. C. & Co.—F. W. B.—G. F. O.—L. C.—C. T. D.—W. K.—R. D.—D. T.—F. A.—O. F.—W. M.—R. T.—S.—A. C. F.—A. D.—W.—B. H.—U. D., Berlin.—H. J. C.—J. O'B.—G. H.—D. R. W.—A. C. B.—J. Wallis.—F. W. M.—R. Turnbull.—R. G. C.—E. Webb & Sons.—F. Fox, Lee.—W. M.—C. W. D.—Harrison Weir.—G. C.—W. Wright.—K. & R.—H. S. W.—F. H.—G. P.—L. M. O.—G. J.—J. T.—B. C.—H. S. W.—Old Subscriber.—A. M.—A Subscriber.—A. B.—X.—W. S.—H. K.—K. & B.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—A. L.—W. Miller.—J. Anderson.

DIED.—On October 30, FREDERICK CANHAM, for years the valued and esteemed servant of Mr. C. Herrmann Feiling, of Southgate.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardener's Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal libraries.



THE Gardeners' Chronicle

No. 672.—SATURDAY, NOV. 11, 1899.

RICHARD WESTON, Esq., AUTHOR.

AMONG the numerous books of the last century on husbandry and gardening, Richard Weston's *Tracts on Practical Agriculture and Gardening* (1769) takes a high position. This is only a part of the title, which is of the descriptive style common at that period. As a matter of fact, the first edition appeared anonymously, by a "Country Gentleman;" but a second, enlarged edition, was published in 1773, under the author's name. It is an octavo of 298 pages, with a bibliographical appendix of 136 pages, and a catalogue of 36 closely-printed pages of books on agriculture, gardening, &c. Both editions are in the Kew library [and the first edition is in the Lindley Library]; but what follows relates to the latter volume. Although entitled "Tracts," this work consists of a series of chapters partly on agriculture and horticulture generally, and partly on special operations in husbandry.

The author was a practical man, who had "made gardening and farming his principal study and amusement for many years." Much of what he wrote holds good to the present day, and might well be repeated. He strongly recommended the formation of societies, in every county, to promote proper methods of husbandry, and formulated plans for raising funds for this purpose. On the subject of improved cultivation on the farm he says:—"What I mean more particularly to show is, that husbandry will never arrive at half the perfection that it is capable of, till the garden-culture is more imitated in the field; nor has this principle hitherto been attended to, though it has been recommended in a very strong manner so very long ago, by that great friend and patron of agriculture, Sir Richard Weston." Our author does not claim kinship with his namesake, who published a *Discourse of Husbandry Used in Brabant and Flanders, shewing the wonderful Improvements of Land there; and serving as a Pattern for our Practice in this Commonwealth*. The first edition of this small work was issued in 1645, and Richard Weston, the second, after praising it very highly, adds, that the Royal Society, in their *Transactions*, have made the following encomium on it: "That England has profited in Agriculture to the amount of many millions by following the directions laid down in this little treatise."

The author continues his advocacy of garden-culture in the field in a chapter on planting fruit-trees on a large scale. He gives full instructions on all operations, their cost, and the probable returns, based on a low average. Respecting the cultivation of aromatic and other medicinal herbs in the neighbourhood of London, he says the profits were incredible; and he concludes a list of those he recommends for cultivation with "any other sorts that our modern quacks in physic introduce into fashion!" The next chapter gives an estimate of the yearly expense of a stove 40 feet long; improvements in the management of Pines and

Strawberries; a convenient oven; and an expeditious method of watering the plants. This is followed by a chapter on raising forced Peas in a pit, and Asparagus, Melons, and Mushrooms. It opens with, "All sorts of early or forced crops pay so exceedingly well that there are none so worthy of either the gardener's or the gentleman-farmer's attention." Passing the directions as to how the results are to be attained, we come to the outlay and income. The yearly expenses of a pit, 100 feet long, we are told, will be nearly as follows:—

	£	s.	d.
Rent of about $\frac{1}{2}$ acre of ground	...	...	1 5 0
120 bushels of tan, at 1 $\frac{1}{2}$ d. per bushel	...	...	0 15 0
50 loads of dung, if bought, will cost about 5s per load	...	...	12 10 0
20 loads of loam, and carriage, at 2s.	...	...	2 0 0
A gardener's attendance, about 18 weeks, at 9s. per week	...	...	8 2 0
Seed Peas, 20s.; seed and pots for the Melon-plants, 10s.	...	...	1 10 0
Asparagus-roots, 10s.; fifty mats, 50s.	...	...	3 0 0
	£29	2	0

The produce, moderately reckoned, will be:—

	£	s.	d.
50 pottles of Peas, at 21s. per pottle...	...	...	52 10 0
40 hundreds of Asparagus, at 5s.	...	...	10 0 0
200 Melons, at 3s.	...	...	30 0 0
The dung will be worth at least	...	...	7 10 0
	£100	0	0

The foregoing is a very neat little piece of reckoning, to which the author adds, that the Lettuce, Radishes, &c., have not been included; "and after the Melons shall have been off, this pit will serve to raise Collyflowers on, to be planted out under bell-glasses, before it be wanted for Peas again." He also explains that the dung may eventually be used for raising Mushrooms, "which will be found very advantageous for sale, and of great use in the country."

The prices reckoned for the vegetables and fruit thus raised would please growers of the present day, though they have to pay their gardeners more than 9s. per week!

Under the head of "a moveable greenhouse," is the following interesting paragraph:—

"At Pit Place, in Epsom, lately Mr. Belchier's, is a grove of thirty or forty Orange and Lemon-trees, planted in the open ground; it is entered from an elegant drawing-room, by a pair of large glass folding-doors, and two rows of trees fill each side of the walk. In winter, a case, entirely of glass, for the front, the roof, and the other end, is put over them. On the left hand is a wall, which at once defends them from the frost and the north winds; this is planted with Vines."

Another chapter, and a most interesting one, is thus headed: "Improvements in Cyder, Perry, and made Wines, to render them equal to several foreign sorts; the Profits of Planting Fruit-trees for Wine."

I have already mentioned the bibliographical appendix. This is exceedingly well done, and evidently the work of a person who knew his books. It is entitled "A Catalogue of English Authors who have Written on Husbandry," but it might well have been called a descriptive catalogue. This is, perhaps, the most interesting part of the work, as it contains an account of some extremely rare and curious books, the authors and titles of which are not in any other botanical or horticultural bibliographies with which I am acquainted. The arrangement is chronological, beginning with the *Mirror of the Worlde*, by Hugh Bryce, 1480, or forty-six years earlier than the oldest English book in the Kew library. According to Weston, it is a translation from the French, and was printed by Caxton, at the expense of Hugh Bryce, an Alderman of London. It consists of one hundred

leaves, and among other subjects it treats "of the trees that ben in ynde, and of theyr fruyt;" "of nature, how she werketh, and what she is;" "of the diversytes that ben in Europe and Affryce," &c. Bishop Groshede's *Treatise of Husbandrie*, 1500, is another translation from the French, and was printed by Wynkin de Worde. Then followed the *Grete Herbal*, the first edition of which appeared in 1516. This is a translation from the French *Grande Herber*, published 1499, and was printed by Peter Treveris at the sign of the Wodowes (i.e., Wild men), in Southwark. Sir Anthony Fitzherbert was one of the first (if not the very first) authors of a printed work in English on husbandry. It is stated that he followed husbandry as a recreation for forty years, and his first work concerning us was *The Book of Husbandry, very Profitable and Necessary for all Persons*: London, 1532. Five or six other editions followed at various dates; and there was a second work on husbandry, called *The Book of Surveying and Improvements*. But his writings on law were numerous and perhaps more important.

Altogether, Richard Weston's book is one of the most interesting and instructive of its period. *W. Botting Hemslay.*

NEW OR NOTEWORTHY PLANTS.

GRAMMATOPHYLLUM RÖEMPLERIANUM, *Rehb. f. ?* = EULOPHIELLA PEETERSIANA.

In the *Gardeners' Chronicle* for 1877, i., p. 240, the late Professor Reichenbach described *Grammatophyllum Rœmplerianum* from a faded specimen furnished by M. Luddemann, of Paris, and obtained by him from M. Rœmpler, of Nancy, who had imported a few plants of it from Madagascar. The author was enthusiastic in his praise of the stately novelty, but was unable to give the colours or finer details of the structure by reason of the indifferent quality of the flowers on which he based his description. About the same time M. Rœmpler sold his plants, all of which were in very poor condition, in London, and some half-dozen of the large pieces, consisting of elongated, conical pseudo-bulbs, curving upwards distantly from stout rhizomes, came into my hands. The growth-buds of all were black and, as I found afterwards, dead; but I succeeded in keeping the stems alive for between three and four years, hoping that from some portion of them a growth might proceed, but the hope was never realised. I assume that all of the importation failed likewise, for I never heard of one which grew. In the *Gardeners' Chronicle*, March 20, 1897, p. 182, Dr. Kränzlin described as *Eulophiella Peetersiana*, from material sent by M. Peeters of Brussels, and Messrs. F. Sander & Co., St. Albans, a giant Orchid which had been discovered by M. Mocoris in the island of Madagascar. The description at once reminded me of my troublesome subject *Grammatophyllum Rœmplerianum*, and on seeing the plant in flower in Sir Trevor Lawrence's collection, I had no doubt that it was the same thing, for it is scarcely likely that two such plants, distinct from each other, can exist in the same locality. I therefore place my ideas on the subject on record in the hope of giving some assistance in determining the specimen in Reichenbach's herbarium named by him *G. Rœmplerianum*. *James O'Brien.*

ORCHID NOTES AND GLEANINGS.

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES.

THE September number contains illustrations of the following plants:—1, *Anguloa Ruckeri*, Ldl.; 2, *Cattleya Luddemanniana*, Rehb. f.; 3, *Cypri*

pedium Drurio-Hookeri, Veitch; 4, *C. conco-villosum*, Hort.; 5, *Dendrobium superbum*, Rehb. f.; 6, *Epidendrum atropurpureum* var. *roseum*; 7, *Lælia Dayana*, Rehb. f.; 8, *Lælio-Cattleya Highburyensis*; 9, *L. Massangeana*, Cogn.; 10, *Masdevallia Amesiana* var. *McVittiae*, Hansen; 11, *Odontoglossum crispum* var. *Mrs. Peeters*; 12, *Phalanopsis Luddemanniana*, Rehb. f.; 13, *P. Schilleriana*, Rehb. f.

An important announcement is made, that in consequence of the necessity for progressing speedily with the monograph of the Brazilian Orchidaceæ in the *Flora Brasiliensis*, the editor of the *Dictionnaire* finds himself compelled to lighten his labours by publishing the parts of the *Dictionnaire* every other month, instead of monthly, as at present. The subscription price will be correspondingly reduced. The first part of the new series (the fourth) will be issued during the present month.

The issue with the present part of an index to the various genera, species of which are represented, will enable the readers, if they prefer it, to bind their copies, and save the inconvenience of having to untie and retie the little portfolios every time they are consulted. This is not a small matter to those who, like ourselves, have to make frequent reference to this useful publication.

PLANT NOTES.

SOLANUM PIERREANUM.

IN the current number of the *Paris Revue Horticole*, Monsieur E. André gives a description of the above-named highly ornamental fruiting *Solanum*, which he recently saw in full fruit at the Botanic Garden at Montpellier. This plant is a native of the Gaboon, and was sent to France by the late Monsieur Pierre, director of the Colonial Garden of Libreville. Messrs. Paillex & Bois, who received it, named it after the sender. The plant is of a shrubby habit of growth, its branches are cylindric, of a deep violet colour, covered with a reddish down; the leaves are of a deep green, both above and below; the white flowers are small, with a violet calyx, which is also woolly.

The fruits are borne singly or in pairs at the ends of the branches, and have the peduncle refracted and swollen at the summit. They are berries of from 3 to 4 centimètres in diameter, rounded, ribbed, and depressed at their base; and at their apex, umbilicated and laterally furrowed. But what is most curious about these berries, and what gives to the plant all its singularity, is their colour. When young, they are green, striped with deep-violet, then they pass to an ivory-white, then to a golden-yellow, then finally, to an intense vermilion-scarlet. On this varying ground-colour, the longitudinal violet stripes remain all through with great persistence. The plant bears at one and the same time, berries of all these various shades of colour, which produce a most curious and charming effect. *W. E. Gumbleton, Queenstown.*

A DISEASE OF ORNAMENTAL CONIFERS.

TWIGS of *Biota orientalis* showing partial withering were recently received from a correspondent. The disease merits some attention, because it is common on various Conifers, including species of *Thuja*, *Cupressus*, *Chamaecyparis*, *Juniperus*, and their cultivated forms. The most evident symptom is the withering of twigs or branches here and there on apparently healthy trees. At the base of such a withered part, the bark will be found discoloured, and, as a rule, split round the branch so that the wood is exposed. This break in the bark, and the drying up of the wood, is the cause of the gradual withering of the green parts above. If the broken edges of the bark be examined, a fungus (*Pestalozzia funerea*) is frequently present, as indicated by minute black specks, and the same fungus may be found on the withered twigs. The natural conclu-

sion is that this fungus causes the disease. This was the view adopted by Boehm in 1894, but unfortunately his research wanted the clinching proof that the fungus-spores could produce the disease on healthy trees; his experiments to do this failed to convince Tubeuf and other experienced plant-pathologists.

The view that *Pestalozzia funerea* is a parasite receives support from the fact that another species (*Pestalozzia Hartigi*) was proved by Tubeuf and others to kill young plants of Silver Fir and Spruce, as well as seedlings of Beech, Ash, Sycamore, and other trees. This fungus attacks and kills the bark near the ground, and gradual withering follows. There is thus a distinction between *P. Hartigi* which kills young plants at their base, and *P. funerea*, found on older plants in places well above the ground. The necessity of knowing more about this disease of ornamental Conifers is evident when one comes to consider remedies. If an insect or caterpillar makes the first prick or injury on the bark, thus making a dead place on which the *Pestalozzia* fungus lives, then washes for insects would, in all probability, be a successful remedy. If again the fungus can attack and kill the living bark, the remedy is of quite another kind. Since all ornamental Conifers are not attacked, it seems probable that defective cultivation, unsuitable soil or climate, renders the trees liable to attack; for instance, Junipers with *Pestalozzia* were found by Tubeuf to have a root-fungus attacking them. In our climate frost may first kill the twigs, while the fungus only follows on this. To throw light on this subject, there is obviously need for growers to make careful observations. If specimens require to be examined for fungi or insects, this can easily be done by forwarding them to the Editor. *W. G. S., Leeds.*

NOTICES OF BOOKS.

CALENDAR OF FLOWERING TREES AND SHRUBS.

By Henry Hoare. (Richard Flint & Co., 48, Fleet Street.)

IN this book a presage that hardy trees and shrubs, so terribly neglected, are to experience a revival? We hope so; for there are no more interesting plants, and none in suitable situations more decorative. In the present volume we have first of all a list of the shrubs which may be expected to bloom in each month. Then follows a general description of each species, together with cultural notes.

This portion of the work is arranged alphabetically, and it is a pity that it was not a little more expanded, as the descriptions are mostly too meagre to enable us to recognise the species. The curious flowers of *Hamamelis* deserve a fuller notice, and if some inkling were given of the significance and purpose of the flowers generally, the interest of the book would be greatly enhanced. The diæcious condition of *Hippophae rhamnoides* is not mentioned—a circumstance that may lead to disappointment, as not all nurserymen even are aware of it. Lists of species that thrive in particular soils and localities are given, and the book shows that it is not merely a compilation, but that its author has considerable practical knowledge of the subject on which he writes.

MR. MALCOLM DUNN'S LIBRARY.

THE interesting and comparatively large library of arboriculture, horticulture, and botanical works of the late Mr. Malcolm Dunn, of Dalkeith, will be dispersed on the 18th inst., the date having been changed, at Mr. Dowell's rooms, George Street, Edinburgh. Mr. Dunn's reading, however, was not exclusively special, and his taste was sufficiently catholic to include such diverse spirits as *Bædeker* and *Father Prout*, *Cervantes* and *Robert Burns*, *Canon's* various records of certain distinguished regiments, and *Cassell's Bible Educator*. Of books relating to Scotland, of course, he had a very large number,

which covered an infinite variety of subject. On subjects which come more directly within the limits of this journal, Mr. Dunn appears to have provided himself with most modern publications of approved merit. Of some of the older works he was also an occasional purchaser. Bradley's *Ancient Husbandry and Gardening*, 1725, was in his collection; so also were two much rarer works, *The Solitary Gardener*, 1706, described in the auctioneer's catalogue as "by Gentil" (a purely fictitious name, for the author's name, so far as I know, has never been disclosed), and Hale's *Vegetable Statics*, 1727. There is a copy of Thomas Hill's *Treatise on Husbandry*, 1760, and one of his *Treatise of Fruit-trees*, published eight years later; and also of the inevitable Switzer on *The Practical Fruit Gardener*, 1724. Both of W. Speechly's pioneer works, dealing respectively with the Vine and with the Pine-apple, are in this library. Earlier in date than any of these are the copies of J. Reid's *Scots Gardener*, published at Edinburgh in 1683, and T. Hill's *Profitable Art of Gardening now the third time set forth*, 1574; and the very curious little treatise entitled *Diverse new sorts of soyle not yet Brought into any Publique Use for Manuring*, published in London, 1594, and of which there does not appear to be a copy in the British Museum. Periodicals relating directly or indirectly to gardening are also numerous, and included the *Botanical Register* for 1815 to 1844, the last thirty years of the *Gardeners' Chronicle*, some of the earlier volumes of the *Cottage Gardener*, and so forth. *W. Roberts.*

VERONICA CHATHAMICA.*

FOR the opportunity of giving an illustration of this species (fig. 117, p. 355) we are indebted to Mr. R. Lindsay, of Murrayfield, Midlothian. Our correspondent speaks of it as an excellent plant for draping rockwork, a purpose for which its prostrate habit and free-growing qualities render it peculiarly suitable. The flowers are purple (and sometimes white). It passes unscathed through ordinary winters, but it is liable to be injured in severe seasons.

SOUTHGATE HOUSE, SOUTHGATE.

THE gardens surrounding the massive, Ivy-clad residence of C. H. Feiling, Esq., are among the best-known in the suburbs of London. From them, when in the possession of Mr. Micholls, the gardener then there, Mr. Thomas Baines, brought forth those immense specimen stove and greenhouse-plants which were the admiration of all at the flower exhibitions of the day. The present owner and his gardener, Mr. Canham (since unfortunately deceased), confine themselves to what may be described as all-round gardening, and have succeeded in making the gardens, both indoors and out, very interesting. All have been re-arranged since Mr. Feiling took possession; large banks of choice flowering and evergreen shrubs have been planted; herbaceous borders arranged as fronts to shrubberies, and elsewhere, still have a good show of flowers. The pleasure-grounds have an area of 58 acres, and they are studded with giant Chestnuts, Oaks, and Elms, now beautiful in their autumn garb. Always a collector of objects

* *Veronica chathamica*, Buchanan, in *Trans. N. Z. Institute*, vol. vii., 1875; tab. xiii., p. 338 = *V. Fosteri* Mueller var. elliptica.

"A small prostrate rambling shrub. Branches wiry, $\frac{1}{2}$ in. diameter, pubescent. Leaves spreading, irregular in size, sessile $\frac{1}{2}$ to $\frac{3}{4}$ in. long, $\frac{1}{2}$ to $\frac{3}{4}$ in. broad, obovate oblong or ovate oblong, acuminate, entire, flat, scarcely coriaceous. Racemes, few or many, 1 to $1\frac{1}{2}$ in. long, subterminal at the ends of the branches, and axillary to the uppermost leaves, orbicular or ovate. Flowers numerous, closely set; peduncles $\frac{1}{2}$ in. long, pedicels, and lanceolate bracts equal in length; sepals $\frac{1}{2}$ to $\frac{3}{4}$ in. long, linear lanceolate ciliate; corolla large dark purple, tube short; capsule imperfect.

"This beautiful shrub has been cultivated by Mr. Travers in his garden in Wellington, N.Z., where the profusion of its dark purple flowers and prostrate habit have proved a most showy addition to those plants adapted for the ornamentation of rockwork or earth-banks."

of art, as is shown by the wonderful collection of curiosities in silver, ivory, and other materials, the rare pictures, &c., which make some parts of the residence look like a museum. Mr. Feiling, about three years ago, turned his attention to the acquirement and cultivation of Orchids, a pursuit he has so energetically followed up, that at the present day he has many rare species and hybrids among an extensive collection of these plants, which is still increasing in size and interest. The first Orchid-house entered, a lean-to, contains a large number of *Odontoglossums*, chiefly *O. crispum*, the greater part of which have not yet flowered in England, though some are now sending up spikes. These plants stand on the front stage. On the

imported pieces soon making vigorous specimens. Here, as in some other places where the best results are obtained, the whole of the centre bed of the house is occupied by large specimen *Crotons*, *Palms*, &c.; and the *Dendrobiums* are suspended overhead. Arranged with the *D. Phalænopsis* are well-bloomed plants of the white *D. Dearei* and *D. formosum giganteum*, *D. bigibbum*, a very fine selection of good forms of *Lælia pumila* and *Cattleya labiata*, some of them being very richly coloured; *C. aurea*, *C. Loddigesii*, *Oncidium varicosum*, *O. excavatum*, *Epidendrum vitellinum*, *Vanda cœrulea*, *Miltonia Clowesii*, *M. spectabilis Moreliana*, and other showy things. The other side has a number of fine *Cypripediums*, among which in flower or

grand blooms, the side stages being brightened with scarlet *Salvias*, flowering *Cannas*, *Pelargoniums*, &c.; the roof bearing a very dark-coloured form of *Lapageria rosea*, and other climbers. Another house is full of well-grown *Cyclamen persicum*, well set with buds, and in other houses are *Azaleas*, *Ferns*, *Primulas*, *Cinerarias*, and other showy flowers.

The vineries have been very successful this year, there having been a continuous supply of Grapes since May, and enough remaining to carry into the new year.

The fruit-room gives evidence of a fair supply of Pears and Apples, and the extensive kitchen gardens neatly kept, and satisfactory.



FIG. 117.—VERONICA CHATHAMICA. (SEE P. 354.)

main stage are a fine lot of *Cypripediums* in about 140 varieties, some *C. Charlesworthi*, *C. ænanthum*, and *C. Victoria Mariæ*, among others, being now in bloom, the last-named plant having flowered continuously since the middle of March last. The fine specimens of forms of *Cypripedium* insigne now profusely sending up flowers are kept in an adjoining greenhouse, occupying the whole of the end of the house, the remaining portion being filled with greenhouse decorative plants.

The main show of flowers is in the large span-roofed intermediate-house, in which the greater part of the staging is filled with fine examples of Orchids in flower. In the arrangement are scores of well-flowered plants of *Dendrobium Phalænopsis* *Schroderianum*, whose graceful spikes arch over in every direction, the flowers varying from pure white, with a slight lilac tip to the petals, to bright rose, and darker tints of rosy-purple. These plants thrive admirably here, even the smallest

bud were a grand plant of *C. × Chas. Canham* (named in honour of the brother of Mr. Canham, the late gardener at Southgate House, formerly Orchid-grower to Messrs. Veitch), with three noble flowers; *C. × Arthurianum*, *C. Schlimi*, *C. × leucorrhodum*, *C. calurum*, several fine *C. tonsum*, *C. Spicerianum*, *C. × Leeanum* varieties, *C. Charlesworthi*, *C. Curtissii*, &c. On a shelf at the end is a quantity of *Lælia autumnalis*, sending up spikes; and among the rarer *Cattleyas*, the gorgeously-coloured *C. Mossiæ* Mrs. C. H. Feiling is among the most prized. There are a number of plant-houses and vineries at Southgate House, and in any of them thought to be suitable, some Orchids from time to time are placed, and the *Cœlogyne cristata* are thriving admirably in a frame in which small Ferns and other decorative plants are grown.

The other plant-houses are devoted to the culture of flowering and ornamental plants. In one is a very fine display of *Chrysanthemums*, bearing

ORCHIDS AT THE GRANGE, SOUTHGATE.

Cattleyas, *Lælias*, and hybrid *Cattleyas*, *Lælias*, and *Lælio-Cattleyas*, together with *Odontoglossums*, form the bulk of the remarkably well-grown collection of Orchids carefully got together by J. Bradshaw, Esq., and skilfully grown by his gardener Mr. Whiffen. The well-constructed *Cattleya*-house contains the principal show of flowers, and the numerous and varied forms of *Cattleya labiata* give the greatest proportion of blooms. Among the many in flower are some very handsome dark-coloured forms, closely imitating *Cattleya Warneri*, and of the six forms with pure white sepals and petals, one is in flower already, the bloom being pure white, with a chrome-yellow disc to the lip, and a purplish-crimson blotch in the centre. Another very curious form of *C. labiata* is wholly of a pale lavender-blue tint, the markings on the lip being darker, and of a slate-coloured hue. One pretty light form has the

lip almost wholly cream-white and light-rose, the usual dark-crimson blotch being reduced to an almost invisible spot. The great charms of this useful *Cattleya* are, that it flowers at a season when its blooms are the most desirable, and their great variation gives them additional interest. Still more showy are three fine specimens of *Cattleya* × *Mantini*, one bearing three grand heads of rich, rose-purple flowers, the dark, ruby-red lip, veined at the base with orange colour. This is one of the best of hybrids, and very free to grow and bloom. Also in bloom are the fine yellow *Cattleya* × *Maroni*, a number of handsome *Lælia pumila*; and among other things, a very handsome and distinct form of *Oncidium tigrinum*, which has the labellum nearly white or cream-white, the yellow usually seen in the species being nearly suppressed. The sepals and petals also are much lighter than usual, and the plant altogether an interesting variation. Among the hybrids are several crosses, with the fringed *Lælia Digbyana*; also *Lælia-Cattleya* × *Thorntoni* (*C. Gaskelliana* × *L. Digbyana*), of which there are two good plants. This season, the many white forms of *Lælia-anceps*, which here thrive admirably, are sending up numerous spikes; though scarcely so many as they have had some seasons before.

The new *Odontoglossum*-house, nearly 60 feet in length, seems to suit the plants admirably, and many are sending up flower-spikes, some of them being of the batch which has already produced some remarkably handsome natural hybrids.

A goodly number of scarlet *Sophranitis* are in flower, and many *Odontoglossum Roscii majus* and other species about to expand the earlier of their blooms.

During the past hot summer, Mr. Bradshaw has reaped the advantages of having had his Orchid-houses properly constructed, the cool-house having a rain-water tank from end to end on the one side, the opposite side beneath the staging being planted with *Ferns*, *Begonias*, &c. This arrangement, aided by the staging on which the plants stand, being of moisture-holding, porous red tiles, has played an important part in preserving a temperature as cool as possible, and getting the plants through the trying hot time in fine condition.

THE EFFECTS OF FOG AT CHISWICK.

THE fogs which hung over Chiswick during a great part of last month, and which, during the two days preceding Sunday, the 15th ult., and the day following, were of great density, have joined to other antagonistic agencies in giving emphatic notice to the Royal Horticultural Society to quit Chiswick. What the deleterious substances were, can to a considerable extent be discovered by their effects on the glass and on vegetation. The glass on houses and frames alike have an opaque, gummy-like substance adhering to it with the persistency of a coating of size, which the storms of Sunday night and Monday morning failed to remove to any great extent. The effects of the fog on vegetation have been extraordinary, although, strange to say, the high-road of Chiswick was comparatively free from it. Mr. S. T. Wright states, that never before has he witnessed such baleful effects from fog.

Some of the *Ferns* felt the effects of the fog sharply: the points of the fronds of *Adiantum cuneatum* are fading away as if scorched; and the thicker and more leathery pinnae of *A. formosum* are equally affected. The plants of *Cannas* look almost as if fire had passed over them.

A casual visitor, knowing nothing of these fogs, might imagine the injuries were due to gross neglect, and thereby do Mr. Wright a great injustice. There must have been an immense volume of sulphurous or other deleterious acid to effect so much destruction in so short a time. The zonal *Pelargoniums* in the *Canna*-house have been well nigh denuded of their leaves. Even in the lean-to propagating-house, the fog has injured some young plants of *Begonia Gloire de Lorraine*.

The southern end of the *Muscat*-house shows much the same effects as that which the *Cannas* occupied. What wind there was during the fog period was in the east, and every time the door at the south end was opened, the fog entered the house, and a Vine of Mrs. Pince, just in the inside on the left hand has leaves as if scorched. Up in the roof and along the sides for some distance there are areas of scorched leaves, and there is a perceptible deposit on the bunches. Mr. Wright takes a desponding view of the Vines, seeing that the leaves are, as it were, paralysed, whilst fresh and in good health.

On the north side of the large vinery the same effects can be witnessed. Every variety of *Grape* is more or less "scorched," and mostly so in the neighbourhood of loose laps.

Apple-trees appear to have escaped with little injury, but *Pears* are badly hit. The hedgerows of Golden *Privet* are lustreless; and the flowers of the *Chrysanthemums* are so sooty that they had to be removed. The new garden of the Society must be far enough away from the centre to be outside the fog radius, if good work is to be carried on in the interest of horticulture generally. R. D.

NICOTIANA SYLVESTRIS AT HIGHCLERE CASTLE GARDENS.

THE figure given of a group of this decorative species of *Nicotiana* affords a good illustration of the value of the plant from a decorative point of view. Its flowers bear resemblance to those of *N. affinis* in shape, but they are more abundantly produced, and have not the drawback of that species of closing in the morning, and during cloudy weather. They are fragrant like those, and pure white; the plant, moreover, possesses stronger and more abundant foliage, and is less weedy in appearance.

Our illustration (fig. 118, p. 357) is a reproduction of a photograph taken by our valued correspondent, Mr. W. Pope, head-gardener to Lord Carnarvon at Highclere Castle, Newbury.

CHRYSANTHEMUM NOTES.

(Continued from p. 349.)

CALVAT'S CHRYSANTHEMUMS.—This eminent grower appears, as is usual, to be well represented at most of the trade displays this year. Among his own countrymen there seems to be but little competition, except some very good additions which M. Nonin has sent over. Up to the present, M. Calvat is represented best by M. Fatzet and President Bevan, both very fine incurving Japanese of varying shades of yellow; President Lemaire is a dark velvety crimson with golden reverse; Melusine, Madame Ferlat, Werther, Le Grand Dragon, Madame G. Bruant, N. C. S. Jubilee, are all fairly well known, and are much in evidence; Zepherin is a quite new Japanese, with flat pointed florets, a very full flower of a pure pale golden-yellow. Soleil de Decembre is rather too early to justify its name, but is a promising yellow; M. H. Martinet is a fine crimson and gold Japanese; Eliane is also new, it has long strap-shaped florets of medium width, pointed at the tips, colour golden-yellow; Lydia is new, colour bright rosy-amaranth, with reverse of silvery-pink. Other but older sorts, such as Marie Calvat, big but coarse; Perle, fine; Beauté de Grenoble, Madame Couvat de Terrail, Souvenir de Moulines, Madame Carnot, and many more besides are numerous and well grown.

VARIETIES FOR THE BORDER.

To anyone not having glass accommodation, but desiring to have a few *Chrysanthemums* in the borders for cutting, there are some excellent showy varieties, which, if smaller than the big exhibition blooms, are, nevertheless, very useful. Most of the old early-flowering varieties were Pompons, but thanks to the efforts of some of the French

raisers, there are in cultivation now-a-days some pretty little varieties of Japanese form that are very attractive.

Grown freely in bush-form, and without any attempt at disbudding, such flowers are always welcome, and among some of the best I have seen this season are Paul Valade—rather large, with broad florets, the centre ones incurving, colour pale ochre-yellow, slightly tinted darker; Amiral Avellan, rather short, flat florets of good width, bright golden-yellow; Market White, long, loosely-arranged florets of medium width, colour white; Pergolese, small in size, but very attractive, colour deep velvety dark crimson; Ami Baumann, rather short, flat florets, pale lilac-mauve; Triomphe de Lyon, broad florets, blooms of good size, colour pinkish amaranth, centre golden; Madame Liger Ligneau, largest of all, colour very pure shade of pale canary-yellow; Molière, flat florets of medium width, lilac-mauve, prettily shaded in the centre with old-gold. One variety in particular in my garden has attracted much attention: it is called Chateau St. Victor, a plant that has received no attention since planted in the spring; it has only a single stem, but forms a very fine bushy plant, bearing several hundred flowers of a pretty shade of pinkish-amaranth. Crimson Pride is another border variety for those who like high tones of colour. C. H. P.

THE SWANLEY COLLECTION.

Messrs. H. Cannell & Sons have ever been in the forefront in the cultivation of the *Chrysanthemum*, and Mr. Cannell, senior, is one of the very oldest cultivators of the plant, his experience extending back for nearly half a century. He is therefore just what he claims to be, "one of the old school," with an admiration for the incurved type of flower, his favourites among the Japanese being also those with incurving, or twisted florets. But the selection at Swanley is a most up-to-date one, and representative of all the types—the useful decorative sorts, the single-flowered, as well as those whose primary value is for exhibition. The plants are grouped in the extensive span-roofed structure at the top of the nursery, which for some years has been used for the purpose, and at the present time the interior view is one of a mass of bloom of exceeding showiness. All the best novelties, by whomsoever raised and distributed, are to be seen, and amongst them varieties that at present are only to be found there, so far as Britain is concerned. Most of the latter are contributed from three sources—Continental, Australian, and seedlings raised at Swanley. In addition are a few varieties of American origin. Of the Americans, a Japanese variety, with flat florets, and named Spotswood, is very pretty. The flower is white, but has a butter-coloured centre, which is very full, and this colour casts a cream shade over the larger white florets. It would probably be sufficiently large for exhibition when grown another season.

Home-raised seedlings include Mr. W. C. F. Gillam, a promising red-coloured Japanese, with pale reverse; Colonel Baden-Powell, a large incurved flower of rosy-lilac colour, the reverse silver and pale mauve. This should make a flower that will be valuable in the exhibition-stand. Mrs. J. J. Tilley, a most promising Japanese, in which the conspicuous colours are yellow and red; and others. Several of the Australian seedlings, now blooming for the first time here, have a promising appearance, but a more certain estimate of their value will be possible next season.

Mrs. Frank Grey Smith at once reminds one of Col. W. B. Smith, and in appearance is hardly distinct from that variety; but whilst Col. Smith is notorious for "damping," the newer one of the same type is said to be as little susceptible to this affection as the generality of varieties. Margery is a Japanese seedling from Madame Carnot, and its first blooms are a pretty mauve colour; Mabel Brunning, also a Japanese, has crimson florets, with gold-coloured reverse; Sir H. H. Kitchener is crimson, with bronze reverse; and Mermaid, a white Japanese, or possibly, when well developed,

florets marked with mauve; Sydney Brunning, a red Japanese, with buff reverse, is another promising Australian Japanese.

Among the continental novelties, Jules Bernard (Molin), a deep crimson Japanese, with silver and red reverse, should be valuable; also M. Jacob Holtzer, a yellow Japanese—no bloom of this was fully developed, but it appears to have an immense number of florets. Madame F. Daupias, a pure white seedling from Madame Carnot, greatly resembling that variety in build, and a grand exhibition variety; Mdle. Gabrielle Debrie, a Japanese

curved Japanese, red, with silver reverse, the reverse colour predominating, &c.

Turning to decorative varieties for a moment, a continental variety, Gorgones, with yellow flowers, all of the florets twisted as in a whorl, will make a grand variety to be grown as a bush plant. None could be more effective. Rayon d'Or, deep orange-yellow, also fine for a bush-plant, are two excellent novelties. The fine variety Mrs. Wingfield was also well represented; and Dr. Masters (Owen), a flat-petalled, reddish-crimson variety, very telling in a mixed bouquet; and Mrs. Vere Freeman, of

enterprise he has expended upon Chrysanthemums during the past ten years has been wonderful, and to this fact it is doubtless due that he has obtained such a popular reputation in the "mum" world as he to-day possesses. The number of first-class exhibition varieties distributed from the Rye-croft collection has been very remarkable. Only a few seasons since there was Chas. H. Curtis, now generally acknowledged the best yellow incurved variety, and one that will be popular for many years to come. Last season the yellow Japanese, R. Hooper Pearson was distributed, and this is just as likely to remain a standard yellow variety for a long time. The collection now in bloom at Rye-croft includes a large number of plants of the latter variety, in a number of sizes, and in different sized pots, but it matters little, comparatively, whether the bud "taken" was an early or late one, the flowers are "good," by which is meant that the centres are never exposed or thin, though there is necessarily much difference in the size of some of them. Lionel Humphrey, another of last season's novelties, will also prove to be a first-class exhibition flower, when well grown upon a terminal bud. It is a Japanese flower, the florets are reddish-crimson with gold or buff reverse, and a colour that will tell greatly upon the exhibition stand; but it is little good from first crown buds, owing to a want of colour. Mr. A. Barrett, of the type of Mrs. C. Harman Payne, but quite distinct in colour, may also be popular with the exhibitor, it will cover so large a space; but it is not a refined or attractive flower. Fair Maid is a pretty pink-coloured Japanese incurved—distributed last spring; and in J. E. Clayton, which is a beautiful yellow sport from Eva Knowles, we have a charming flower. By the way, the variety just mentioned is one of a batch raised by Mr. W. Seward Hanwell, and distributed by Mr. Jones this last spring. Mr. Seward's varieties are remarkable for their high-coloured flowers, and this is a point to which raisers and exhibitors do not attach sufficient importance. Mr. Seward's novelties, like H. J. Jones, Mrs. W. Seward, and Helen Shrimpton, are some of the brightest-coloured flowers. It has always been a difficulty, and so it remains, to obtain flowers with brilliant colours, and that have sufficiently long petals to render them valuable to the exhibitor. But already this season we have seen Fair Maid figure very charmingly in exhibition. Perhaps another season's cultivation will prove others of this most desirable class to be capable of much longer petals than we should credit them with at present.

Among other varieties distributed by Mr. Jones last season we observed Mr. A. G. Miller, a very beautiful pink-coloured Japanese incurved; Mrs. J. Bryant, a Japanese incurved with bright pink flowers of a similar type to *Australie*; Mrs. J. C. Waterhouse, a light yellow Japanese with wide florets—a seedling like the splendid bronze variety, Mrs. A. H. Hall, from Edith Tabor; and Eastman Bell, a bright crimson sport from President Borel, very fine. We noticed a few fine novelties in this collection which were distributed from other establishments, for of the 7000 plants cultivated in pots, there are not more than 1000 that are not very recent varieties; Jane Molyneux, Annie Prevost, Madame Gabrielle Debrie, Queen of the Exe, and others.

Of varieties not yet in the trade it would be too early to speak; and before forming an opinion upon new seedlings raised at Lewisham, it would be more satisfactory to have them cultivated in a less populous district. The collection now in flower has suffered terribly from thick fogs and storms of soot, many of the flowers being half-smothered with these smuts. If a variety is good enough to obtain a Certificate when grown in such conditions, of what will it not be capable! But a town situation has its advantages. Chrysanthemum "rust" will not—or, at any rate, "does" not—thrive in London, and Mr. Jones proudly declares his large collection of plants, including



FIG. 118.—NICOTIANA SYLVESTRIS. (SEE P. 356.)

nourved, shrimp-coloured, or similar to the colour of a *Malmaison* Carnation, but paler—this is a magnificent flower, deep, with fine, bold, drooping florets, of considerable length, and incurving spirally. Madame Raymond Desforest promises to make a true incurved; its colour is coppery-yellow, and in size will leave little to be desired. Amateur J. de Chapilais is a red Japanese incurved, with buff reverse, one of the closer incurved type, and very promising.

Of better-known varieties of recent introduction by various raisers, fine blooms were seen of General Roberts, too small for exhibition, but marvellously good in colour; Mrs. Coombes, a pink-coloured Japanese, one raised by Mr. Weeks; and Le Grand Dragon; Samuel C. Probyn (Davies), a fine in-

the same type as Dr. Masters, but deeper crimson, with very full centre.

After an inspection of the Chrysanthemums, Mr. Cannell showed us the zonal *Pelargoniums* in full bloom. And what a glorious display of bright colours these afford! The *Sirdar* appears to be the brightest of all. Subsequently a drive to Eynessford, enabled us to visit the fruit-trees and plantations, where lifting is in progress; and the new seed warehouse, where cleaning of the home-grown *Aster* and other flower and vegetable seeds was in progress.

THE "RYECROFT" COLLECTION.

One of the most enthusiastic of Chrysanthemum-growers is Mr. H. J. Jones, of the Rye-croft Nurseries, near Lewisham. The amount of energy and

thousands upon thousands planted in the field, and which are now being lifted to produce shoots for propagating in the houses, to be absolutely free from "rust."

Nevertheless, we think that Mr. Jones' enterprise will lead him to remove his plants another season to a district where purer air and clearer light will give them a better opportunity to produce exhibition blooms than is afforded at Lewisham.

CROPS IN NATAL.

WITH regard to fruit culture in Natal, the colony may be roughly divided into three districts, viz., first, the coast; second, midland; and, third, upland districts. The first consists of a strip of land along the coast, extending some 20 miles inland, and is suitable for all kinds of tropical fruits, but especially Bananas, Pines, and all Citrus fruits. The second district consists of a belt of land parallel to the coast-belt, of about equal width, in which some tropical fruits grow to perfection, and some of the European kinds, such as Apples, Pears, Quinces, Figs, Peaches, and Plums, Apricots, Grapes, and a small quantity of wine is produced. The upland district represents the remainder of the colony, and is suitable for all kinds of European fruits. In portions of this district Vines grow very well, and produce large quantities of Grapes; but there are no vineyards. The Tea plantations are confined to the coast belt, and are all within a few miles of the sea. The growing of Aloe (Agave americana) for fibre has lately been undertaken in the coast district, where for many years this plant has been known to grow extremely well, the leaves attaining a great length, and the fibre being of remarkably good quality.

By-the-way, the present able Agent-General for Natal informed the writer that in his garden at Durban, when there resident, it was customary to pass from the drawing-room to one of the borders and cut a Pine-apple to form part of the dessert. This must have been a treat unknown in Olympus!

The Agricultural Report for last year, to hand, notes respecting the Sugar-cane that the efforts of the planters to cope with the locust visitation have so minimised the loss from this cause that the crop proved a record one for the colony. There is a tendency towards better cane cultivation rather than increase of area, natural and artificial manures being more largely used than formerly. As to Tea cultivation, this industry has experienced a successful year, and the present outlook is a good one. As to the growth of the plant, it is believed that certain varieties will be found to succeed in the more elevated portions of the colony; experiments will prove this either way.

The Natal Departmental Reports form excellent reading for those interested in the various subjects. One of the reports for 1898 reads: "One wild leopard, value £10." E. C.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WHEAT, Bart. Clare Lawn, East Sheen.

Pleione.—These plants, which may be more properly considered as deciduous *Celogynes*, are amongst the few species that require repotting during the present month. Few Orchids can be grown with less trouble than these so-called Indian Crocuses, and their attractiveness should recommend them to all growers of Orchids. *P. maculata*, *P. lagenaria*, *P. praeox* (Wallichiana), *P. Birmanica*, and *P. Reichenbachiana*, should be repotted as soon as the flowers fade; the flask-shaped pseudo-bulbs being removed from the soil, and freed from the old, useless roots and the membranous covering, removing the latter so as not to injure the young roots and growths. Pans are more suitable for *Pleiones* than pots, and the size of these will depend on the number of pseudo-bulbs placed in them. Pans of about 8 inches in diameter and 4½ inches in depth will provide space for about twenty pseudo-bulbs. A pan should be provided

with drainage materials to within 1½ in. of the rim, with a layer of moss above these, and over all place the compost, which should consist of equal parts good fibrous loam and peat, a little chopped moss, a small quantity of dry, powdered cow-dung, and as much silver-sand as will render the whole sufficiently porous. When the pans are filled, take a pseudo-bulb, and with a little moss, and the old roots left on, and form a ball, then fix the bulb securely in the compost. The pseudo-bulbs should be so arranged over the surface that the growths as they advance have ample space in which to develop. The compost should be brought above the rim of the pan, and be slightly rounded in the centre. The soil must be firmly pressed around each pseudo-bulb, but not so much so, as to make it hard. When the work is finished, *P. maculata* should be placed on a shelf, or suspended in a light position in the Cattleya-house, and the others in similar positions in a cool house. The advantages of a shelf are, that no water can reach the plants when damping down is done, and every ray of sunlight reaches the plants. Not any water should be applied for six weeks, and then the cultivator should immerse the pans to the rims in a vessel of tepid rain-water, and afford no more water for a similar period of time; and this method of affording water should be followed till about the month of April, when more frequent applications will be required. *Pleione humilis* blooms in February, and the plant is, at this season, in a state of rest in a cool house, requiring only an immersion now and then in order to keep the pseudo-bulbs from shrivelling.

Celogyne (Pleione) Schilleriana.—This species, which has very small pseudo-bulbs, comes from Moulmein, and a lower elevation, and enjoys therefore more warmth than do the *Pleiones* before named, which are natives of the Indian mountains, and the plant thrives on a teak-wood raft, hung up in a warm house during its season of growth, and rested in the Cattleya-house during the winter. The old roots and leaves do not die on the completion of the growth as do those of *Pleione*, and should therefore be left intact so long as a plant has space to extend itself, and is in a healthy state. Only as much water should now be afforded as will keep the pseudo-bulbs in a firm condition.

Celogyne cristata and its varieties.—These plants are now showing their flower-spikes, and will need a very small quantity of water, which should be so applied that the sheaths of the scapes do not get wetted, or the loss of the flower-buds may follow.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFOED, Westonbirt, Tetbury, Gloucestershire.

Myosotis.—The variety *disitiflora* is the earliest to bloom, and it succeeds well when planted in beds containing plenty of leaf-mould. *M. sylvatica* with its very bright blue flowers is distinct; while both the blue and white varieties of *M. alpestris* make a pretty contrast when planted alternately in beds. The variety *M. alpestris Victoria* is very dwarf in habit, and the best for forming borders, but it is rather late in flowering. When planting these, with the exception of the last, they require at least a space of 9 in. from plant to plant, otherwise they get much crowded in the spring. Very effective beds may be formed by planting *Valerian Phu* 18 in. apart, and filling in with a groundwork of *Myosotis*, the blue flowers of the latter contrasting well with the golden leaves of the former.

Late Flowering Plants are *Saponaria calabrica*, *Aubrietia*, *Collinsia*, *Limnanthus*, *Alyssum maritimum*, *A. saxatile compactum*—all lovely spring plants, but unfortunately flowering too late for bedding purposes, and often having to be removed when in perfection to make room for the summer occupants. However, in clumps in the shrubbery border, or in nooks near walks, they form lovely masses of colour, and flower more freely if the compost they are planted in is of a poor nature.

Roses.—Whether these are intended to be planted singly or otherwise, the preparation of the ground should soon be undertaken. The Rose being a plant of somewhat unsymmetrical habit, is not an attractive object in geometrical beds; but if planted in groups or large clumps at a distance from the roots of trees and large shrubs, or in rows in open borders, it shows to great advantage. For affording

flowers for cutting, *Roses* may be grown in the kitchen garden, the reserve nursery, or in a field, provided direct sunlight reaches them. The best kind of soil for the Rose is a well-drained, retentive loam. This should be trenched to the depth of 2 feet, incorporating with it during the course of the work some half-inch bones, decayed nightsoil, pig, or farm-yard manure. If the soil be tenacious, charcoal, charred soil, or wood ashes may be stirred into it; and soils of a contrary nature are benefited by adding decayed, stiff turfy loam, crushed bones, charcoal, and road grit. After being dry, the land should be made firm by the feet.

Planting.—In light soils, *Roses* worked on the Manetti stock are the best, as the roots of this stock go deep into the soil; but on heavy ones the seedling Briar makes the best kind of stock; and on their own roots *Roses* succeed even better, as the roots keep near to the surface. *Roses* should be planted at a moderate depth, so that in the case of worked plants the few buds of the scion that are buried may start beneath the soil and form roots. When planting *Roses*, the operator should study the habit and strength of each bush and variety, for no specified distance at which to plant can be given; still, it is well to plant them rather closely together, and apply artificial and liquid manure when the bushes have become large and are in need of assistance.

Standard Roses succeed admirably when, as may be sometimes done, they are budded on the stock on the spot where they are to remain. Should planting on the turf or in back rows of borders of herbaceous perennials be contemplated, only those with fine large crowns should be selected for the purpose, as such plants possess fibrous roots in abundance, and are therefore well fitted for holding their own amongst other plants. In lifting *Roses*, a digging-fork should be employed, so as to avoid injury to the roots. All *Roses* should be carefully examined on being dug up, and if any roots are found that thicken as they spread from the stem, these should be removed, such being the sucker-growth, which, if left, will give a lot of trouble afterwards. The holes made for the reception of the bushes and standards should be made firm at the bottom, and the roots should be spread out naturally, and covered, at the first, with some of the fine particles of soil, and then with the rest of the soil. Having planted the tree or bush, make it secure temporarily to a stout stake; and shorten back those shoots which, owing to their length, are likely to be weighed down by snow or broken off by the wind, the actual pruning being postponed till quite late in the spring.

Tea and H. T. Roses are undoubtedly the best sections to plant where space is limited. Most of the varieties will succeed in light soils, in which the hybrid perpetuals so often fail. A great deal depends upon the altitude of the situation in which they are grown, for in low-lying or damp situations they suffer much from frost. Should the stock of these varieties be insufficient, it is advisable to procure them from the nurseryman not later than the end of the present month, but when they are raised and grown at home, planting may be left, even, till the spring.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Broccoli.—In ordinary winters there is no need to afford protection to these plants, more especially if the land on which they are planted is firm, and ample space is given from plant to plant; but our winters are not always mild ones, and it is prudent to "heel over" a goodly proportion of the crop, with the heads inclining towards the north. Let this work be undertaken in fine weather. The better plan is to open a trench at the northern end of a row of plants, and press them over to that side, disturbing the roots as little as possible. If the land is wanted for some other purpose, the plants may be dug up and replanted elsewhere, burying the stems up to the leaves, or nearly so. A ball of earth should accompany each plant; and although the heads may not grow, they will be found of useful sizes.

Seakale for Forcing.—This plant does not respond readily to very early forcing, unless specially treated by clearing away decayed leaves so as to expose the crowns to the sun; and only young plants afford the best returns, so that a good-sized plan-

tation should be planted every year, to enable the gardener to possess suitable roots for early forcing. The roots should be dug up several days before they are put into heat, and left quite exposed to the weather. When trimming the roots, let the best of the young thongs be trimmed off and reserved as sets, cutting the top end square across, to avoid confusion at planting time. These pieces may measure 6 inches in length, and be tied up in small bundles, and laid in soil or coal-ashes till required for planting. Forcing in the open by means of stable-dung and tree-leaves is a rather laborious proceeding, and one that is practicable only where these materials abound. These should be mixed well together and thrown into large heaps to heat, turning the materials twice before using them in covering the *Seakale*-pots. Attention must be paid to the degree of heat in the beds, uncovering them slightly if the heat be higher than 75°.

Rhubarb.—The roots of *Rhubarb* should be similarly exposed before forcing is begun. The roots may be forced in any sort of place having a warmth of about 60°, packing them close together and covering with leaf-mould, putting over all a quantity of clean straw. Afford water before the soil gets dry. In the open ground, large boxes may be put over the *Rhubarb* crowns, and heat afforded in the same manner as is practised with *Seakale*.

French Beans.—It is of little use to sow *French Beans* at this season, the plants rarely yielding pods in paying quantities. Plants which may now be in flower and in pod, should have careful attention with regard to water, heat, and ventilation; syringing being done occasionally, and only in sunny weather, and then but once a day. The temperature should range from 60° to 65° by night, and 70° to 72° by day.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Droghda, Maldenhead.

Orchard-planting.—Where the land has been trenched and utilised for some light kind of crop, it will be in good condition for planting. On land which has been under the plough, I would strongly recommend the planting of bush or pyramid trees, which have an advantage over standards on wilding stocks of coming into bearing much sooner; moreover, choicer fruits are obtained from such trees. An orchard as we usually see it is a grassy-plot, planted with standard trees, and grazed by cattle or sheep. Under this method we cannot hope to obtain fine samples; and, indeed, large-fruited varieties are not unsuitable for being grown as standards, as the fruits are readily blown down, or bruised by contact with the branches. The trees are also many years before a paying crop of fruit is obtained in return for the original outlay. Bush-trees, on the contrary, crop early, but being planted at less distances apart, a greater number is required, making the outlay for trees rather greater than in the case of standards. As circumstances will determine the system adopted, this is a matter that has to be decided by the planter. Due regard must be given to the position of the orchard, and to shelter on the north and east; and if land with a slight slope to the west can be selected, so much the better.

The Distance at which apart to Plant.—Apples and Pears as bushes or pyramids need to be planted at 12 feet apart, and for some few years small bush-fruits or Strawberries may be grown beneath and between the rows. Most of the varieties enumerated in last week's *Calendar* are suitable for this style of planting. Orchard standard trees should not be planted closer together than 24 feet each way; and those of a strong-growing nature, that form spreading heads, as *Blenheim Orange Pippin*, should be given a space of 30 to 36 feet apart. A selection of varieties for the orchard should include, for cooking, *Keswick Codlin*, *Beauty of Kent*, *Dumelow's Seedling*, *Blenheim Orange Pippin*, *Grenadier*, *Newton Wonder*, *Bramley's Seedling*, *Tower of Glamis*, *Dutch Mignonne*, and *Northern Greening*. For dessert: *Cox's Orange Pippin*, *Kerry Pippin*, *Devonshire Quarrenden*, *King of the Pippins*, *Gravenstein*, *Pear's Pippin*, *Adams' Pearmain*, *Strummer Pippin*, and *Allen's Everlasting*.

Pears are an uncertain crop, and few varieties are adapted for this kind of culture. Some of the more reliable are *Williams' Bon Chrétien*, *Béurre de Capiaumont*, *Béurre Clairgeau*, *Fertility*, *Louise Bonne of Jersey*, *Béurre Bosc*, and *Hazel*. For

stewing purposes, *Bellissime d'Hiver*, *Catillac*, *Verulam*, *Vicar of Winkfield*.

Apricots.—A selection should comprise *Breda*, a medium-sized early variety; *Hemakirk*, large and hardy; *Moorpark*, a good variety and very generally planted, and *Late Peach*.

Plums, cooking.—*Archduke*, *Rivers' Early*, *Magnum Bonum*, *Victoria*, *Pond's Seedling*, *Prince of Wales*, *Diamond*, *Gisborne's*, *Prince Englebert*, and *Monarch*.

Plums, dessert.—*Early Green Gage*, *Denniston's Superb*, *Oullin's Golden Gage*, *Old Green Gage*, *Transparent Gage*, *Jefferson*, *Kirke's*, *Coe's Golden Drop*, *Brady's Late Gage*, *Reine Claude de Bay*, the latter not to be planted in a cold situation.

Cherries, dessert.—*Bigarreau de Schrecken*, *Knight's Early Black*, *Elton*, *May Duke*, *Black Tartarian*, *Bigarreau*, *Bigarreau Napoleon*, a good late variety; and *St. Margaret's* or *Tradescant's Heart*, a late black wall *Cherry*.

Cherries, kitchen.—*Kentish Red*, *Morello*, and *Belle de Magnifique*, a prolific bright-red coloured *Morello-like Cherry*.

FRUITS UNDER GLASS.

By W. STRUGWELL, Gardener to Lieut.-Col. RALPH VIVIAN, Road Ashton, Trowbridge.

The Late Vinery.—The *Grapes* in this division should be fully ripe by this date. If the color be not satisfactory, nothing the gardener can do now will improve it. The *vinery* should be afforded air with much judgment, or the bunches of *Grapes* will suffer greatly in appearance from loss of berries by decay, induced by low temperature and damp. Fog, of course, must be kept out of the *vinery* as much as possible, and its effects counteracted by the use of fire-heat, and by affording air in fine weather. No plants should be allowed to stay in this *vinery* unless it be those in a state of rest, and needing no water at the root; and no water should be spilled on the border. Let the leaves as they fall from the *Vines* be gathered up frequently, the more so if insects of any kind have infested the *Vines*. Examine the bunches at short intervals of time for decaying berries. *Vines* with their roots in outside borders should be protected from the weather, or great loss of fruit will ensue. One of the best kinds of protection is a covering of tree-leaves, but close-fitting boards, or corrugated sheet-iron, afford a better one.

Muscot of Alexandria Vines.—The fruit on these *Vines* must be closely looked after, in order to preserve their good appearance, the berries being more easily injured than thicker-skinned varieties. Let a gentle warmth circulate through the heating apparatus, and pay close attention to the ventilation. If a dry *Grape-room* is available, the bunches would be safer if they were cut and placed in bottles of water. The *Vines* could then be thoroughly exposed, and perfect rest induced. If insects have infested these *Vines*, the hot-water cure could now be brought into use without fear of doing harm to the *Vines*. In order to make their destruction surer, an insecticide should be added to the hot-water.

The Early-forced Peaches.—Those trees which will furnish fruit for the table next April will, ere this appears, have been started, and preparations made for starting the second peachery. In doing this sort of work, let all pot-plants be cleared out, and having done this, pruning may be performed. Then the trees should be washed, and every insect destroyed; and having completed this job, let the side-lights be cleaned, then finish the training and securing of the trees to the trellis. It is always good practice to entirely free the trees from the trellis, and refasten every shoot, &c., anew. The pruning is exactly a counterpart of that pursued with the *Peach* out-of-doors. It may be remarked that weak shoots have usually but few wood-buds, and if the points are cut away, there is nothing to draw the sap upwards, and many blossoms drop off as a consequence. The crowding of the shoots must be avoided, but each shoot should have space for an extension shoot, and one from the base for future bearing; and let the shoots be at such a distance apart that the foliage does not overlap. The borders may require attention, remembering that trees which have borne a heavy crop of fruit need more assistance than young trees that have not been heavily

cropped. The best materials to afford a tree are fresh loam, lime, rubble, and charred ballast. Trees of vigorous growth should not be afforded anything more than a sprinkling of fresh lime on the surface. The surface soil should always be removed with a digging-fork before any additions are made, taking little or much of it away according to its condition. Trace all suckers to their place of origin, and then remove them. The trees should be dressed with an insecticide if scale be present on them, otherwise washing with hot water will suffice.

PLANTS UNDER GLASS.

By G. E. FIELDER, Gardener, North Mymms Park, Hatfield.

Bouvardias.—These choice, winter-flowering plants grow and bloom well in a house having a night temperature of about 55°. Ranging in colour from the purest white to the brightest crimson, the value of the different varieties as cut-flowers and for conservatory decoration can scarcely be over-estimated, therefore every means should be adopted in order to perfect and prolong the flowering. As good a position as possible should at this season be afforded the plants, either in a light house, or in a pit sufficiently deep to allow of a few inches of space between the tops of the plants and the glass. Air should be afforded on all favourable occasions, and in dull, damp weather the atmosphere of the house should be kept somewhat dry, in order to check the tendency to damp off that the flowers of the double varieties suffer from. Decayed blooms should be removed from the flower-trusses with a pointed pair of scissors. Plants which have been grown in pots throughout the season will be well furnished with roots, and in that case they would be benefited by being afforded weak manure-water; but there is not the same necessity for affording stimulants to plants which were planted out at the beginning of the autumn. Strong plants of several of the varieties will afford a very useful second crop of blooms if the old flower-trusses are cut off, and the amount of water afforded and of stimulants continued, instead of drying the plants off.

Clivias (Imantophyllums).—Now that these plants have finished growing, they should be afforded water less frequently, and the soil kept in a moderately dry condition. The decaying of the tips of the leaves, which is so frequently observed at this season, is chiefly caused by over-watering. Until the plants begin to show their flower-trusses, it will only be necessary to afford sufficient water as will keep the foliage plump.

Cinerarias, &c.—An early opportunity should be taken to remove these from the cold frames to a shelf in a *Peach-house*, or similar cool structure, from which frost is excluded. As in the case of herbaceous *Calceolarias*, the excessive amount of moisture which is deposited upon the foliage of these plants when kept in cold frames till late in the season, is liable to cause the leaves, and sometimes the stems of the plants to damp off. Where the convenience for housing the plants in good time exists, it is unnecessary to run the risk of injury by leaving them in cold frames after the middle of this month. Plants in need of repotting should be afforded a compost consisting of three-parts loam, one part leaf soil, and a small quantity of rotten manure and sand. Too rich a compost, and light potting, is not to be recommended, as tending to the production of gross, flabby foliage, which will flag with the least exposure to sunshine. Plants which are showing their flower trusses should, however, be assisted with frequent applications of weak manure-water. As the plants approach the flowering-stage it is more than ever necessary that they should be quite free from aphids, and to insure this being so it is advisable to carefully fumigate them several times in succession at short intervals.

PLANT PORTRAITS.

- ASCLEPIAS TUBEROSA, *Mechan's Monthly*, October, 1899.
 ANOPTERIS GLANDULOSA, *Revue de l'Horticulture Belge*, October 1.
 CHERRY ROYALE TARDIVE, *Bulletin d'Arboriculture*, &c., August.
 CLIVIA MINIATA SUPERBA, *Garden*, October 28.
 CORYANTHUS MACULATA, *Revue Hort.*, September 16.
 CORYLOPSIS PAUCIFLORA, S. & Z., *Garten Flora*, t. 147.
 LILIO-CATLEYA KENNETHIAN, VAN DYCK, *Revue Hort.*, October 18.
 MAMMILLARIA VIVIPARA, *Haworth*, *Mechan's Monthly*, September.
 NERINE FOTHERGILLI AND N. EXCELSA ROSEA, *Wiener Illustrirte Garten Zeitung*, tab. III.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 13	National Chrysanthemum Society's Floral Committee Meeting. Ulster Horticultural Society's Chrysanthemum Show (2 days).
TUESDAY,	Nov. 14	Leeds Paxton Society's Chrysanthemum Exhibition (2 days). Longton (Staffs.) Chrysanthemum Show (2 days). Royal Horticultural Society of Ireland, Meeting.
WEDNESDAY,	Nov. 15	York Florists' Chrysanthemum Exhibition. Aberystwyth Chrysanthemum Show. Tamworth Chrysanthemum Show (2 days). Carlisle and Cumberland Horticultural Society's Chrysanthemum Show at Carlisle (2 days).
THURSDAY,	Nov. 16	Edinburgh Chrysanthemum Show (3 days). Ludlow Chrysanthemum and Fruit Exhibition. Manchester Botanic Society's Chrysanthemum Exhib. (3 days). Bolton Horticultural Society's Chrysanthemum Exhib. (2 days).
FRIDAY,	Nov. 17	Bradford Chrysanthemum Show (2 days).

SALES.

MONDAY, Nov. 13,	and the following Tuesday, Wednesday, Thursday, and Friday, Dutch Bulbs, at Protheroe & Morris' Rooms.
TUESDAY, Nov. 14,	Sale of Nursery Stock, at the Horsell Nursery, near Woking, Surrey, by order of Messrs. H. and C. Cobbett, by Protheroe & Morris, at 12. (Three days).
TUESDAY, Nov. 14,	Clearance Sale of Nursery Stock, at the Oak Nursery, Grange Hill, Chigwell Row, by order of the Great Eastern Railway Company, by Protheroe & Morris, at 12.
WEDNESDAY, Nov. 15,	Dutch Bulbs, Continental Plants, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, Nov. 15,	Clearance Sale of Nursery Stock, at The Nurseries, Kensal Rise, N.W., by order of Mr. W. Goodenough by Protheroe & Morris, at 12 o'clock. (Two days).
FRIDAY, Nov. 17,	Orchids, at Protheroe & Morris' Rooms.
FRIDAY, Nov. 17,	Clearance Sale of Nursery Stock, at the Rivercourt Nursery, King Street, Hammersmith, by order of Mr. T. P. Turner, by Protheroe & Morris, at 1 o'clock.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period October 29 to November 4, 1899. Height above sea-level 24 feet.

OCTOBER 29 TO NOVEMBER 4.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.		RAINFALL.		LOWEST TEMPERATURE ON GRASS.	
		Dry Bulb.	Wet Bulb.	Highest.	Lowest.	At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest.
SUN. 29	S.S.W.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.
MON. 30	N.N.W.	58.2	55.8	60.5	50.5	0.27	54.7	52.9	43.9
TUES. 31	W.S.W.	48.2	47.5	51.1	47.9	0.02	54.4	53.2	53.1
WED. 1	S.S.E.	47.0	43.7	55.5	35.9	...	50.8	53.2	53.3
THU. 2	S.S.E.	51.9	48.8	63.3	34.5	0.04	48.5	52.3	53.4
FRI. 3	S.S.E.	58.9	57.5	60.0	48.5	0.32	48.5	51.5	53.3
SAT. 4	S.W.	56.8	51.6	59.0	52.5	1.33	51.6	51.8	53.2
MEANS...	S.W.	50.1	58.4	60.9	48.9	0.31	51.9	52.2	53.1
						Tot.	51.5	52.4	53.2

Remarks.—The weather has again been dull, mild, and very wet.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—42.2°.

ACTUAL TEMPERATURES:—

LONDON.—November 3 (6 P.M.): Max. 59°; Min. 50°.

Rain—wind—fine.

PROVINCES.—November 3 (6 P.M.): Max. 54°, south-west Ireland; Min. 46°, north-east Scotland.

THE most remarkable feature in connection with the National Chrysanthemum Society's Exhibition, of which a full report will be found upon another page, was the introduction upon an extensive scale of vases in place of the usual exhibition boards, for the display of large Japanese blooms. It is recognised that there

exists too great a similarity in these autumn shows, and those who are best able to judge have a fear that, unless greater variety be introduced into them, it is very possible in the future they may fail to obtain the patronage of the general public, that until now has been so liberally accorded the Chrysanthemum as an exhibition flower.

It is perfectly true that there is nothing new in the display at these shows of vases furnished with Chrysanthemums, but at no previous exhibition in London have vases been used on so large a scale for the display of representative collections of first class, large sized blooms, without any relief except the foliage of the Chrysanthemum plant itself. The most that has been attempted in this direction has been done at Edinburgh, where our Scotch friends obtain a magnificent and up-to-date exhibition each season.

The new special class at the National Chrysanthemum Society's Show was for flowers cut with stem two feet and a half or more in length, arranged in suitable vases of one description, five blooms of one variety only, being shown in each vase. The adoption of the class was probably due to the liberal offer of Mr. H. J. JONES made at the last annual dinner of the Society, to give a first prize of £20 for this purpose. The Society in accepting this suggestion added a Gold Medal to the first prize, and provided proportionately liberal prizes for second, third, and fourth place exhibitors, and a Medal for everyone entering the class.

From the nine exhibitors who contributed collections for these prizes, there were staged five hundred and forty large blooms, each competitor showing sixty blooms in twelve varieties. They were displayed on three long tables in the St. Stephen's Hall, and were greatly admired by all. The effect of a dozen vases, so furnished with handsome flowers, borne upon leaf-clothed stems, of which eighteen inches was seen above the vase, is vastly better, and less artificial, than can be obtained from a stand of sixty blooms shown in tubes let into a flat board, brought down to an inclined level, and without the necessary relief that the natural foliage of the plants would give. It is a system that may well be encouraged and developed. The two best exhibits in the class were exceedingly satisfactory; Mr. J. W. MCHATTIE won the first prize, but the collection from Mr. LEES was nearly equal. A vase from the latter exhibitor, with five blooms of the variety Pride of Madford, was magnificent. We have never seen this high-coloured Japanese variety, nor some of those shown by Mr. MCHATTIE, to better advantage. Another season the Society will probably make arrangement for screening the surface of the tables, and the base of the vases, with a few dwarf-growing Palms and Ferns. The effect would then be greatly enhanced.

Vases were also used in place of "stands" in some classes for six blooms of Japanese varieties of particular colours, and for the display of single-flowered varieties.

The Society still rightly includes in its schedule a few classes for most of the types of the Chrysanthemum, but it is difficult to maintain general interest in the Pompon, single-flowered, anemone, and even the incurveds, so overwhelming are the Japanese varieties. A class had been arranged with a view to bringing together all of the types in one exhibit, and we regret that there was not a single collection entered. Perhaps the Society may double the prize-money in this class next season?

In the best classes for Japanese varieties we

were pleased to see that English raised seedlings were well to the front, and our home raisers appear to be quite capable of holding their own. Mr. WEEKS' mauve-coloured variety Mrs. Coombes, appeared to excellent advantage, as did some others.

The specimen plants, marvels of skill and painstaking care, were as satisfactory as usual, and it may be remarked that the variety Mrs. Mease, a Madame Carnot sport, was noticed amongst these. The circular groups of plants arranged for effect are more monotonous than ever. Surely something more beautiful than these stereotyped sugar-loaves could be made.

The fortune of war has again resulted in the defeat of some of the "favourites" in the fight for the big classes. The first prize in the large Japanese class was won by Mr. F. VALLIS, a cultivator who, we believe, only commenced to grow Chrysanthemums for exhibition three years ago. Mr. W. H. LEES, of Trent Park Gardens, although showing so well in the special vase class, failed to win a first prize in the principal classes, partly due, we suspect, to the fog that was so destructive in the London district in October. Mr. MEASE, of Leatherhead, had no exhibit at the show. Mr. J. W. MCHATTIE, the Duke of WELLINGTON's gardener, who won the £20 prize in the vase class, won five first prizes out of six, and was second in the largest class for Japanese. Mr. MCHATTIE is no novice at the work, having been exhibiting Chrysanthemums for the past fifteen years, and at the show just held he managed to take a great part of the cream from the milk.

ON Sunday morning last, November 5, the monument erected at Brussels to the memory of the celebrated explorer and botanist, was unveiled in the presence of the local authorities, many leaders of horticulture, and of the members of the LINDEN family. The COUNT DE KERCHOVE DE DENTERGHEM, in addressing the assembly, said that the monument had been erected, not by Government aid, but by the agency of LINDEN's numerous admirers throughout Europe. The Count alluded to the leading incidents in the career of the intrepid explorer which he classed under three headings: discovery, publication, and distribution. LINDEN's services to colonial enterprise, and the work he did in making known to his countrymen the resources at their disposal in the cultivation of tropical plants of economic importance were also dwelt on. No one could fully realise the financial benefits conferred on Belgian horticulture by the very numerous introductions of Palms, Orchids, and other plants effected by LINDEN's agency. The Count ended by offering to the City, through M. BULS, the Burgomaster, this monument, erected to the memory of a savant and a public benefactor, [whose name will be recalled with honour so long as an Orchid expands its flowers under the cloudy skies of Europe.

The monument, of which we hope to give an illustration in our next issue, consists of a bronze bust on a stone pedestal, appropriately decorated with representations of Orchids, &c. It is placed in proximity to the Natural History Museum, and in front of the wall of the great establishment founded by him, and now known as the Horticulture Coloniale.

The erection of this monument to one who rendered such conspicuous services to his country and to horticulture in general, reminds us sadly that we have no such memorials of DOUGLAS or FORTUNE—we may say, of any of our great explorers and introducers of plants.

LINNEAN SOCIETY.—On the occasion of the meeting on Thursday evening, November 16, at 8 P.M., the following papers will be read:—I. "The Comparative Anatomy of Certain Species of *Encephalartos*, a Genus of the Cycadaceæ," by Mr. W. C. WORSDELL, F.L.S. II. "On a Collection of *Brachyura* from Torres Straits," by Mr. W. T. CALMAN, B.Sc.

"**BOTANICAL MAGAZINE.**"—The November number contains coloured illustrations and descriptions of the following plants:—

Cyphomandra betacea, t. 7682.—The tree Tomato, more than once figured in our columns. The fruits

is a native of Costa Rica, where it was discovered by Mr. C. WERCKLE, and was introduced into commerce by Mr. JOHN LEWIS CHILDS, of New York.

Begonia Hemsleyana, t. 7685.—A palmately partite species, native of Yunnan, with pale rose-coloured flowers. It has tuberous roots, and its deeply-divided, palmate leaves are peculiar, no other Old World species having leaves of this shape. Kew.

Rhododendron Modestum, Hook. f., t. 7686.—A Sikkim species, with oblong acute leaves, and trusses of pink, trumpet-shaped flowers, with rose-coloured spots on the tube. Kew.

enrolment of two new subscribers. The musical arrangements were under the conduct of Mr. F. MONK, the organist of Chertsey Parish Church, who also supplied the accompaniments.

THE CRYSTAL PALACE.—It is only after forty-five years' location at Sydenham that it has been found necessary to renew the roof of the central transept, says the *Daily Telegraph*. This task which is now approaching completion, has proved no light one, for the work, carried on at a height of 161 feet, covers something like two acres, and involves the use of no fewer than a hundred tons of glass. In the interval since Sir JOSEPH



FIG. 119.—A ROCK GARDEN. (SEE P. 362.)

represented are not so highly coloured as we generally see them.

Carludovica Laucheana, Hook. f., t. 7683.—This was figured under the provisional name of *Salmia Laucheana* in our volume for 1893, April 22, fig. 72, from Messrs. SANDER'S nursery. Now that the plant has flowered at Kew, it is seen, as we suspected, see *Gard. Chron.*, April 15, 1893, to be a *Carludovica*. It is a native of New Grenada, and is a handsome decorative plant, and one of great botanical interest.

Hidalgoa Wercklei, Hook. f., t. 7684.—A very curious and beautiful Composite, with tripinnate leaves and long petioles, which enable the plant to climb round a support. The flowers resemble those of a single *Dahlia*, with bright scarlet flowers. It

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—BENEFIT CONCERT AT CHERTSEY.—Mr. A. J. BROWN, head gardener of the School of Handicrafts, is the local hon. secretary, and with a view to increasing the resources of the society he arranged an evening concert, which took place at the Constitutional Hall on November 2. The inauspicious weather did not prevent a large gathering, and the audience were keenly appreciative of the exceptional abilities of several of the talented artists. It should be mentioned that the hall was very beautifully decorated with plants and flowers lent by several of the chief patrons. It is a matter for congratulation that Mr. BROWN'S efforts resulted in a balance of £13 in favour of the Institution, and the

PAXTON first put up the building in Hyde Park, in 1851, the world has made great advances, but it is chiefly in regard to materials that the great designer is shown to have been lacking. For instance, he introduced into his plans the ridge and furrow system of glass-roofing, the result of which is that hailstones rarely strike the Crystal Palace except at a harmless angle. This system which has enabled the building to weather many a severe storm, has not been improved upon. But, in the matter of glass, Sir JOSEPH PAXTON was at a disadvantage. Forty-nine inches was the extreme length which the manufacturers of half a century ago could produce, and by that factor, it is stated, the relative dimensions of the Palace were mainly

determined. To-day there is practically no limit in the matter of size or weight of glass, while the art of glazing without the aid of putty has long since come to stay. The result of these present-day facilities is that a very light yet substantial roof will shortly span the whole of the transept, and, while the workmanship is modern, in the best sense of the word, the harmony of the general design is in no way interfered with. It is understood that in due course the rest of the thirteen or fourteen acres of glass-roofing at Sydenham will be gradually renovated, for a forward policy is distinctly in vogue at the Crystal Palace as its jubilee approaches.

CATTLEYA LABIATA.—From the *Coloniale Horticole* we have received a flower of a good variety of this species in which the two lower sepals had partially assumed the appearance of lips—an imperfect *peloria*. Why do our growers not attempt to perpetuate these monstrosities? The chances of success are as great as by hybridisation.

"A NOCTURNE."—By H. N. (London: ELLIOT STOCK, 62, Paternoster Row). This very little book describes a scene: a village church in a broad and pleasant valley of Dartmoor, and the *dramatis personæ* are the wind, an organ, and a musician, who, between them, tell, or hint in broken phrases, a sad, sweet, country tale. The language is well chosen, and the sentences cunningly put together, so that a romantic reader will readily sympathise with the author, who has endeavoured to represent a nocturne in words instead of in musical notes. "If to the reader is borne one breath of the fresh moor wind, one ray from the glory of the heather, the musician has not spoken in vain."

MR. WILLIAM PAMPLIN.—There are few now who will remember this once famous botanical book-seller and acute naturalist, but those who do will hold his memory in high esteem. With his friend Irving, he contributed much to British botany, but he had retired for so many years that he was unknown to the present generation. He died, according to a note in the *Journal of Botany*, on August 9 at Llanderfel, near Bala, in his ninety-third year.

SPACE ALLOTMENTS AT THE PARIS EXHIBITION.—The spaces to be devoted to the horticultural section of the Paris Exhibition of 1900, are now finally allotted by the Committee of Management, and the arrangement of the exhibits in Group VIII. (horticulture) will probably not be delayed. According to the *Revue Horticole* for November 1, the spaces allotted in this group will be as extensive as in 1889, and situated, for the most part, in the best portions of the Exhibition.

CLASS 43 (Horticultural Materials and Operations) will occupy the basement of the Palais de l'Horticulture and the greater part of the large greenhouse.

CLASS 44 (Kitchen Garden Plants) will be at Vincennes.

CLASS 45 (Fruit Trees and Fruit) will occupy the two spaces on each side of the bridge Alexandre III., an area of from 7000 to 7500 yards, and certain borders along the various courts. The untrained trees will be at Vincennes.

CLASS 46 (Trees, Shrubs, and Decorative Plants and Flowers) will be arranged in various positions; at the Champs Elysées (3500 yards); the Trocadero Gardens (1000 yards); and at the Invalides (800 yards). Non-decorative exhibits to go to Vincennes.

CLASS 47 (Greenhouse Plants) will occupy the house to the right of the group of large houses, and the houses constructed as exhibits.

CLASS 48 (Seeds and Plants from Horticulturists and Nurserymen) will be divided into two portions, the seeds occupying 300 yards in the large house at the end, the young plants going to Vincennes.

The portion of ground at Vincennes reserved for forest-trees, nursery-trees, cider Apples and Pears, young plants and culinary-plants, is from 25,000 to 30,000 yards in area. It is situated near the many attractions which will be arranged at Vincennes

during 1900. It may therefore be hoped that visitors will not omit this section of the horticultural exhibit, which it was not possible to include in the main body of the Exhibition. It is to be regretted that preparations, in the arboricultural section, at least, were begun so late. Planting can scarcely begin before February, when the work of allotting the space will be completed. It is to be hoped that the winter will be favourable for M. VACHEROT, the head gardener at the Exhibition.

"THE FRUIT-GROWERS' ANNUAL."—Edited by SAMPSON MORGAN (London: Fruit-Growers' Bureau of Information, 150, Fleet Street). The further title of this publication is the "British Fruit-Grower and Gardener, and Horticultural Times," and, as might be expected from the title, it contains information of value to all interested in the cultivation of hardy fruit on a large or on a small scale. There is a useful account of the work requisite in each month of the year; there are also various lists or tables of such technical matters as market weights and measures, garden requisites, temperatures for forcing, and fruit soils and fertilisers, which will be found so handy for reference that fruit-growers and salesmen will find it indispensable.

SOCIETY OF ARTS.—The Society of Arts commences its 146th Session on the 15th instant with an Address from the Chairman of the Council, Sir JOHN WOLFE BARRY. In it he will develop the subject of his address last year—London Communications, and make some suggestions as to the practical means of carrying his proposals into effect. The first paper after the opening meeting will be by Mr. D. E. HUTCHINS, who will draw attention to the want in this country of measures for the proper conservation of woods and forests. His argument will be, that we are neglecting important sources of national revenue by allowing very large areas suitable for the production of timber to remain unforested. At the next meeting, Mr. ALLAN WYON will give a paper, principally of an antiquarian nature, on the "Great Seals of England," a subject on which he is the principal authority. At the other meetings before Christmas it is probable that Mr. JOSEPH CASH will describe the substitutes which have recently been introduced to replace silk, and the methods of their production. Mr. F. G. AFALALO will draw attention to the necessity for some legislation to restrict sea-anglers from catching immature and undersized fish; and Mr. H. BLOOMFIELD BARE will describe and illustrate the methods which have recently achieved considerable success in America, of teaching drawing by the use of the blackboard, both hands being employed. Mr. H. H. CUNYNGHAME, who has devoted a good deal of attention to the subject, will give a course of Cantor lectures before Christmas on the Art of Enamelling. It is intended to demonstrate practically the whole process of enamel-making during the course. The Juvenile lectures will be by Mr. HERBERT JACKSON, of King's College, who will lecture on Phosphorescence, a subject which readily lends itself to abundant and beautiful experimental illustration.

CAULIFLOWER SEED.—In the *Danish Export Review* for October, 1898, an article appeared on the cultivation of Cauliflowers for seed. This vegetable is grown in the environs of Copenhagen, and on account of its large yield of seed, and its high price, it has during recent years earned much importance as an article of export. The article goes on to say that the soil and climate appear to be peculiarly adapted for this kind of seed, and the species cultivated is what was originally called "Erfurt dwarf Cauliflower," now known as the "Copenhagen Cauliflower," or, as the Americans call it, "Snowball Cauliflower." This species has been grown for the last thirty or forty years, and at first the seed was principally sent to France and Germany, but it is now sent to Russia, Austria-Hungary, Great Britain, North and South America, and Australia. The largest seed-grower has about

11 acres under cultivation. Sheds are provided with machinery for drying and threshing the seed-stalks, after which the seed is cleaned and sorted by other machines, and finally, by means of careful attention to sorting, seeds of a uniform colour are produced. *Foreign Office Report, Annual Series, No. 2301.*

NOTES AND QUERIES.—The jubilee number of this periodical was published on November 4, and contains a very interesting history of the paper, with biographical notices of its editors, Mr. THOMAS, Dr. DORAN, and Mr. TURLE. The publication is indispensable to literary men engaged in research, and a source of constant interest to the general reader.

FRENCH POMOLOGICAL CONGRESS.—The *Monteur d'Horticulture* publishes a short note of the proceedings of this Association, which met on Swiss soil at Geneva. The annual Medal of Honour was awarded to M. LÉON SIMON, of Metz. Various fruits were erased from the lists as of inferior quality, while others were added. The next meeting will be held in Paris in 1900.

MALLOW, CORK.—We are desired by Mr. HARTLAND to say that the nurseries referred to at p. 341 are not now in his occupation, and have not been since 1852.

DUBLIN RECREATION GROUND.—A piece of land known as Sandymount Green has been handed over to the Pembroke District Council as a public park. The Earl of Pembroke, whilst giving this body permission to make any alterations they may think necessary, reserves to himself the right to resume possession if the arrangement did not work satisfactorily.

THE APPLE-CROP IN THE UNITED STATES.—We learn, on the authority of Mr. J. HYDE, of the Statistical Department, Washington, concerning the Apple crop, that of the fourteen States having three million or upwards of Apple-trees in bearing at the last census, Maine and New York alone fail to report a continued decline in condition. In the former State the report is the same as on September 1—viz., a decline of five points; in the latter is shown an advance of two points. In the remaining twelve States, arranged in the order of their importance at the last census, the decline during September was as follows:—Ohio, 10 points; Pennsylvania, 1; Michigan, 5; Missouri, 8; Illinois, 5; Indiana, 12; Kansas, 10; Kentucky, 13; Tennessee, 6; Virginia, 4; North Carolina, 3; Iowa, 10 points. There does not appear to be a prospect of a surplus supply.

SPITALFIELD'S MARKET.—Once more the London County Council is moving in the matter of obtaining Parliamentary power for the acquisition of the leasehold and freehold interests in the East End market—thereafter to make it worthy of its position in the metropolis, and a thorough convenience to producers, salesmen, and consumers. The Bill introduced last session was thrown out by the Lords. At its last meeting, the Council authorised the Committee having the matter in charge, to take the necessary steps at the proper time, and we wish full success to the measure at an early date in the next session.

A ROCK-GARDEN.

The rock-garden, of which our illustration shows a part, was exhibited by Messrs. R. Veitch & Son, nurserymen, of Exeter, at the Bath and West of England Agricultural Society's Show, held in May last at Exeter. Rock-gardens of all forms of construction and size are plentiful throughout the country, but it is somewhat of a novelty to find an example of a rock-garden within the limited scope which a five days' exhibition permits. Messrs. R. Veitch & Son, of Exeter, however, conceived the happy idea of proving that not only might a rock-garden be made an attractive feature of an exhibition, but might be made an educational feature as

well, and show the visitors to the exhibition the requirements of hardy and half-hardy plants. The plants with which the rock-garden was furnished, some of which are shown in the picture, are almost wholly such as are perfectly hardy out-of-doors in the south and south-west of England. To these were added a few plants which might safely be employed during the summer months.

The chief object were to arrange the plants in the manner that best suited their requirements, as they are met with when growing wild; and to show how a picturesque group may be formed without the aid of Orchids and hot-house plants. Having been entrusted by the firm with the construction of this rock-garden, I will now give a few particulars concerning its composition.

The space available was 50 feet in length by 15 feet in depth, but owing partly to a very high bold background of evergreens, and partly to the many irregular rocky projections and recesses, the actual size of which was carefully masked by dark shadows, the rockery appeared three times its real size. It is perhaps needless to state that real stones were out of the question, and that the "rocks" consisted of virgin Cork secured to hundreds of boxes of all shapes and sizes. Of plant-staging in the usual sense of the word there was none, but old doors and other odds and ends taken from a timber-yard did duty in providing the various elevations. Large boxes lined with sheet-lead formed ponds and streamlets, being concealed from view partly by rocks and partly by grassy-banks, studded with hundreds of flowers, and dipping right down below the water-level. The water was real, and not imitated by mirrors in the semblance of water, and the sound of falling water, and the babbling streamlets, gave life to the scene. No cut-flowers were employed, only growing plants in pots, which had to be concealed by grassy-banks, rocks, or moss, in order to give the idea that they were plants growing naturally. The grassy-banks, besides affording a medium in which pots of flowering-plants could be plunged to the rims, gave a natural aspect to the masses of rock.

The ground-plan of the arrangement consisted of two irregularly-shaped pools, connected by a streamlet, and fed by a dripping waterfall, which emerged from the rear of a boulder, which formed the roof of a cave lined with Ferns and Lycopods. The illustration on p. 361, exhibits one of these pools enlivened by the presence of expanded flowers of *Nymphæas Seignouretti*, *gloriosas*, *eburnea*, *sanguinea*, *lucida*, *Leydekeri*, *rosea*, &c. The immediate surroundings of the pools were made to look like a swamp, and planted with *Arundo Donax variegata*, numerous *Sarracenias*, and the long erect tubes of *Sarracenia flava* (as seen in the illustration), were particularly striking, as were also the deeply lacinated leaves of *Senecio japonicus*, and flowering-plants of *Saxifraga peltata*, *Mertensia virginica*, *Dodecatheon* in variety, *Primula Sieboldi*, and a host of other nice subjects. The rocks above the cave were adorned chiefly with *Cytisus*, among which the forms *C. scoparius* var. *Andreas*, *C. purpureus albus*, and *C. purpureus*, were the most conspicuous. The foreground at the extreme right of the picture gives but a poor idea of the brilliant effect produced by numerous bright scarlet *Transvaal Daisies* (*Gerbera Jamesoni*) springing up from a carpet of white Thrift. A grassy bank to the left of the picture, and not included in the photograph, was enlivened by a number of Ghent Azaleas grouped together which stood out in great contrast to one consisting of *Gunnera manicata*, *Rheum carolinum*, *Podophyllum Emodi*, &c. Passing beyond the limit of the illustration, or the other right side, the streamlet had its grassy banks studded with Lily of the Valley, in bloom. There also was a good specimen of the hardy Banana, *Musa Basjoo*; and on the rocks further back, were grouped fine specimens of Himalayan *Rhododendron*.

A capital display was made by groups of *Dimorphotheca Ecklonis*, the *Transvaal Marguerite*, *Calla Elliotiana*, and in the foreground, by hundreds of

choice alpine plants of the smallest growth, and mostly in full bloom. To the extreme right, a natural arch was formed with the *Crimson Rambler* Rose; and here was a group of hardy *Rhododendrons*, having a dark background of choice Conifers in variety. Here and there, plants of a light and graceful character, viz., *Bamboos* and *Japanese Maples*, gave variety. *F. W. Meyer, Elmside, Exeter.*

HOME CORRESPONDENCE.

POMEGRANATES AT GUNNERSBURY HOUSE.—There were recently on the terrace of Gunnersbury House, seven large specimen Pomegranates twenty years old, in tubs bearing fruit. They cannot be expected to mature the fruits as they do in Spain and Portugal, from whence they are exported to this country. It is an interesting plant, and as Mr. Leo Grindon remarks, "It comes to the front in Scripture as one of those delightful orientals, which, at all points, touch the earliest recorded life of civilised man. It was a valued and familiar fruit in the earliest of historic times." It was introduced to this country 300 years ago, but it seldom blooms except in the south. Mr. Hudson is able to give his trees the shelter of a conservatory in winter. *R. D.*

HARDINESS, OR OTHERWISE, OF SALVIA PATENS.—Most growers will agree with Messrs. Arnott and Brotherton that it is not hardy. Neither have many of us met with a so-called hardy variety; though the white form of *S. patens*, like many other white flowers, is more tender than the blue-flowered type. True, as Mr. Arnott says (p. 331), the hardness or tenderness of such plants may be greatly affected by site and soil. As to the authority of judges at flower shows, it is by no means always reliable, though I never remember a case in which *Salvia patens* was allowed to pass as a hardy herbaceous plant. Another point has also to be considered, viz., the depth they are planted. If semi-tuberous roots are covered with a foot of fibrous loam, and this is again mulched with another 6 or 9 inches of litter, or cocoa-fibre refuse, or moss litter, the plants may live through our ordinary winters in many gardens north and south of the Tweed. But this would not make them hardy, for this mulch and deep planting are both kinds of coddling or abnormal protection. Besides, such plants break, grow, and bloom late, and hardly with such strength and beauty as those planted out in full growth in May. Can any grower record an experience of the freezing of the fleshy tuber of *Salvia patens* in the open air with impunity, as happens so often in our *Pæonia* or *Delphinium*? Fortunately, we are so rich in blues and purples among our hardy plants, that we do not need to strain doubtful points in favour of admitting such improbable species as *Salvia patens* among them. This flower in its several varieties, or of *Lobelia fulgens cardinalis*, and other named varieties, might on similar grounds be almost reckoned hardy varieties. *D. T. F.*

TREES AND SOIL.—Object lessons of the greatest value to the forester may be learnt in the woods at Welbeck. Evidently the relation of trees and soil was never thought of, the result being that hundreds of acres of timber are, from a commercial point of view, at least, almost valueless, and only encumber the ground. In one plantation are several hundred acres of Oak, which, though planted ninety years ago, only average 20 feet in height, and contain hardly a couple of cubic feet of timber each. The soil in this particular part is quite unsuitable for Oak, but evidently adapted for the growth of certain other species. In another section, planted in 1811, the Oaks are miserable, lanky scrub, averaging only 21 feet in height, and 4 to 6 inches in diameter. The ground here which was ridged and planted with Acorns, is again quite unsuitable for producing a crop of Oak. Another area of fully 100 acres is stocked with Oak, the long, spindly trees being now about seventy-five years old, and cubing only from 4 to 6 feet each. Adjoining these, and in exactly similar soil, the Spanish Chestnut trees, though only planted fifty years, have an average cubic content of 45 feet each. Two extensive tracts of Oak were planted in 1822 and 1823, the ground of the earlier-formed plantation having been "dugged and manured with 24 bushels of drilled bone-dust per acre, and sown with Turnips, the crop very bad. In 1823

this land was again fallowed and manured with 15 bushels of drilled bones and 3 chaldrons of lime per acre." The Oak crop in both sections is miserably poor and stunted, the average cubic content being 7½ feet each. There are many such instances of unusually slow growth, which may be entirely attributed to the trees not being suited to the soil of the particular woodland in which they have been planted. On the sandy and gravelly soils, Beech and Chestnut would have been preferable trees to those that have been so widely planted; while Larch, which is there free from canker, would have done well here and there. How valuable it is to the arboriculturist that the dates of planting are conspicuously placed in many of the Welbeck woods. *A. D. Webster.*

FLOWER-SHOW LUNCHEONS.—A novel departure was observed at the Brixton and Streatham Society's Exhibition last week. Instead of having the luncheon immediately the judges had finished their work, the Brixton Society has a sort of dinner at or about 6 o'clock p.m., when the President for the year usually takes the chair. All of the secretarial work of the day is then completed, and the repast may be taken under more comfortable conditions than when hurried through at mid-day. *H.*

FRUITING OF SCHUBERTIA GRANDIFLORA.—For the information of "D. R." as to the fruiting of this plant, I may say that it fruited annually on my exhibition plants. It is very useful for exhibition purpose from its free-flowering habit; but inferior, in my opinion, to *Stephanotis floribunda* in quality. I gather the seed-pods when turning colour, and hang them in a warm, dry spot; but care must be taken to watch them, otherwise the pods burst, and the seeds (when wind can get at them) disappear in a similar manner to the Thistle, the downy substance attached to the seed being very similar. The seed when sown in heat germinates very readily, in fact, I have flowered plants raised from seed in January the same year, it being a plant of such free growth and easy culture. *John Lockyer, Pontypool Park.*

THE ROYAL HORTICULTURAL SOCIETY AND FRUIT EXHIBITS.—Time was when a single duplicate dish or basket of fruit disqualified an unfortunate exhibitor at any show. Such was my experience on one occasion, many years since, at an international show. Judging, however, by "Critic's" pertinent query and remarks in your issue of the 14th ult., which has not, ere this, been replied to, I now discover that in these degenerate days show rules and regulations, even at such a show as that of British-grown Fruit at the Crystal Palace, are disregarded by the officials of the Royal Horticultural Society themselves, under whose auspices the said show was held. The facts are these: the horticultural department of the Royal Jersey Agricultural and Horticultural Society resolved on making known the fertility and the adaptability for fruit-production of their sunny isle by means of an exhibit at the said show, and from among a number of their members they got together a collection of fruit for the purpose. Owing, doubtless, to the inexperience of the members composing the sub-committee named to carry out the project, the collection, it appears, was entered in Class 22, which was obviously an error, and that such an entry was accepted by the secretary, was, to say the least, irregular, as Classes 21 to 24 were duly set apart for nurserymen, and trade exhibits of fruit grown by themselves, and not for fruit collected from a score or more of the members of the society. Apart from this, the regulations distinctly and plainly state that "no duplicate baskets or dishes shall be allowed," and "no awards of any sort will be made to nurserymen who do not conform to the regulations." Throughout my exhibition career I have always tried to conform to the regulations of all shows at which I competed, and, as stated above, I on one occasion was disqualified for one duplicate dish, whereas in this case the Jersey Society exhibited duplicate baskets, or dishes, to the tune of six or more of a sort. Such wholesale transgression of the rules of the schedule could not but have claimed the attention of the judges. The Council, I presume, taking into consideration the nature and object of the said exhibit, ignored the said rules, and awarded them the premier prize. This simply proves the laxity of the officials in, firstly, accepting an entry in what was essentially a wrong class; and secondly, in permitting an award to go to an exhibit which

obviously was not in accordance with the rules of the schedule. Such an exhibit should have been made a non-competitive one, and I know well that the merits of the same would have been duly recognised by the judges and council by the highest award they are empowered to give, viz., a Gold Medal. The fact that the excellence of the exhibit merited recognition to such an extent that no protest was entered by the nurserymen competing in that class, speaks well for their generosity, for had such been put in, the Jersey Society would not have had a "leg to stand on," and the Jersey exhibit would therefore have been a fiasco, which would have been deplored. By all means, I say, encourage these Channel Islands exhibits; at present, growers from these islands cannot compete in the strictly competitive classes, hence classes should be provided for them, both for collections and single dishes, and I know well that private growers would take the matter up, and a truly representative gathering of Jersey or Guernsey fruit would be the outcome. Moreover, owing to Potato culture not proving so remunerative as in the days gone by, the cultivation of fruit and glasshouse gardening is largely on the increase, and Jersey is, so to speak, following in the wake of their Guernsey neighbours, and ere long will become an important market-growing centre. This island has been far too long devoted to the cultivation of the risky Potato crop; and fruit cultivation, for which, by reason of the natural fertility of its soil, climatic conditions, not to mention sunshine, it is so eminently adapted, will be the staple production in the near future. P. F. L. S.

A HEAVY RAINFALL.—We have just experienced the heaviest rainfall that I have ever measured—dating back to 1875. The rainfall was incessant throughout the whole of November 2, 4, and 5, during which time 3.06 inches fell. In fact, the past eleven days have given us 4.55 inches of rain. We may therefore consider that the great drought which has afflicted the London district since April, 1897, is now at an end, and that the drought-stricken and desiccated sub-soil has at last had a good soaking. A. Worsley, Isleworth.

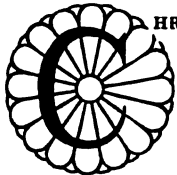
Obituary.

F. CANHAM.—We regret to announce the death of Mr. F. Canham, for some years gardener to C. H. Feiling, Esq., Southgate House, Southgate, which took place somewhat suddenly on October 30. Mr. Canham, who was brother to Mr. Chas. Canham, for many years Orchid grower to Messrs. Jas. Veitch & Sons, was an excellent all-round gardener, carrying out the duties of the extensive gardens under his care to the entire satisfaction of his employer. Although not formerly a professional Orchid grower, when Mr. Feiling wished to include a good collection of Orchids among the subjects in his gardens, Mr. Canham undertook their management, and with the same good results which followed his endeavours in other branches of his art. He was much liked by those employed under him, and by all in the neighbourhood where he lived.

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

November 7, 8, and 9.



CHRYSANTHEMUMS were splendidly shown at the Royal Aquarium, Westminster, on Tuesday, Wednesday, and Thursday last, when the National Chrysanthemum Society held its fifty-second annual exhibition and fête. There was a prodigious display of large, handsome, well-coloured blooms of the one great useful autumn flower, and the event was a success as an exhibition. At the same time, whilst the general quality was high, we think we have seen rather better Japanese blooms at the Aquarium than were shown on this occasion. The St. Stephen's Hall was utilised for the accommodation principally of the specimen plants, and of the flowers shown in the special "Vase" Class, which is noticed on p. 360. The galleries were also sufficiently full of exhibits, and efforts were made not to unduly crowd the ground-floor, where so much space is needed for the passage of visitors. Mr. R. DEAN, secretary, was responsible for the arrangements.

FIVE SOCIETIES ENGAGE.

THE first class was that arranged for Horticultural and Chrysanthemum Societies to engage with each other in competition for prizes for the best collection of forty-eight blooms, twenty-four incurved and twenty-four Japanese. The 1st prize of £10 and the Challenge Trophy was won by the Portsmouth and District Horticultural Society, and the flowers were contributed by two members only, Mr. JAS. ADAMS, and Mr. C. PENFORD. The exhibit was a very commendable one, and the Japanese varieties included magnificent specimens of Mrs. Mease, Florence Molyneux, the new white Japanese incurved; Mrs. J. Lewis, Miss E. Pilkington, Florence Penford, and others. The incurveds were by no means of poor quality.

For 2nd prize, the successful society was the Sevenoaks and West Kent Gardeners and Amateurs, the flowers being contributed by Mr. W. Tebay, gr. to Mrs. RYCAORT, Everlands, Sevenoaks. Some of the Japanese blooms in this stand were of great size, as Mrs. W. Mease, Phoebe, Mona, Hoste, Australia, &c.

The other societies competing in the class were the Ipswich and East of England Horticultural, The Bromley and District Chrysanthemum (3rd prize), and the Forest Gate and Stratford Amateurs' Chrysanthemum.

PLANTS IN POTS.

GROUPS.

The groups exhibited upon this occasion were arranged on the floor of the building instead of in the gallery, where they have been staged for some years. There were four exhibits, and the space allotted being a circular one, and of the same size, the arrangement of all of them was similar. They varied, however, in the degree of perfection in arrangement, and in the quality of the plants of which the groups were composed. The 1st prize was won by Mr. J. SPINK, Summit Road Nursery, Walthamstow; his Chrysanthemum blooms were larger than the others shown, and the Chrysanthemums were interspersed with Eulalia plants, the light and variegated foliage of which relieved the conical outline of the exhibit. The top, like that of all the other groups, was crowned by a Palm, but the several exhibitors used various species. The 2nd prize was won by Mr. W. HOWE, gr. to Sir H. TATE, Bart., Park Hill, Streatham Common, for an exceedingly bright group, in which the plants were arranged to some degree in panels, according to colour. It was a prettier and brighter group, the flowers being fresher than the one from Mr. Spink, but the flowers were less large. 3rd, Mr. A. HATTON, gr. to Mrs. E. SWANZY, The Quarry, Sevenoaks; and 4th, Mr. E. DOVE, gr. to H. E. FRY, Esq., Bickley Hall, Kent.

TRAINED SPECIMENS.

The trained plants were arranged as usual in St. Stephen's Hall, and were of satisfactory quality. For a collection of six specimens of large-flowered varieties, including Japanese, the 1st prize was won by a glorious collection from Mr. J. BROOKS, gr. to W. REYNOLDS, Esq., J.P., The Grove, Highgate, London, N. His varieties were Colonel W. B. Smith, Miss Watson (pale yellow, a marvellous plant), Maiden's Blush, Mrs. Mease, John Shrimpton, and Phoebe. 2nd, Mr. F. E. WRIGHT, gr. to J. TROUP, Esq., Essex Lodge, Upper Clapton, who had Vivand Morel and Chas. Davis—very nice; and 3rd, Mr. G. WESTON, gr. to D. MARTINEAU, Esq., 4, South Road, Clapham Park. His *l'Isle de Raicis*, a brilliant red variety, was very beautiful.

The best exhibit of four specimens of any varieties was from Mr. Geo. WHITEHORNE, gr. to S. NICHOLLS, Esq., Forest Lodge, Whipp's Cross, Walthamstow. The varieties shown—President Nonin, John Shrimpton, Col. W. B. Smith, and Vivand Morel. Mr. TOM STONE was 2nd; his W. Tricker and Margot were specially good. 3rd, Mr. F. GILKE.

There was only one exhibit of six standard trained specimens, and this was shown by Mr. F. E. WRIGHT. The standards are the least attractive of these skillfully-trained exhibits.

Of four standards specimens, there were three exhibitors and the 1st prize was won by Mr. Geo. WHITEHORNE, who had Sunflower, Cleopatra, Eva Knowles, and William Tricker.

One of the prettiest sections is that of the neat little Pomoons. They bloom so freely, and studding the large surfaces of these sphere-shaped plants like so many brilliant the effect is certainly a striking one. The 1st prize for six specimens, was won by Mr. TOM STONE, gr. to R. A. COCHRANE, Esq., The Downs, St. Neots, Hunts. His prettiest plants were those of the old Cedo Nulli, white, golden and lilac. The others were *Sour Melaine*, White Marthas, and Francis Boyce, a salmon-pink coloured Anemone. 2nd, Mr. F. GILKE, gr. to A. MORRIS, Esq., Court Green, Streatham.

The best specimen of an incurved variety, was one of Chas. H. CURTIS, shown by Mr. J. Brooks, gr. to W. REYNOLDS, Esq., The Grove, Highgate; and Mons. Desblanc, from Mr. E. EASEY, gr. to F. BISHOP, Esq., 23, Highbury New Park, N., was 2nd.

CUT BLOOMS (OPEN).

JAPANESE VARIETIES.

The most important class for Japanese blooms was that for forty-eight specimens, distinct, and the 1st prize was £10 and a Challenge Cup. This was won by Mr. F. VALLIS, Bromham Fruit Farm, Bromham, Chippenham. The following were the varieties: Mrs. Mease, Mr. A. Barrett, Graphic, Soleil d'Octobre, G. W. Palmer, Suzie, Phoebe, Mrs. Coombes (the new pink, smooth-petalled Japanese, raised by Mr. Weeks), Calvat 1899 (a Japanese incurved, white, with faint bluish

Chas. Davis, Gustave Henri, L. Seward, E. Towers, Le Grand Dragon, Simplicity, M. Hoste, G. Ridgway, Surpasse Admiral, W. Bardney, M. Ricoud, M. A. Brun, Lady E. Clark, Eva Knowles, Madame G. Bruant, Mr. J. Beisant, M. Louis Rémy, Mrs. Barclay, Pride of Madford, J. W. Barks, Madame P. Riviere, Edith Tabor (very fine), Souvenir de Madame F. Rosette, N.C.S. Jubilee (rather pale in colour), Madame Carnot, Marie Calvat, Mutual Friend, Australia, E. Teichmann, Vivand Morel, Pride of Exmouth, Lady Hanham, Oceana, E. Molyneux (very good), Swanley Giant, Mrs. J. Lewis, G. J. Warren, Nellie Pickett (white, or palest lemon, Australian variety), and M. Chénou de Leché (very good). The 2nd prize was well won by Mr. J. W. McHattie, gr. to the Duke of Wellington, Strathfieldsay, Mortimer, Berks, who had a collection of which any grower might be proud. The varieties Mrs. Hugh Crawford, Matthew Hodgson, Le Grand Dragon, Edith Tabor, Australia, Mr. Jas. Ridenoope, G. J. Warren, Mrs. J. W. Barks, and Mrs. White Popham were especially noteworthy in this exhibit. Mr. W. H. Lees, gr. to F. A. BEVAN, Esq., Trent Park, Barnet, was 3rd, with an exhibit of blooms rather less heavy, but of wonderfully bright colours. The varieties Lionel Humphrey, Miss Dorothy, Shea, R. Hooper Pearson, Dorothy Seward, and a purple-crimson unnamed seedling were especially remarkable for high colour. There were six exhibitors in this class, the others being Mr. M. Gleason, gr. to A. Von ANDRE, Esq., The Warren House, Stanmore; Mr. W. Rushton, gr. to A. WHITELEW, Esq., Cowdray Park, Midhurst, Sussex; and Mr. R. Kenyon, gr. to A. F. HILLS, Esq., Moulkams, Woodford Green.

Twenty-four blooms, distinct.—This class is always a popular one, and on the present occasion there were five exhibitors. Mr. J. W. McHATTIE was the most successful, and had a collection of very fine flowers. The varieties that figured to best advantage were Mrs. W. Mease, Edith Tabor, Ed. Molyneux, Mrs. H. Weeks, M. Hoste, Soleil d'Octobre, G. J. Warren, Le Grand Dragon, Mrs. Barks, James Bidenscope, Mrs. G. W. Palmer, and Chataworth. Very appropriately, a bloom of the Duke of Wellington was included in this splendid exhibit from Strathfieldsay.

The next collection in merit was one from Mr. W. Meredith, gr. to Geo. WILDER, Esq., Stanstead Park, Ennsworth, Sussex. There were remarkable blooms of Mr. T. Carrington, Madame Carnot, M. Hoste, M. Pankoucke, Master H. Tucker (a new one), that we have not seen better than the specimen in this class, and Ed. Molyneux; 3rd, Mr. H. Perkins, gr. to the Hon. W. F. D. SMITH, M.P., Greenlands, Healey-on-Thames.

The following three classes of six blooms, of various colours, were exhibited in vases:

Any White Variety.—There were four exhibits in the class for six blooms, and three of them were of the variety Madame Carnot. Mr. McHATTIE, however, gained 1st prize for six marvellous blooms of the superb white Mrs. J. Lewis. Mr. W. HIGGS was 2nd.

Best Yellow Variety.—The 1st prize in this class was awarded to six magnificent and huge specimens of Mrs. W. Mease, from Mr. W. HIGGS; 2nd to Phoebe, shown by Mr. W. Allan, gr. to Lord SUFFIELD, Gunton Park, Norwich; and 3rd to Mrs. Mease, again shown by Mr. J. Sandford, gr. to G. W. WRIGHT INGLE, Esq., Woodhouse, North Finchley. Mrs. Mease is a charming variety, but not a good representative yellow, being too pale.

Any other Colour than the two preceding.—There were eight exhibits, and the 1st prize went to Australia, shown by Mr. McHATTIE (very fine); 2nd prize to the same variety, from Mr. H. PERKINS; and the 3rd also to Australia, from Mr. B. FOSTER, gr. to R. NIVISON, Esq., Tenterden Hall, Hendon.

The best six hairy petalled blooms, in not fewer than three varieties, proved to be Hairy Wonder, Louis Bohmer, both of which are very well known; Leocadie Gentile, an exceedingly hirsute, narrow-petalled, pale yellow variety; and White Swan; L. Gentile is a most attractive flower. The exhibit was one from Mr. John Justice, gr. to the Right Hon. Sir R. TEMPLE, Bart., The Nash, Kempsey, Worcester; the 2nd prize went to Mr. HENRY LOVE, 1, Melville Terrace, Sandown, Isle of Wight.

INCURVED VARIETIES.

Thirty-six blooms, distinct.—There were four exhibitors in the largest class for the incurveds, or formal Chinese type of flower. The best collection was one from Mr. W. HIGGS, gr. to J. B. HANKEY, Esq., Fetcham Park, Leatherhead. Varieties of this type do not vary in the exhibits from year to year to the degree that the Japanese do, and it is not necessary to trouble the reader with a list of the thirty-six blooms in this case. It may be pointed out that Madame Edmond Rogers, the green-tinted new one, was included. The exhibit contained no specimen of Chas. H. Curtis, but a moderate bloom of Major Bonafon; Bonnie Dundee was a very well-coloured, neat bloom of moderate size; Duchess of Fife was the largest bloom in the stand. The best yellow so far as colour was concerned was King of the Yellows, but it is too loose in petal. Madame Ferlat was shown well; as was Hanwell Glory, and D. B. Crane. An exceedingly close 2nd was Mr. G. Hunt, gr. to PANTIA RALLI, Esq., Ashted Park, Epsom, who had a very deep-coloured yellow, named Miss Louise D. Black; C. H. Curtis, and Golden Empress were good. The 3rd prize went to Mr. W. H. LEES, who had a collection little inferior to the one just noticed.

Twenty-four blooms, distinct.—There were only two exhibitors in this class, and the 1st prize was won by Mr. W. HIGGS, gr. to J. B. HANKEY, Esq., Fetcham Park, Leatherhead; particular varieties in this exhibit were Madame E. Rogers, the new green-tinted continental variety; Chas. H. Curtis, of

which an enormously-deep bloom was shown; S. M. de la Drome, a moderately broad-petalled yellow bloom; Ialene, pretty lilac-mauve, the florets incurved in a twisted manner; King of the Yellows, good in colour, but too flat in shape; and D. B. Crane, which was shown very well. The rest were well-known varieties, shown in generally good condition. The 2nd prize went to Mr. G. J. Hunt.

Twelve blooms, distinct.—The best collection of twelve blooms was one from Mr. Silas Cole, gr. to Earl Spencer, Althorp Park, Northampton, out of five exhibits; his varieties were *Perle Dauphinoise*, *Ma Perfection*, *Topaze Oriental*, *Madame Ferlat*, *Lady Isabel*, Mrs. N. Molyneux, Chas. H. Curtis, Mrs. Kingston, Lord Alcester, Countess of Warwick, Violet Tomlin, and Princess of Wales. The best blooms were Chas. H. Curtis, *Topaze Oriental*, and Princess of Wales. 2nd, was Mr. F. G. Foster, Brockhampton Nurseries, Havant, whose blooms lacked depth and finish.

There were five exhibits in the class for six incurved of one variety, and a collection of six very large specimens of *Duchess of Fife*, shown by Mr. W. Hoos, was awarded 1st prize. The same variety, from Mr. G. J. Hunt, was 2nd; and a very different flower, *Globe d'Or*, from Mr. Thos. Parkins, gr. to F. W. F. Ward, Esq., 84, Bisham Gardens, Highgate, 3rd.

OTHER TYPES.

Japanese blooms, incurved.—Mr. McHattie won 1st prize in a class for six blooms, distinct, of Japanese varieties with incurving florets, showing Duke of Wellington, Swanley Giant, N.C.S. Jubilee, Prefect Robert, President Bevan, and Madame Desblanc; the exhibit lacked a high-coloured variety. Of six other competitors, Mr. H. Perkins won 2nd prize; his best blooms were *Australie* and *Australian Gold*.

Reflexed varieties.—There is very little interest shown in the exhibition of the old reflexed type, and the varieties shown are all of them well known. The best collection of twelve large-flowered reflexed blooms, in not fewer than nine varieties, was shown by Mr. T. Caryer, gr. to A. G. McKisken, Esq., Alderholme, Weybridge; *Globe d'Or* was the best yellow, *Cullingfordi* the most effective crimson, and Mrs. Forsyth the best white variety.

Anemone blooms.—There were four or five collections exhibited in most of the classes for Anemone-like blooms. The best collection of twenty-four large-flowered varieties, excluding Japanese, was shown by Mr. W. Ring, gr. to James Warren, Esq., Capel House, Waltham Cross; John Bunyan was the best yellow, Mrs. P. R. Dunn and Mrs. Caterer good whites, and Descartes the best flower of high colour. 2nd, Mr. A. Ives, gr. to E. C. Jukes, Esq., Hadley Lodge, Barnet. Mr. Ring had also the best collection of twelve blooms, distinct, of the same type; and Mr. Ives was the best of four other exhibitors. The same exhibitors won similar prizes in a class for twelve Japanese Anemone blooms; but for Anemone Pompons Mr. C. Brown, gr. to R. Henty, Esq., Langley House, Abbots Langley, won 1st place for twelve trebles, distinct.

Pompons.—The pretty little Pompons were shown well by Mr. T. Caryer, in a class for twelve trebles, distinct. He had a very commendable exhibit, in which *Toussaint Marizot*, a singular little flower with quilled petals, was remarked.

Single-flowered varieties.—Mr. G. W. Forbes won 1st prize in a class for six varieties, to be shown in bunches or in sprays, six blooms in each spray. The charming varieties, were *Purity*, *Earlswood Glory*, *Alphonso*, and *Victoria*, all white, or nearly so; Mrs. Walton, mauve with white band around disc; and *Rose Pink*, a very similar variety. Mr. Aldridge was 2nd.

SPECIAL PRIZES.

SIXTY BLOOMS IN VASES.

By far the most important of the special classes, was one for twelve vases of specimen blooms of Japanese Chrysanthemums, distinct, each vase to contain five blooms of one variety. The vases were lent by Messrs. James Green & Nephew, Queen Victoria Street, London, and were 18 inches in height. Not less than 6 inches of Chrysanthemum-stem had to be seen above the top of vase. The 1st prize of £20, was given by Mr. H. J. Jones, and to this, the Society added a large Gold Medal. The 2nd prize was £15 and Gold Medal. 3rd, £10 and Silver-gilt Medal, and 4th, large Silver Medal and £5. Nine competitors entered, and this extraordinary class brought therefore an aggregate of 540 large exhibition blooms, and constituted quite a Flower Show in itself. They were staged upon tables in the St. Stephen's Hall, and excited considerably greater interest than those staged upon the usual flat boards. It is an innovation that deserves to be encouraged, as the arrangement is one that destroys the feeling of monotony that visiting a number of Chrysanthemum Shows is apt to create. The 1st prize was narrowly won from Mr. W. H. Lees, by Mr. J. W. McHattie. The varieties were *Australie*, Mrs. J. Lewis, *Milano*, a light-red wide-petalled Japanese, big globular flower; *Oceana*, *Madame Carnot*, Mrs. Coombs (one of the best of Mr. Webb's new ones, very pretty pink), *Phœbus*, *Mons. Chenon de Leché* (very fine), Mrs. W. Mease, Charles Davis (splendidly coloured), *Simplicity*, and Mrs. White Popham. 2nd, Mr. W. H. Lees, whose best bouquets were of the varieties *Jas. Bidecoque*, Mrs. Coombs, Mrs. G. W. Palmer, *Mutual Friend*, *Lady Ridgway*, and the highest-coloured and best-developed blooms of the variety

Pride of Madford, that we have seen. 3rd, Mr. J. Spinks, Summit Road Nursery, Walthamstow. 4th, Mr. Wm. Rushton, gr. to Alexander Whitelaw, Esq., Cowdray Park, Midhurst.

Twelve Japanese blooms, distinct.—In a class for twelve Japanese blooms, distinct, liberal prizes for which were given by Messrs. J. Peck & Son, West Norwood, there were eighteen fine exhibits. The 1st prize was awarded to a collection from Mr. Geo. Neville, gr. to Lord Chesham, Latimer, Chesham, Beds. His varieties were Mrs. Mease, President Nonin, Mrs. H. Weeks, Edith Tabor, Chas. Davis, Mme. Hoste, Lady Biron, Ethel Addison, Eva Knowles, *Phœbus*, Joseph Chamberlain, and *Madame Carnot*. The next best lot was from Mr. J. W. Roberts, gr. to J. T. Skilbeck, Esq., Clonard, Harrow Weald, Stanmore. He had *M. Chenon de Leché*, *Lady Hanham*, *Simplicity*, and *Mons. E. André*, very fine. 3rd, Mr. H. Brown, gr. to H. W. Sillen, Esq., The Pines, Horsell, Surrey. There were 4th and 5th prizes awarded.

BEST SPECIMEN BLOOMS OF JAPANESE VARIETIES.

With the object of bringing to the fore varieties of clear, decided colours, Mr. Norman Davis, Framfield Nurseries, Sussex, offered 1st, 2nd, and 3rd prizes, in each of the following six classes. One bloom only was required in each class. The best white variety was Mrs. J. Lewis, shown by Mr. Geo. Hoos; and *Madame Carnot*, from Mr. C. Penford, was placed 2nd. *Phœbus* took leading place for the best yellow, and was shown by Mr. J. Brooke, gr. to W. J. Newman, Esq., Tottenham.

Of pink or mauve-coloured varieties, *Viviani Morel*, from Mr. Geo. Hagon, gr. to E. Arthur Lee, Esq., Fowley Park, Liphook, Hants, was best; and Emily Towers, from Mr. W. H. Lees, being 2nd.

Of crimson selfs, *Ed. Molyneux*, from Mr. J. Handford, was only given a 2nd prize.

Pride of Madford won the 1st place for a purple self, and Mr. Geo. W. Palmer 1st for a bronze-coloured flower. These classes would have been of extreme interest had they been supported better by exhibitors.

SINGLE-FLOWERED VARIETIES IN VASES.

A Silver Cup was offered by Cannon's Restaurant Company, Ltd., Westminster, for the best twelve vases of single-flowered Chrysanthemums, six varieties to be large-flowered, and six small-flowered, six blooms of one variety in each vase.

Mr. G. W. Forbes, gr. to Madame Nicols, Regent House, Surbiton, won the Silver Cup. The prettiest varieties were *Earlswood Glory*, a fine large white; Miss Anderson, a smaller white flower of better form; Sir T. Symonds, large yellow; Annie Tweed, small crimson; and Mrs. Walton, large mauve, with white band round disc.

PREMIER BLOOM IN THE SHOW.

The finest bloom in the exhibition was a superb example of the variety Mrs. Mease, shown in Mr. Davis's special classes by Mr. W. G. B. Clarke, Hitchin, Herts. A prize of one guinea was offered for this by Mr. J. T. Simpson, to be subsequently supplemented by an oil-painting of the flower.

AMATEURS'—DIVISION A.

The classes reserved exclusively for amateurs were well competed for, though perhaps exhibits were slightly less numerous than on some former occasions.

Japanese Blooms.—The class for eighteen specimens, distinct, was won by Mr. A. Page, gr. to A. L. Reynolds, Esq., Moss Hall Grove, N. Finchley. He had a nice lot of moderate-sized specimens, and included many of the novelties that were to be seen in the open classes. 2nd, Mr. Joseph Acocck, gr. to Mrs. Bacon, Stoneleigh, Sutton, Surrey. There was very little difference in quality between these two collections. Four additional exhibitors competed.

The best collection of twelve blooms was shown by Mr. D. Ager, gr. to Milton Bode, Esq., Down House, Bath Road, Reading. He had very creditable specimens of *M. Pankoucke*, *Madame Carnot*, and *Phœbus*. 2nd, Mr. A. Page, gr., Moss Hall Grove, N. Finchley.

There were ten collections of six varieties, and the best was from Mr. E. Ryman, gr. to O. Soppa, Esq., South Park, Reigate. The blooms were good, and represented the varieties Mrs. White Popham, *Madame Carnot*, President Nonin, *Feu du Champ*, Mr. T. Carrington, and Mrs. Mease.

The best exhibit of six Japanese blooms of one variety, was one from Mr. J. Denyer, gr. to Ed. Smith, Esq., Ingleside, Chatham, who had six very nice blooms of Mrs. Mease.

Incurveds.—It is in the incurved flowers that the amateurs find the greatest difficulty in obtaining properly finished specimens. The best lot of twelve blooms, distinct, was from Mr. C. E. Wilkins, Wellington, Swanley Junction, and they were much the best shown in these classes, being moderate-sized, even specimens. 2nd, Mr. A. Hooney, gr. to G. H. Cox, Esq., The Grange, East Barnet.

For six blooms, incurved, Mr. Wilkins again secured the 1st place; but in the class for six specimens of one variety, the best exhibit was from Mr. A. Hooney, who showed the variety C. H. Curtis, beating four other competitors.

Pompons.—The best six bunches of Pompons, distinct varieties, were shown by Mr. Aldridge, gr. to G. Lacy, Esq., Springfield House, Palmer's Green. The varieties, *Midla*, *Elsie Dordan*, *Wm. Westlake* (yellow), and *Prince of Orange*, were very pretty. Mr. Aldridge beat four other exhibitors.

AMATEURS'—DIVISION B.

Exhibitors in the preceding classes could not enter the following eight, which are duplicates.

Mr. Martin Silsbury, Providence, Shanklin, Isle of Wight, had the best collection of eighteen Japanese blooms, distinct. His best varieties were *Surpassé Amiral*, Mrs. J. Lewis, *Mutual Friend*, Mrs. Barkley (pink), and President Bevan.

For twelve Japanese blooms, distinct, there were as many as twelve collections in competition. The best came from Mr. A. B. Knight, 63, Hardinge Road, Ashford, Kent. The most noticeable blooms in a very satisfactory collection were *Madame Carnot*, Mrs. Mease, Mrs. Weeks, and *M. Chenon de Leché*; the 2nd and 3rd prizes went to W. E. Reeve, Esq., Maybury Road, Woking; and Mr. Jas. Falconer, Woodham Walter, Maldon, Essex.

The winner of 1st place for six Japanese blooms, distinct, was Mr. E. Brown, jun., 3, New Alma Road, Southampton. The varieties *Modestum* and Mrs. G. W. Palmer were very good; 2nd, Mr. W. E. Reeve.

The best Japanese variety exhibited in collections of six blooms was that of Mrs. White Popham, shown by Mr. Henry Love, Melville Terrace, Sandown, I.W. Charles Davis, from Mr. E. Brown, jun., won the 2nd prize.

The 1st prize for a collection of twelve incurveds was awarded to an exhibit from Mr. Jas. Falconer, Maldon, Essex; and the following class for six blooms, distinct, was won by Mr. W. G. Prudden Clark, York Road, Hitchin, Herts.

"MAIDEN" EXHIBITORS.

In the few classes reserved for growers who had not previously won a prize at any exhibition of the N.C.S., Mr. F. Mease, Holwood Stables, Walton-on-Thames, won 1st prize for six Japanese blooms, distinct; Mr. J. A. Humphries, gr. to J. L. Burgess, Esq., Marsey Hampton, near Fairford, Gloucester, had the best exhibit of three blooms, distinct the best collection of six incurveds, distinct, and of three incurveds.

TABLE DECORATIONS, EPERONES, VASES, &c.

There were seven classes in which the extreme suitability of the Chrysanthemum for decorating the dinner-table, furnishing vases, baskets, eperones, &c. They were very pretty, and some of them specially well done; but these decorative classes form a feature that changes very little from year to year, and it is to the public that they serve as object-lessons in the tasteful arrangement of flowers.

The most important class is for a table of bouquets, wreaths, sprays, &c., and with a very commendable exhibit Mr. L. H. Oalcutt, Fern Bank Nursery, Stoke Newington, N., secured 1st prize. Large floral arches made of wire, and supporting elegant glasses for blooms, were used in this exhibit to good effect.

Miss E. B. Cole, The Vineyard, Feltham, had the best collection of three eperones of Chrysanthemum blooms. Mostly single-flowered varieties were used, and the prevailing colour was mauve; the arrangement was perfect. 2nd, Mr. A. Meridew, 308, Southampton Street, Camberwell, S.E.

Mr. Mark Webster, gr. to E. J. Parsons, Esq., Kelsey Park, Beckenham, won the 1st prize for two vases of Chrysanthemums, Pompons, or Anemone Pompons, arranged with any foliage for decorative effect. We thought the exhibit rather dull, being overdone with foliage.

The best pair of hand-bouquets was shown by Mr. Mark Webster; and the best decorated hand-basket by Mrs. Struonell, 213, Brixton Hill, Brixton.

Vases of six blooms were shown numerously in Class 69, and the best was from Mr. E. Jones, 51, Bower Street, Bedford.

Mr. W. Howe had the best vase (amateurs) of six blooms of one variety, showing a white Japanese incurved; 2nd, Mr. J. Denyer, gr. to Ed. Smith, Esq., Ingleside, Chatham.

The best hand-basket of natural autumn foliage and berries, arranged for effect, was from Miss Easterbrook, The Briars, Fawkham, Kent. The *Pernettyas* were used to advantage.

FRUITS AND VEGETABLES.

There were a few classes for Grapes, Apples, and Pears, which are out of place at a Chrysanthemum show. The best three bunches of white Grapes were of *Muscat of Alexandria*, from Mr. A. R. Allan, gr. to Lord Hillingdon, Hillingdon Court, Uxbridge; and the best black Grapes, of *Black Alicante*, from Mr. W. Taylor, gr. to C. Bayer, Esq., Tewkesbury Lodge, Forest Hill, S.E. The premier exhibit of *Gros Colmar* was one of three bunches from Mr. W. Chuck, gr. to Herbert Thellusson, Esq., Brodsworth Hall, Doncaster.

There was exceptionally good competition in the classes for Apples. The best collection of six dishes of culinary varieties, out of thirteen lots, was one from Mr. W. T. Stowers, gr. to G. H. Dean, Esq., 70, Harold Road, Sittingbourne; 2nd, Mr. W. Camm, gr. to the Duchess of Cleveland, Battle Abbey, Sussex.

In the class for an equal number of dishes of dessert varieties, the 1st prize was won by Mr. R. Chamberlain, gr. to F. M. Loneragan, Esq., Cressingham Park, Reading; and for six dishes of ripe Pears, the best exhibitor was Mr. W. Allan, gr. to Lord Suffield, Gunton Park, Norwich.

MESSRS. WEBB & SON'S AND OTHER SPECIAL PRIZES.

The best collection of nine dishes of vegetables in competition for prizes offered by Messrs. Webb & Son, was shown by Mr. Ed. Beckett, gr. to Lord Aldenham, Aldenham

House, Elstree, Herts; the 2nd going to Mr. A. Basile, gr. to Rev. O. L. POWELL, Woburn Park, Weybridge.

Messrs. HURST & SON, Messrs. DANIELS BROS., and Messrs. FIDLER & SONS, Reading, also offered special prizes for Potatoes. In a class for the best dish of a new seedling Potato, prizes for which were offered by the last-named firm, the 1st prize was won by Mr. E. S. Wiles, gr. to the Hon. EVELYN HUBBARD, M.P., The Rookery, Down, Kent, who showed good-looking tubers of a seedling named Duke of Marlborough, obtained from crossing Chancellor with Abundance.

Mr. R. SYDENHAM offered prizes in thirteen classes for vegetables. The 1st prize for Celery, was taken by Mr. JAS. GIBSON, gr. to R. N. HUDSON, Esq., Dancesfield, Marlow; for Cauliflowers, by Mr. W. J. EMPSON, gr. to Mrs. WINGFIELD, Amphill House, Amphill; for Savoy, by Mr. GIBSON; Red Cabbage and Brussels Sprouts, by Mr. C. BROWN, gr. to R. HENTY, Esq., Langley House, Abbot's Langley; Onions, Mr. BECKETT; Carrots, Mr. A. G. GENTLE, gr. to Mrs. DENNISON, Little Gaddesden, Berkhamsted; Parsnips and Leeks, Mr. BECKETT; Beet, M. BASILE; &c. Mr. BECKETT, who won the greatest number of points in these classes, has won the Silver Cup for the 2nd time, and it now becomes his property.

MISCELLANEOUS AND TRADE DISPLAYS.

Mr. NORMAN DAVIS, Framfield Nurseries, Sussex, had a magnificent display of cut blooms, set up in a most effective style in large, handsome vases, in bamboo stands, fanciful baskets, and other receptacles. Ferns and other decorative plants were interspersed amidst these. Mr. DAVIS always grows Madame Carnot well, and this variety and its two sports were shown grandly on this occasion. A bamboo stand was decorated with the curious variety Golden Shower, fig. 115, in *Gardeners' Chronicle*, December 3, 1898. Most of the types of Chrysanthemum were represented in this exhibit, and a few good Japanese novelties were included, such as Lady Francis Osborne (pink), Mrs. Carsham, a very wide petalled, incurved Japanese, the reverse silver-coloured, &c. (Large Gold Medal).

Adjoining the above exhibit was a similar one from Mr. H. J. JONES, Ryecroft Nursery, Elther Green, Lewisham. Large vases and other handsome receptacles for the display of blooms, and decorative plants for relief were also used by Mr. JONES. Many of the novelties in this exhibit will be found described in a note on p. 357. (Large Gold Medal)

Messrs. H. CANNELL & SONS, Swanley, Kent, made an exhibit of cut blooms, in which the arrangement of the flowers was in rows, each flower being surrounded with fronds of *Adiantum cuneatum*. Messrs. CANNELL had excellent blooms of Mrs. White Popham, Mme. Carnot, and other varieties, most of which will be found described in a note on p. 356. Two groups of *Cannas* in pots were very bright, as were also the numerous sprays of bloom of varieties of zonal *Pelargoniums* (Large Gold Medal).

Mr. ROBT. OWEN, Floral Nurseries, Maidenhead, had a large exhibit, including a group of plants in flower, carrying fine large blooms, and a splendid lot of cut flowers. Among the cut flowers were brilliantly-coloured large specimens of a number of more or less recently-introduced varieties, and of English seedlings raised at the floral nurseries. Mrs. W. SMITH (yellow Japanese), Hon. W. F. D. SMITH, Lord Ludlow (crimson Japanese), M. FATZER, Owen's Memorial Orange Rd., with gold reverse, were conspicuously pretty. Of incurved flowers, the variety Miss Godsmark, recently Certificated, and a seedling raised at Maidenhead, also other seedlings, were remarked (Silver Medal).

Messrs. J. PEEB & SONS, Roupell Park Nurseries, Norwood Road, London, showed a group of Chrysanthemums in pots (Silver Medal).

Mr. JOHN GREEN, Norfolk Nurseries, Dereham, had an exhibit of Chrysanthemum-blooms (Silver Medal).

Messrs. B. S. WILLIAMS & SONS, Upper Holloway, London, N., were awarded a Gold Medal for a very nice exhibit of miscellaneous plants, including *Ericas*, *Palms*, *Ferns*, *Carnations*, *Orchids*, *Begonia Gloire de Lorraine*, &c.

Messrs. I. HOUSE & SON, Coombe Nurseries, Westbury-on-Trym, were awarded a Bronze Medal for a collection of blooms of varieties of *Violets*.

Mr. THOS. J. WARE, Hale Farm Nurseries, near Tottenham, showed a group of cut Chrysanthemums (Bronze Medal).

Messrs. W. CURTISH & SON, Highgate, London, N., had a very large table in the gallery of miscellaneous plants, for which they obtained a Small Gold Medal.

Other stands and exhibits represented Mr. SAM DEARD'S "Little Samson" boiler, Mr. J. HAW'S improved watering cans, Mr. HAYDON'S patent broom-holder, the "ONE AND ALL" garden manures, Messrs. FENLON & SON'S hot-water circulating condensing stove; "ICHTHEMIC" guano; horticultural sundries from Mr. J. GEORGE, Putney; Messrs. WOOD & SONS, Wood-Green, London; and D. DOWELL & SON, Hammer-smith; Bedfordshire peat from Mr. JOS. ARNOLD; and nitrate of soda and other artificial manures from the PERMANENT NITRATE COMMITTEE, 3, Gracechurch Street, London, E.C.; &c.

ROYAL HORTICULTURAL.

NOVEMBER 7. — Owing to the comparative paucity of exhibits, the Drill Hall on this occasion had a rather bare appearance. These consisted chiefly of a long table, filled partially with *Begonia Gloire de Lorraine* in fine blossom, a small collection of *Orchids*, some very interesting; and several stands of Chrysanthemums, some *Statice*s, *Nerines*, and collections of Apples and Pears.

Floral Committee.

Present: W. Marshall, Esq., in the Chair; and Messrs. C. E. DUNRY, J. H. FITT, J. JENNINGS, J. F. McLEOD, G. GORDON, W. BALE, E. H. JENKINS, J. D. PAWLE, C. E. SHES, H. TURNER, D. B. CRANE, E. T. COOKE, G. PAUL, C. JEFFRIES, and E. MAWLEY.

CHRYSANTHEMUMS.

Show blooms of incurved and Japanese varieties to the number of forty-eight were shown by C. E. SHEA, Esq., The Elms, Foots Cray, the blooms being fine specimens of popular varieties. Striking varieties and flowers were noted in Elsie Taichmann, Mathew Hodgson, Lady Ridgway, Jas. Myres, M. Chenon de Leche, Mrs. Mease, Oceana, Jubilee, and Lady Hanham (Silver Flora Medal).

Messrs. W. WELLS & CO., LTD., Earlswood Nurseries, Redhill, exhibited twenty-four cut blooms in eight varieties, all of which were of more than the average size, besides being fresh-looking. We may mention Miss Lucy Chessman, a rich yellow, confused-petalled, Japanese; Lord Salisbury, a big flat flower, with tints ranging from deep yellow to orange; Mr. Louis Rény, light yellow; Silver Queen, a bright lilac-coloured flower, with simple reflexed florets; Margaret Silhot, a bloom with erect, stiff florets of the purest white; Sir Herbert Kitchener, a rich-looking, reflexed Japanese, very full, and quite globular in shape; and Sir T. W. Clarke, a graceful white bloom, with narrow florets. The firm showed a number of blooms of a brilliant-coloured variety in *Etoile de Feu*, in tint a reddish chestnut, with an orange reverse to the florets (a beautiful flower for cutting purposes). Mr. J. Corbett, gr. to Lord HILLINGDON, at Mulgrave Castle, Whitby, showed Chrysanthemums, Jessie Corbett, a bright yellow Japanese, broad, reflexed petalled variety; General Symons, a rich crimson Japanese, not very full, as shown; Lady Laura Hampton, and some others. No award was made.

Hon. W. F. D. SMITH, Greenlands, Henley (gr., Mr. Perkins), showed three beautiful blooms of a yellow incurved Chrysanthemum Henry Perkins, a very full, symmetrical flower. He also showed three flowers of Chrysanthemum W. F. D. Smith, a Japanese variety of a brilliant crimson tint, and of large size, with florets that reflex somewhat.

Mr. W. SEWARD, The Firs, Hanwell, exhibited Japanese Chrysanthemums—Thos. Stephenson, May Nevill, and W. H. Whitehouse—but no award was made.

MISCELLANEOUS.

Mr. H. ROGERS, gr. to Lord RENDLESHAM, Rendlesham Hall, Woodbridge, showed *Violets Marie Louise* and *De Parme*, examples of excellent culture, the flowers large and good.

Messrs. SANDER & CO., St. Albans, exhibited a group of plants, including *Acalypha Godseffiana*, *Kentia Sanderiana*, a very graceful species; *Cirrhopetalum refractum*, with greenish-coloured flowers; *Dracena thalioides*, pretty in the caulescent stage; *Stenoglossis longifolia*, &c.

L. DE ROTHSCHILD, Esq., Acton (gr., Mr. J. Hudson), had an extensive display of *Begonia Gloire de Lorraine*. The plants were in pots of 4½ inches in diameter, and were capital decorative objects, 1½ to 2 feet high, and covered with flowers from base to summit. The variety, Mrs. Leopold de Rothschild, has a rather different habit, it is a sport with more pendulous habit, and flowers slightly different in tint; the blooms are not affected by fog like the other.

Messrs. H. LOW & CO., Bush Hill Park, Enfield, showed a pretty *Aralia*, named *Lowae*, a plant of a stiff habit, and with pinnate, dark green leaves, a useful, distinct, decorative subject.

H. J. ELWES, Esq., Colebourne Park, Gloucestershire (gr. Mr. Lane), showed, as is his wont at this season, a considerable number of *Nerines* raised by him; they showed much variety in colour, slight variations in form, and a manifest tendency to produce leaves at the same time as the flowers. Awards of Merit were bestowed upon N. Mrs. Godman, a flower of a deep purplish-rose, and a corymb of good size; N. Mrs. Berkeley, light orange-red, flowering before the leaves show; and N. Miss Willmott, deep scarlet, fair-sized corymb, one of the showiest known. It possesses a very dense corymb.

The Duke of MARLBOROUGH, Blenheim Palace, Woodstock (gr., Mr. T. Whillans), showed three plants of *Carnation Oxford Yeoman*, a fine double bloom of a deep crimson colour and regular build.

Messrs. FORBES, nurserymen, Hawick, N.B., showed a white-flowered *Begonia Gloire de Lorraine*, named *Caledonia*, not presenting any specially good features, but which may improve.

Sir T. LAWRENCE, Bart., Burford Lodge, Dorking (gr., Mr. Bain), showed a new *Violet*, Miss J. J. Astor, a variety resembling *De Parme* in form, but of a reddish-purple tint.

Messrs. J. VEITCH & SONS, LTD., the Royal Exotic Nursery, King's Road, Chelsea, exhibited eighteen varieties of warm-house *Rhododendrons*, in fine condition. We wonder that no gardener ever exhibits flowers, or plants in flower, of these charming winter flowering subjects. It would appear as if gardeners scarcely, as yet, understand the cultivation of the plants, which is, however, of the simplest character.

Antholyza æthiopica var. *vittigera* was shown by J. T. BENNETT-POLE, Esq., Holmewood, Cheshunt (gr., Mr. Downes), the flowers coloured scarlet and orange, and the height of the plants about 2½ feet.

JOHN WATERER & SONS, LTD., American Nurseries, Bagshot, showed an interesting group of *Conifers*, in much variety, including many variegated forms of *Retinospora*, *Cupressus*, *Thuja*, *Juniperus*, and *Yew*.

Awards.

Awards of Merit.

Begonia Caledonia, from Mr. J. FORBES, Hawick, N.B.
Antholyza æthiopica var. *vittigera*, from J. T. BENNETT-POLE, Esq., Cheshunt.

Violet Mrs. J. J. Astor, from Sir Trevor LAWRENCE Burford, Dorking.

Nerine Mrs. Godman, from H. J. ELWES, Esq., Colebourne Park, Glos.

Nerine Mrs. Berkeley, from H. J. ELWES, Esq., Colebourne Park, Glos.

Nerine Miss Willmott, from H. J. ELWES, Esq., Colebourne Park, Glos.

Medals.

Group of fibrous *Begonias*, from L. DE ROTHSCHILD, Esq., Acton (Silver-gilt Flora).

Group of *Conifers*, from Messrs. J. WATERER & SONS, Bagshot (Silver Flora).

Group of forty-eight cut Chrysanthemums, from C. E. SHEA, Esq., The Elms, Foots Cray (Silver Flora).

Group of *Nerines*, from H. J. ELWES, Esq., Colebourne Park, Glos. (Silver Banksian).

Group of *Violets*, from Mr. H. ROGERS, Rendlesham Hall, Woodbridge (Bronze Banksian).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. JAS. O'BRIEN (Hon. Sec.), J. Gurney Fowler, T. B. Haywood, J. Colman, J. Douglas, E. Hill, F. J. Thorne, W. H. Young, H. J. Chapman, J. Gabriel, E. Ashworth, A. H. Smee, C. J. Lucas, R. B. White, H. Ballantine, and J. Jacques.

The varieties of *Cattleya labiata* again formed a prominent feature of the show, a bright group of them being arranged by LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr., Mr. J. Hudson), and exhibited great variety of form, and some were unusually richly coloured, resembling in this respect *C. labiata* Warneri.

Mr. ED. KROMER, Bandon Hill, West Croydon, also showed a collection of fifteen distinct forms of his importation of *Cattleya labiata*, all of good quality, the slate-blue tinted *C. l. Kromeri* being a singular novelty. Mr. KROMER also showed *Cattleya granulosa gigantea*, a very large form, with flowers 6 inches across, and petals 1½ in. wide, of a clear bronzy yellow tint; lip rich purple (Bronze Medal).

Mr. JAS. DOUGLAS, Edenside, Great Bookham, showed a collection of cut spikes of *Cattleya labiata* of much merit, together with several *Cattleya Loddigesii*, *Cyclopogon Massangensis*, and *Aërides suavisimum* (Bronze Medal).

Messrs. HUGH LOW & CO., Bush Hill Park, Enfield, staged a group in which fine forms of *Cattleya labiata* predominated. In the centre of the group, a plant of the beautiful yellow *Cypripedium insigne* Laura Kimball was observed, and other noteworthy subjects were a grand specimen of the singular *Dendrobium Cyclopogon* with many curious purplish flowers; good forms of *Oncidium Forbesii*, *Catasetum callosum*, *Sobralia Lindenii*, *Lælio-Cattleya* x Novelty, &c. (Silver Banksian Medal).

R. BROOMAN-WHITE, Esq., Arddarroch, Garelochhead, showed about two dozen spikes of remarkably fine forms of *Odonoglossum crispum*, samples of over 200 plants in flower at Arddarroch. The type is a very fine one, varying from the large unspotted forms to those more or less blotched with red-brown. Two of the finest were *O. crispum* "Geraldine," a variety with handsome flowers, shaded with rose-pink, and blotched with reddish-brown, and *O. crispum* *xanthotes*, "White's" variety, nearly identical with the original in Baron Schroder's collection. The fine white flowers had a few light orange spots on the sepals, and the lip more profusely marked with blotches of dark yellow, but none of the brown markings usually seen on the species. The collection was awarded a Silver Banksian Medal.

ELIJAH ASHWORTH, Esq., Harefield Hall, Wilmslow (gr., Mr. H. Holbrook), showed an interesting collection of hybrid *Cypripediums*, including *C. x Wilmslowianum* (insigne *Chantini* x *Harrisianum* superbum); *C. x*, said to be between *Harrisianum* superbum and *Druryi*, but with more resemblance to *C. x Madame Jules Hye* (*Spicerianum* x *Salieri* Hyeumum), with a fine white dorsal sepal, having a heavy purple band up the centre, and a slight rose-coloured tint; *C. x* *Io grande* Charlesworthi, with rose-lined upper sepal; and *C. x* *Louisa* Fowler, Harefield variety (insigne var. x *Chamberlainianum*), the cross in both directions being shown. Mr. ASHWORTH also showed *Cypripedium insigne* var. "Geo. Ashworth," a very large flower of the ordinary type, and *Lælia pumila* Ashworthi, with white flowers slightly tinged with lavender, the front of the lip being slaty-blue, a near ally of *L. p. Lowi* var.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), showed *Cattleya Bowringiana* concolor, of an uniform pale-rose colour; a pretty light rose *Cattleya labiata*, and *Lælia pumila*, "Low's variety," with peculiar blue-tinted lip.

NORMAN C. COOKSON, Esq., Oakwood, Wylam, Northumberland (gr., Mr. Wm. Murray), showed a pretty hybrid *Lælio-Cattleya*, of unrecurred parentage, resembling *L. C. x Doria* (L. Perrini x *C. aurea*). The fragrant flowers were pale rose, the front of the lip rose-purple from the base, running into very fine purple lines.

A. S. HITCHINS, Esq., St. Austell, Cornwall, showed *Cypripedium x Hitchinsii* (insigne ♀, Charlesworthi ♂), a pretty flower, in general characters resembling a small *C. x* *læcanum*, but with plain indications of *C. Charlesworthi* in it.

General GILLIES, Brynderwen, Uak, Monmouthshire, sent a fine spike of a good form of *Odonoglossum x Anderson-*

lanum, with cream-white flowers, flushed with yellow and spotted with chocolate colour.

A. H. SMER, Esq., The Grange, Hackbridge, showed a magnificent form of *Cattleya labiata*, resembling the darkest coloured C. L. Warneri; and a little green-flowered Orchid from the Amazon.

Awards.

Cattleya labiata.—Sent by LEOPOLD DE ROTHSCHILD, Esq., A. H. SMER, Esq., and R. I. MEASURES, Esq. Many fine forms of this useful winter-flowering Orchid have been Certificated, but not until the present meeting was the type so honoured (First-Class Certificate).

Cattleya labiata Gilmourie.—From Mrs. BRIGGS-BURY, Bank House, Accrington (gr., Mr. Wilkinson). A charming variety, of excellent form and substance, with pure white sepals and petals. The front lobe of the lip bore a velvety violet-purple blotch, surrounded by a broad, crimped, pure white margin, the tube being tinged with bright yellow. A very striking and attractive variety (First-Class Certificate).

Cattleya labiata alba Princess of Wales.—From Messrs. JAS. VEITCH & SONS, Chelsea. A most beautiful form, with broad segments, the flower being wholly pure white, with a slight yellow tinge in the tube, and a scarcely perceptible tinge of pink in the centre of the front lobe (First-Class Certificate).

Dendrobium Cologynae.—From Messrs. HUGH LOW & CO., Enfield. A fine plant of the species, often called Bulbophyllum Cologynae in gardens, was shown. It bore many large flowers of a whitish hue, heavily marked with purple, the front lobe of the lip being wholly purple (Award of Merit).

Fruit and Vegetable Committee.

Present: P. CROWLEY, Esq., J. CHEAL, E. SHAW BLACKER, W. WILKS, J. J. VEITCH, W. POUFART, A. F. BARRON, A. H. PEARSON, A. DEAN, S. MORTIMER, W. FARR, C. HERRIN, G. WOODWARD, G. WYTHES, F. Q. LANE, W. BALDWIN, E. G. NORMAN, W. J. SIMPSON, and W. H. DIVERS.

Mr. A. J. THOMAS, The Nurseries, Rodmersham, Sittingbourne, made a capital exhibition of Pears and Apples, the latter being of unusually large size generally, and glowing with brilliant tints. The Pears were likewise extremely fine specimens, especially those of Madame André Leroy, Beurré Luizet, Doyenné du Comice, Belle de Thou are, and Beurré de Fougerey. The dishes and varieties numbered 120.

The Duke of Rutland, Belvoir Castle, Grantham (gr., Mr. Divers), showed eighty-two dishes of Apples and Pears, mostly of good size and colour for that district, and remarkably free from blemishes. The collection contained some uncommon varieties, of large size and attractive exterior, namely Dewdney's Seedling, Bascombe Mystery, Castle Mayo, and Jenkinson's Seedling. Good examples of Prince Blamarck and Round Nonsuch were included. A fine looking Pear Jean Van Geert was observed.

Messrs. J. VEITCH & SONS, LTD., showed a cross between John Downie Crab and Cox's Orange Pippin, named Mr. Leopold de Rothschild. To all intents and purposes it resembles a Crab, but a pleasant-eating Crab. The tree is a prolific bearer, and the fruit small, and of a yellow tint.

Mr. W. ALLAN, gr. to Lord SUFFIELD, Gunton Park, Norwich, showed some General Todleben Pears, of enormous size.

Messrs. GEO. BUNYARD & CO., nurserymen, Maidstone, showed a new variety of Apple, under the name of Miss Phillimore, a flat, angular fruit, of a bright crimson colour on the sunny side, and yellowish-green on the opposite side.

Some excellent Cabbages came from the Society's gardens, but nothing which calls for special mention.

Miss BRETTON, Forest End, Sandhurst (gr., Mr. Handley), showed some capital, well-blanching Cardoons.

Awards.

Mr. A. J. THOMAS, nurseryman, Rodmersham, Sittingbourne, for forty dishes of Pears, and eighty dishes of Apples (Silver-gilt Knightian Medal).

ROYAL HORTICULTURAL SOCIETY'S GARDENS, Chiswick, Cabbages Early October, Early Eclipse, St. Martin's, Perfection, and Jubilant (Award of Merit).

His Grace the Duke of Rutland, Belvoir Castle, Grantham (gr., Mr. H. W. DIVERS), thirty-six dishes of Pears, and forty-six dishes of Apples (Silver-gilt Knightian Medal).

Messrs. G. BUNYARD & CO., Maidstone, Apple Mrs. Phillimore, raised from Cox's Pomona and Northern Greening (Award of Merit).

Mr. ALLAN, Gunton Park, for General Todleben Pears (a Cultural Certificate).

Miss BRETTON, Forest End, Sandhurst, Berkshire (gr., Mr. Handley), Cardoons (Cultural Certificate).

ROBERT LEIGH, Esq., Barham Court (gr., G. Woodward), Pears Emile d'Heyat (First-class Certificate).

WOLVERHAMPTON CHRYSANTHEMUM.

OCTOBER 31 and NOVEMBER 1, 2.—This Society held its annual exhibition on the above dates, being the first time that the exhibition has been extended for three days. The exhibition upon the whole was one of the best that the Society has yet held. The Chrysanthemum blooms were of large size, and good in colour. Fruit was plentiful and of good quality, and there was considerable competition in the classes for Vegetables.

For a group of Chrysanthemums, the 1st prize was awarded to Mr. G. BRADLEY, gr. to Miss FERRY, Wergs Hall, Wolver-

hampton; Mr. W. SHIRGLES, taking 2nd prize. These were good groups, but the one awarded 1st prize was remarkable for the heaviest blooms, and the group was the better arranged.

The class for groups of Chrysanthemums and foliage plants arranged for effect, brought four competitors: Mr. G. BRADLEY again taking 1st prize; the 2nd prize going to Mr. J. T. SIMPSON, gr. to C. T. MANDA, Esq., The Mount, Compton.

CUT BLOOMS.

For thirty-six incurved blooms, in not fewer than eighteen varieties, Mr. J. C. HUNT, gr. to PANTIA RALLI, Esq., Ashted Park, Leatherhead, Surrey, was awarded 1st prize; his flowers being of first-class quality throughout; Mr. GOODACRE, gr. to the Earl of HARRINGTON, Elvaston Castle, Derby, being a very close 2nd.

For thirty-six blooms of Japanese, the competition was very keen, Mr. T. S. VALLIS, Bromham, Chippenham, securing the 1st prize with blooms of Madame Carnot, E. Molyneux, J. Pockett, Phoebe, Mrs. Coombs, Mrs. Mease, T. Carrington, Jane Molyneux, Emily Towers, Graphic, E. Tabor, Mrs. J. Beisart, Mutual Friend, Fair Maid, Mons. Chenon de Leche, Pride of Madford, C. B. Hayward, Miss M. Underhay, Australian Gold, Mons. Hoste, Mrs. J. Lewis, Pride of Exmouth, Colonel Smith, Sov. D. F. Rosette, Lady Ridgway, E. Teichman, Louise, Madame Rivoire, Le Grand Dragon, Robert Powell, Madame Gustave Henri, Madame J. Bruant, Soleil d'Octobre, Mr. A. Barratt, and Mrs. W. Popham; Mr. GOODACRE again running a very close 2nd.

In the classes for twelve incurved distinct, and twelve Japanese distinct, Mr. GOODACRE was well to the fore in each case.

The prizes offered for the premier incurved and Japanese blooms went to Mr. J. C. HUNT, who showed a grand bloom of Duchess of Fife in the former, and a well-developed flower of Mrs. Mease in the latter class.

FRUIT AND VEGETABLES.

The fruit classes were well filled. For two bunches of Black Grapes, Mr. S. BREWELL, gr. to H. H. FRANCE HAYNES, Esq., Everley, Wellington, Salop, was 1st; while Mr. W. ASHWOOD, gr. to R. A. NEWELL, Esq., Adamant, Wellington, was 1st for two bunches of White Grapes.

Mr. C. KINGSCOTE, gr. to F. W. BRAMPTON, Esq., Brocken-cote Hall, Kidderminster, was 1st in the classes for three dishes of dessert and three dishes of kitchen Apples; while Mr. R. JONES, gr. to C. A. SMITH RYLANDS, Barford Hill, Warwick, was 1st for three dishes of Pears.

Vegetables were well shown, and in quantity.

MISCELLANEOUS.

Floral sprays, epergnes, and floral arrangements generally added greatly to the attractiveness of the show. Two of the local nurserymen put up a stand each of floral arrangements, the prizes for the same going to Mr. J. E. KNIGHT, of Tettenhall Nurseries, and Mr. R. LOWE, florist, of Wolverhampton, respectively.

NON-COMPETITIVE EXHIBITS.

Among these, Apples and Pears, from Messrs. T. RIVERS & SONS, Sawbridgeworth; twelve bunches of Grapes, from Mr. POOLE, Hill Grove, Kidderminster; baskets and bouquets of Chrysanthemums, from JONES & SONS, Shrewsbury; and a white sport from Begonia Gloire de Lorraine, from Mr. J. FORBES, of Hawick. G. W.

TORQUAY & DISTRICT GARDENERS.

OCTOBER 31 & NOVEMBER 1.—The above Society held their fifth annual Chrysanthemum and Fruit Exhibition on the above dates.

The groups of plants were very good, and the chief prize was secured by Mr. E. POPE, gr. to the Rev. A. B. WREY.

Mr. C. R. PROWSE, gr. to W. FORD, Esq., Edgelow, secured the Silver Medal of the National Chrysanthemum Society with thirty-six Japanese blooms.

Vegetables were extremely well shown, Mr. F. E. PEACOCK, gr. to P. W. BUSHBY, Esq., being 1st in a keen competition for collections.

Fruit was also well represented, and the chief honours were secured by Mr. T. WARREN, gr. to the Dowager Lady HALDOM.

Messrs. J. HOUSE, of Westbury-on-Trym, exhibited Violets.

Messrs. CURTIS, SANFORD & CO., LTD., showed a splendid collection of fruit and Chrysanthemums; and Messrs. W. ALLWARD, W. BURRIDGE & SONS, G. H. PEACOCK, and BROOKING BROS. were well represented. The local TECHNICAL GARDENING CLASS (Instructor, Mr. A. PIDGEON), exhibited vegetables; and Mr. W. B. SKALE had an attractive stand of Chrysanthemums and other plants, as well as fruit. Messrs. R. VEITCH & SONS, of Exeter, exhibited fruit and plants.

DEVON AND EXETER HORTICULTURAL.

NOVEMBER 2, 3.—The Fruit and Chrysanthemum Show, held on the above dates, was the 100th exhibition of the Society. The total number of entries compared favourably with those of former years, but the groups were fewer, and cut blooms more numerous. There were not so many honorary exhibitors as usual.

By reducing the groups from circles to half-circles, and placing these against the walls of the Victoria Hall, much space was gained. This was an advantage, for it is a noticeable feature in recent flower-shows that music is an important

factor in securing a good attendance, and where a good band is employed room for promenading must be found.

PLANTS IN GROUPS.

Chrysanthemums in pots, not fewer than eighteen varieties, arranged in semi-circular form, 14 feet by 8 feet, the back not to exceed 6 feet in height, quality of bloom to be the first consideration, effect also to be considered, Ferns and other small plants to be used as a border, W. BROOK, Esq., Parkerswell (gr., W. Bowland), was 1st with a fine lot of plants in fresh condition, and well balanced in colour. The arrangement might have been improved upon, and there were few dwarf Chrysanthemums in the group. Lady Duckworth, Knightleys (gr., W. B. Baker), was 2nd.

For a similar group, 10 feet by 6 feet, including fifteen varieties, Mr. T. KEEWICK, Peamore (gr., J. Abrams), was 1st; MARK FARRANT, St. Thomas (gr., T. Stark), was 2nd. To Mr. KEEWICK's group was awarded the N. C. S. Certificate many fine blooms being included in it.

For a miscellaneous group, 10 feet by 6 feet, with not more than twelve Chrysanthemums in it, Mr. BROOK was 1st, and LADY DUCKWORTH 2nd. Mr. BROOK's was nicely and lightly arranged.

CUT BLOOMS.

Thirty-six Japanese, distinct (open competition), Silver Cup and £3 as 1st prize. This was stoutly contested, and some very fine blooms were shown. The Cup went to H. HAMMOND SPENCER, Telmouth (gr., Geo. Foster). Amongst his best blooms, were Werther, Madame G. Bruant, Souvenir de Molin, Le Grand Dragon, Jane Molyneux, Marie Calvat, Madame Philip Rivoire, Mrs. J. W. Barks, N. C. S. Jubilee. The N. C. S. Certificate was awarded to this exhibit, and it was well worthy of the distinction. Mrs. DENNIS, Pilton, was 2nd.

For eighteen Japanese blooms, distinct, VINCENT STUCKEY, Langport (gr., J. Lloyd), was 1st; Mr. DENNIS was again 2nd; and for twelve Japanese, Mr. R. B. JAMES, Bideford (gr., R. Yeo), was 1st.

For six white blooms of one variety, Rev. E. E. HEATHCOTE, Rewe (gr., T. Tucker), was 1st with Madame Carnot; while for six yellow, one variety, Mr. HAMMOND SPENCER was 1st with Australian Gold.

The same exhibitor took premier place for six blooms of any other colour, with perfect specimens of Australia.

The 1st prizes for twelve incurveds and six incurveds were also secured by Mr. FOSTER.

CUT BLOOMS IN VASES.

Prizes of £2 and £1 were offered for the best three vases of cut Chrysanthemums, suitable for placing on a dinner-table. There were three competitors, but the judges withheld the 1st prize.

FRUIT.

Fruit was very well shown, and a notable feature in the exhibits was that, while many of the leading varieties of Apples and Pears were staged, few of the older varieties were found in the collections.

For three bunches of Black Alicante Grapes, Rev. H. CLARK, Exmouth, was 1st, with good bunches, carrying a fine bloom.

In Muscat of Alexandria (three bunches), 1st prize went to Rev. HAMILTON-GELL, Winslade (gr., G. J. Barnes); while 1st for bunches of any other sort went to Sir JOHN DAVIS, Bart. Creedy Park (gr., W. Seward), for fine fruits of Gros Maroc.

Mr. SEWARD also took Mr. JONES' special prize for three bunches, distinct varieties, with Gros Maroc, Black Alicante, and Lady Downe's Seedling.

APPLES.

Premier honours for a collection of thirty dishes of Apples, distinct, fifteen dessert and fifteen culinary, went to Sir JOHN SHELLEY, Bart., Shobrooke (gr., R. Mairs), but he was hard-pressed by Sir JOHN DAVIS. Size and colour were the predominant features in the first and second collections.

For the twelve varieties, Rev. E. G. HEATHCOTE was 1st, with fine Mère de Ménage, Peasegood's Nonsuch, Bramley's Seedling, Cox's Orange Pippin, Mannington Pearmain, and King of the Pippins.

Sir THOS. ACLAND, Bart., Killerton (gr., J. Garland), was 1st for six varieties, dessert, with exceptionally fine fruit of Mother, Red-ribbed Greening, Adams' Pearmain, Cox's Orange, Cornish Gilliflower, and Blenheim Orange Pippin; and he also took 1st for six culinary varieties, with Bramley's Seedling, Peasegood's Nonsuch, Lady Henniker, Waltham Abbey Seedling, Mère de Ménage, and Blenheim Orange Pippin. The Mère de Ménage staged by Mr. R. B. JAMES, showed wonderful colour; and the fruit of the same variety, staged for the best single specimen, won by Mr. W. SANFORD, Wellington (gr., S. Kidley), weighed 21 ounces. Cox's Orange Pippin, Cornish Gilliflower, King of the Pippins, Lane's Prince Albert, Court Pendu Plat, and Newton Wonder, were well shown in the single dishes. The prize for the best culinary variety went to Rev. HAMILTON-GELL, for Alfriston; and for the best dessert variety to Admiral PARKER, Delamore (gr., Mr. Selley), for King of Tomkins County. The best flavoured went, as usual, to Cox's Orange Pippin, staged by MARK FARRANT, St. Thomas.

PEARS.

Sir THOS. ACLAND was 1st for six dishes dessert and three culinary. Mr. Garland also took 1st for six varieties dessert, showing Beurré Bosc and Doyenné du Comice in fine form.

Mr. SLADE, Poltmore, in the single dishes, showed grand fruit of Doyenné du Comice; Mr. GARLAND, of Josephine du Malines; Mr. MAIR, of Beurré Bachelier; and Mr. BARNES, of Beurré Diel. The any other variety (dessert) was won with

Bourré Bachelier, and the culinary with Vicar of Winkfield; the best-flavoured going, as formerly, to Doyenné du Comice, shown by Mr. ABRAMS.

MISCELLANEOUS.

Dinner-table plants were unusually well shown, and the 1st prize was won by MARK FARRANT, and the 2nd by Lady DUCKWORTH.

TRADE EXHIBITS.

Messrs. ROBERT VEITCH & SON, Exeter, occupied the chief position, with a large collection of fruit, Chrysanthemums, and house plants, also showing La France, Amiral Avelon, Mrs. J. J. Astor, and St. Helena Violets. The FELDON NURSERY COMPANY, Sowton, had a collection of greenhouse plants and cut flowers; Messrs. HOGAN & SON, of Westbury-on-Trym, a good representative collection of Violets; and Mr. JOHN FORBES, Hawick, showed his white sport of Begonia—Gloire de Lorraine. Messrs. BUNYARD & SON, Maidstone, staged a fine collection of fruit.

BIRMINGHAM GARDENERS.

OCTOBER 30.—At a meeting held in the Athletic Institute, John Bright Street, Mr. W. B. Latham in the chair, Mr. H. T. MARTIN read a practical paper on "The Forcing of Vegeables."

There was a fair display of Perennial Asters in variety shown by Mr. W. B. CHILDS, florist, Acocks Green.

KINGSTON AND SURBITON.

NOVEMBER 9.—Held as usual in the large Drill Hall, Kingston-on-Thames, the present show looked small as compared with so many others held in smaller halls, where the exhibits are crowded. That much of the Society's former prestige has been lost there can be no doubt, the chief cause, doubtless, being found in the swarms of competing societies of a similar nature that have grown up all over the kingdom, and attracting exhibitors in every direction. There were but two miscellaneous plant groups, the President's 1st prize of 25 being taken by Mr. J. Locke, gr. to SWINFEN EADY, Esq., Weybridge. Table and berried plants were, as usual, plentiful; but specimen Chrysanthemum plants were notably absent.

The premier class for cut blooms was the new one for thirty-six Japanese. This has replaced the old cut bloom class. It brought five entries—all excellent flowers, the best, however, coming from Mr. W. Jinks, gr. to E. BRUCE, Esq., Walton; a superb lot of blooms, hard to beat anywhere. Mr. J. Hunt, gr. to PANTIA RALLI, Esq., Ashted Park, was a good 2nd; and Mr. F. King, gr. to A. F. PERKINS, Esq., Holmwood, was 3rd. Mr. King was, however, a good 1st with twenty-four incurved blooms, having both fine flowers and the best known varieties; Mr. Hunt was 2nd, with six incurved (one variety).

Mr. Bolton, gr. to Mrs. BLAKE, Coombe End, was 1st with good C. H. Curtis, the same variety and Lady Isabel coming 2nd and 3rd.

Mr. Mileham, gr. to A. T. SMITH, Esq., Leatherhead, had the best twelve Japanese. Mr. King the best twelve incurved Japanese, very fine flowers; and also was 1st with twelve reflexed or tasselled Japanese. Mr. Pead, gr. to W. S. BOND, Esq., Surbiton, being 2nd in both cases.

Mr. JINKS had a very fine dozen anemone Japanese; and Mr. Fisher, gr. to Madame NICHOLS, Surbiton, the best twelve trebles of single-flowered varieties, very fine flowers, rather too flatly shown.

There were numerous local classes, inclusive of table-decorations, baskets, bouquets, and similar decorative material.

The best four dishes of fruit came from Mr. LOCKE. Mr. W. Taylor, gr. to C. BAYER, Esq., Forest Hill, had the best Black Grapes in good Alicante, and excellent white in Muscat of Alexandria. Mr. J. Locke had the best six dishes of Apples in a large competition, and Mr. FORBES the best four dishes of Pears.

Large collections of Apples were shown by Mr. A. DRYAN (fifty dishes), prettily decorated with small plants and foliage; and by Mr. COOPER, gr. to Col. MOERTON, Stead House, Hampton Court; and Mr. WILL TAYLOR, of Hampton, had excellent examples of his outdoor Grape, Reine Olga.

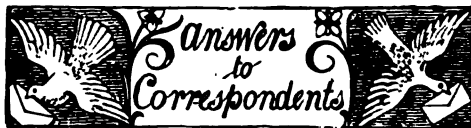
Mr. HAYWARD, florist, of Kingston, filled a large table with handsome decorative material very artistically.

WARGRAVE AND DISTRICT GARDENERS.

NOVEMBER 1.—At a fortnightly meeting of the above Society, held on the 1st inst., the President, H. F. Nicholl, Esq., being in the chair, a most interesting lecture was delivered by Mr. L. Trencher, F.G.S., of Twyford, on "The Story of a piece of Chalk."

The country for some miles round rests on a bed of chalk, and the lecturer repeatedly showed how gardeners and horticulturalists were affected by the presence of the chalk formation underlying their gardens, &c. The lecture was illustrated by means of a number of lantern views of maps and sections of the district, photographs of noted chalk hills, cliffs, and rocks, drawings and photos of the fossils found in the chalk, diatoms, foraminifera, radiolaria, &c.

NOTICE.—Owing to the great pressure on our space, many reports of Societies are being held over till next week.



BOOKS: *L. M.* You will find something of what you want in the supplement to Nicholson's *Dictionary of Gardening* (Upcott Gill), which may be had separately. Mr. B. Daydon Jackson has in the press just the book you want. We believe it will be issued before the end of the year.

CAPE PLUMS: *C. J. W. G.* Probably a *Diospyros*; the fruit must be bletted like a Medlar before eating.

CATTLEYA LABIATA: *E. C. H. P.* A very fine variety.

FUNGUS ON LARGE BEECH TREE: *R. P.* Washing with the Bordeaux Mixture might be efficacious if you possess a fire engine with which to spray it all over the tree twice or thrice whilst the tree is bare of leaves.

GERMINATION OF MUMMY WHEAT AND PEAS: *S. W.* Not supported by trustworthy evidence.

INSECTS, &c.: *R. P.* 1, There are two different things, the red fungus is a Nectria; 2, an insect, *Chermes fagi*, allied to the American blight of Apples (see answer to *R. P.*); 3, scale insect on Pear, cut out and burn all the affected wood.—*J. W., Scotsman.* *Pulvinaria* (*Coccus*) *flocciferus*, Westwood, ♀. Your plant is in a hopeless condition. Cut down close, and carefully sponge the remaining wood with soap-and-water. Burn infested leaves and branches which have been removed. *R.*

INSECTS ON BEECH: *R. P.* Pump Paris Green or Petroleum emulsion over the tree, using a spray pump. You should place some absorbent material round the base of the tree, and for some distance around, so that but little of the dressing gets to the roots. The smoke from large smoulder heaps of rubbish if kept burning for a day or two would extinguish a great deal of insect life.

LIME RUBBISH: *J. Bean.* Excellent for incorporating with the soil of the fruit-tree borders everywhere, especially those which will be planted with stone fruits. It may be stored for future use with Vines in borders and pots, orchard-house trees, and various species of pot plants.

MUSHROOMS GROWING IN THE WINTER: *C. B.* Cannot be done without stable-manure.

NAMES OF FRUITS: We are most desirous to oblige our correspondents as far as we can, but we must request that they will observe the rule that not more than six varieties be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. They should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.—*G. P.* 1, Fig is the variety D'Agén; 2, Brunswick. The D'Agén is one of the finest late varieties.—*A Subscriber.* 1, Melrose. The spots are the indication of a disease termed Apple scab, which is caused by the attacks of a fungoid parasite known as *Fusicladium dendriticum*, which usually also attacks the leaves. The best method of dealing with it is to spray with diluted Bordeaux Mixture two or three times, once before the flowers open, after they have fallen, and while the fruits are quite small; 2 is Winter Greening.—*A. M.* 1, Golden Spire; 2, Holland Pippin.—*A. B.* 1, Tower of Glamis; 2, Hawthornden.—*Old Subscriber.* 1, Cockle Pippin; 2, Royal Russet; 3, Isleworth Crab; 4, Pomme Grise; 5, Winter Greening; 6, specimen quite unfit for identification.—*C. W. S.* We cannot identify your Apple; possibly it is a local variety. Certainly it is not Lemon Pippin, which you will find accurately illustrated in outline in the late Dr. Hogg's monograph of the Apple.—*J. E. W.* 1, Irish Reinette; 2, Manks' Codlin; 3, De Neige; 4, Calville Blanche d'Hiver; 5, Pomeroy (Lancashire); 6, Hollandbury.—*G. H.* 1 and 4, quite rotten; 2, Sucrée Verte; 3, Belle Julie; 5, Cobham.—*G. S.* Apple Harvey's Wiltshire Defiance; 1, Doctor Nelis; 2, a bad specimen, not recognisable.—*W. R. Preston.* 1, Fall Pippin; 2, Early Nonpareil; 3, Comte d'Egmont.—*R. G. J.* 1, Scarlet Nonpareil; 2, Chester Pearmain. The Pear was marked through being

over-ripe.—*C. G. N.* 1, Adams' Pearmain; 2, Scarlet Pearmain; 3, not known; 4, Pigeonnette; 5, Rymer; 6, Golden Winter Pearmain.—*B. O.* 1, Smart's Prince Arthur; 2, Lord Derby; 3, Cobham; 4, Loddington; 5, Scarlet Crofton; 6, Reinette Grise.—*W. J. W.* Only one fruit was received, and that was in a partly-decayed condition, and consequently quite unrecognisable.—*Oakdale.* 1, New Hawthornden; 2, Northern Greening; 3, Lemon Pippin; 4, unknown, probably local; 5, decayed and smashed; 6, Flushing Spitzenburgh.—*T. S., Wills.* 1, Handwell Souring; 2, Piles' Russet.—*W. S.* The fruits were so much damaged in transit, owing to the breakage of the package, that we could not identify them.—*J. T.* 1, Golden Spire; 2, Greenup's Pippin; 3, Green Tiffing; 4, Yes, it is Lord Suffield. We have seen many similar twin fruits this year in various stages of union. *H. F.* They have been previously dealt with.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*Heinrich Henkel.* *Aster grandiflorus*, L.—*J. V. S.* *Vitis Thunbergi*.—*T. H.* *Acer dasycarpum*; sometimes called *A. eriocarpum*.—*W. W.* *Crataegus coccinea*; not *Pyrus sorbus*. *Bulbophyllum crassipes*, Hook. f., *Bot. Mag.* t. 4166 (as *B. Careyannum* which it is not).—*Mac.* 1, not found; 2, *Dracena Sanderiana*; 3, *Codiaeum* (*Croton*) *cornutum*; 4, *C. Evansianum*; 5, *C. Mortii*; 6, *Chimonanthus fragrans*, so far as we can tell by the leaf only.—*R. N. H.* *Dendrobium Cologynae*, often called *Bulbophyllum Cologynae* in gardens.—*S. H., Suffolk.* 1, *Codiaeum* (*Croton*) *Nestor*; 2, *Lady Zetland*; 3, *Etna*; 4, *Anitiminensis*; 5, *Hammondi*; 6, *Queen Victoria*.—*H. F.* 1, *Agrostis alba*; 2, *Bromus sterilis*; 3, *Bromus arvensis*; 4, *Centaurea nigra*; 5, Not recognised; 6, *Bromus* sps.—*C. W.* 1, *Pyrus terminalis*; 2, *Spiraea* sps.—*E. Y. and Cestrian.* *Euonymus europæus*, Spindle-tree.

POTATOS: *H. T. C.* The tubers sent exhibit a stage of the true Potato disease, described and figured in these columns in 1891 (vol. ix., pp. 361, 362, and 363) as *Phytophthora infestans*.

SCALE INSECTS ON PEAR TREE: *R. P.* You will find that a smothering mixture of adhesive clay, lime, cowdung, and sulphur, made of the consistency of thick paint, better than all the washes recommended. The work of painting the tree with this mixture must be thoroughly done, and may need repeating before the spring.

STEPHANOTIS GRANDIFLORA: *T.* Let the plant rest for, at the least, a period of three months. We will give fuller directions in our next.

TREATISE ON FERN PROTHALLI: *F. T. G.* Apply to the secretary of the Royal Society, Burlington House, Piccadilly.

VARIETIES OF CHRYSANTHEMUMS: *J. A.* We have no exact knowledge, but there must be many hundreds all told, although the first favourites in all sections may not number 200 varieties. Old ones are being constantly superseded by improved forms, and cease to be grown.

COMMUNICATIONS RECEIVED.—*W.*, Colchester.—*J. H. W.*—*J. W.*—*W. K.*—*D. T. F.*—*A. O'N.*—*S. A.*—*H. A. P.*—*H. W. W.*—*H. T. M.*—*H. H. T.*—*E. C.*—*Dr. U. D.*, Berlin.—*J. H.*—*R. Y. S.*—*A. D. H.*—*J. Brox.*—*T. R.*—*A. B.*, Jersey.—*Prof. Church.*—*W. B. H.*, Cork.—*Prof. Cogniaux*, Verviers.—*G. C.*—*H. G. B.*—*H. R. W.*—*C. B.*—*A. P. H.*—*J. A. W.*—*H. G. B.*—*W. J. S.*—*Enigma.*—*Don.*—*G. B.*—*S. S.*—*A. R. H.*

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—*Sir T. L.*—*H. R. W.*

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardener's Chronicle" has, since the reduction in the price of the paper,

☛ TREBLED. ☛

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets and Weather, see p. xii.)



THE Gardeners' Chronicle

No. 873.—SATURDAY, NOV. 18, 1899.

THE ENGLISH TULIP.

THE advent of Lord Mayor's Day brings round once more the time when the orthodox florist of the old school planted his show Tulips, always in rows of seven, making the three colours, bizzarres, roses, and byblomens, run in a sort of herring-bone pattern across his bed. It is to be hoped that this delightful fancy will soon receive some new recruits. The Rose and the Carnation never had more adherents than they now possess; the Auricula keeps its position well, but the Tulip, once the very height of the florist's aspirations, is still in the "winter of its discontent," and has only a few devotees still engaged in handing on the treasures they received from their forbears to a new generation.

The causes of this decline are not far to seek; florists generally have been rather under a cloud for the last few years. A race of gardeners has arisen who regard flowers as a more or less untrustworthy means of decorating gardens, instead of gardens as a place in which to grow flowers. Then there are very few indeed among ordinary working gardeners who have the patience or the carefulness required to keep a Tulip collection in order—the best of the work must be done by the amateur himself. The difficulties of purchasing completed (if they did not begin) the disfavoured that fell upon the show Tulip—an uncertain flower at the best, this very unsteadiness enabling the unscrupulous seller to palm off worthless strains with big names, or even to introduce old sorts under high-sounding aliases.

What the Rose-grower admires at a show he can be sure of buying, but the Tulip-fancier might give a long price for something that had been magnificently exhibited, and never get a bloom fit to be seen.

Tulips are unstable enough yet, but there are now a good many sorts that may be trusted to do their duty year by year; nor are they dear or difficult to obtain since Messrs. Barr have formed their great collection at Long Ditton. The amateur who wants to try his hand at Tulip-growing should confine his attention to a few sorts, and pay a little extra to get the best strains; in a few years he will have plenty of increase, and if his keenness grows, he will not then have to throw away a lot of wasters.

There are three main classes of Tulips—bizzarres: yellow grounds, marked with red, brown, or black; byblomens: white grounds, marked with purple or black; and roses: white grounds, marked with various shades of red or scarlet; and in each class are several sturdy, vigorous kinds, which furnish most of the prize-winners every year.

Such are among bizzarres: Samuel Barlow, still rather dear, but the most superb of all Tulips; Sir Joseph Paxton (get the good strain), and Dr. Hardy; among byblomens, Adonis, Chancellor, and Talisman; and among roses, Annie McGregor, Aglaia, and Mabel.

With these alone a young grower would be able to show and win.

There must be a future yet for the Show Tulip; it is essentially the hobby for the man with a small garden, who likes to do most of the work himself. Two beds, 12 yards long by 4 feet wide, will hold 1000 Tulips. Even if a man has to dig the whole of this over himself, it is no very big job; and once planted, though plenty of attention is wanted, the work is light. Again, the Tulip is perfectly hardy, and wants no coddling against cold or rain; it will do well on most soils, and will stand the smoky atmosphere of a town. One of the best collections in England is grown on a hillside in south-east Lancashire, where every tree has long since given place to a factory chimney—a very inferno—where the grass grows wearily, and even the wayside nettle has succumbed. Of course, the Tulip wants care and protection when in flower, but so does any flower that is to be perfect for showing; and the large cup of the Tulip in bloom at the end of May is particularly open to attack by hail or driving rain, though even then it is not one tithe so tender as a Rose.

But the show-table is not the be-all and end-all of Tulip-growing, though showing gives the stimulus that keeps the florist up to his best. The charm of the Tulip is in the flower itself, a charm that is not flung at you, that wants learning; but, once possessed, a charm that makes other beauties common.

The casual gazer prefers the glow of a Geaneriana, or the curious splendour of a parrot Tulip, especially if his aesthetic development has passed from primitive formalism to the picturesque stage—the one is "quaint," the other "intense;" he will appreciate the grace of the show Tulip when he reaches the ultimate haven of pure "form." Then he will feel its suave curves and subtle markings, the exquisite sympathy of contour and colour that marks Nature's intentions fully wrought out. The whole art of the florist is to bring to their highest term the natural inclinations of a flower towards symmetry and form.

The Tulip has had its palmy days, but the best have yet to come; few as are its lovers, there are some of us raising seedlings year by year, determined that the next generation shall see the perfection, that comes and goes from our present-day flowers, a settled inheritance of the new races. A. D. H.

NEW OR NOTEWORTHY PLANTS.

LÆLIO-CATTLEYA × SANTIAGO.

THIS is the name of what appears to be a new hybrid raised by Henry A. Clinkaberry, gardener to C. G. Roebing, Esq., of Trenton, New Jersey, U.S.A. The recorded parentage is as follows:—L.C. × Hippolyta var. Phoebe × Cattleya intermedia var. Parthenia. The flowers bear a striking resemblance to those of L.C. × intermedia flava. In the latter the perianth organs are a trifle more slender, tinted with pale yellow. However regarded, the new hybrid shows the strong influence of C. intermedia. *Oakes Ames*, in "American Gardening," October 14, p. 700.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM HARRYANUM.

THIS pretty and fragrant Odonoglossum, so distinct in form from all others, first flowered with Messrs. Jas. Veitch & Sons, in August, 1886, but seems to have never been so well represented in

collections as it deserves to be. It is one of the easiest to cultivate, and most free to flower of any of the genus. A flower of a very fine form of the plant is sent by Mr. W. T. Gould, Rose Mount, Hayfield, near Stockport. The bloom in question is large, well formed, and richly coloured, the yellowish sepals and petals being heavily marked with a dark purple tint, and the broad, white lip, with its singular-looking crest is prettily marked in the centre with violet colour. J. O'B.

THE THRUSH, BLACKBIRDS, &c.

WHY these two are classed together on the same level as garden friends or foes I know not, for they are very distinct in their habits, one also being much more serviceable than the other. The blackbird is one of the most destructive birds in the fruit-garden, which it frequents in considerable numbers, while the thrush is a more solitary bird, very seldom more than two being seen together. Generally only one pair occupies a certain radius, and any thrush intruder is at once fought, and mostly soon driven away. The blackbird will eat Apples, Plums, Pears, Figs, Gooseberries, and Strawberries in quantity; while the thrush seldom touches Apples, Pears, and not often Plums. And so little harm do they, and so much, so very much good, that I for one most devoutly wish that more than a pair would visit my garden. I know that young blackbirds, being light-coloured, and spotted on the breast, are often mistaken by casual observers for the song-thrush, and have had them sent to me as such. Early and late, for more than sixty years, I have watched the habits of the thrush, and can safely say that few birds render so much good service. Not so with the blackbird; he is a most voracious fruit-eater. I have had this year nearly the whole of my crop of Plums eaten, or damaged by them. Not like the thrush, they are so plentiful, that one week at my old garden my gardener caught over forty under the nettles, &c.; and here I have counted six or eight together at early morn—rather more, than fewer—tasting my Apples, &c. Nor does the blackbird eat snails as the thrush does, nor slugs, but, like it, he loves a worm. I have watched the blackbirds busy among my Gooseberry-bushes, rapidly lessening the quantity of fruit, and this while a thrush near-by was cracking the shell of a snail. I quite agree with Mr. Hart, that the thrush is a gentle, innocent bird, and that he does not attack large fruit—at least, such is my experience. Of course, there is no rule without an exception; birds feed differently in very dry and hot weather, but as regards the thrush, I have never had enough in my garden, while of the blackbird there have always been far too many. Again, the thrush will sing eight months of the year, and the blackbird only three. *Harrison Weir, Sevenoaks.*

TOMATOS AS A FIELD CROP.

HAVING devoted much time, study, and practice to the cultivation of the Tomato in the open-air for some years past, I may, perhaps, be allowed to add a few remarks to your article on the subject on p. 257.

There is no doubt whatever that in fine, warm, and comparatively dry summers, such as we have experienced for the last four or five years, Tomatoes may be successfully cultivated in the open air, with little or no shelter or protection of any kind, and that under such conditions the plants produce their fruit in abundance, and will even ripen the greater part of it, with much less care and trouble (and consequently less expense) than in the case of plants grown under glass. Moreover, when good results are thus obtained from plants in the open air, and these are grown on a considerable scale, the venture becomes an exceedingly profitable one, as will be readily seen from reckoning the returns from, say, a single acre of land under this crop. Supposing the plants to be set out in rows 3 feet apart, with a distance of 18 inches between them, which I con-

sider a very suitable distance, the acre will accommodate nearly 10,000 plants; but, allowing for failures, &c., we will say 9,000. Supposing these to produce an average crop of 5 lb. of fruit apiece, this being a very safe estimate, and the entire crop to be disposed of at the low price of 2d. per lb., the total receipts would amount to no less a sum than £375! But, as every practical man knows, the actual returns never amount to as much as they work out on paper, and yet even half or two-thirds of this sum ought to leave a very respectable margin of profit.

But to descend from the theoretical to the more practical side of the question. As a matter of fact, the whole thing hinges upon the character of the summer experienced, and this, unfortunately, can not be ascertained beforehand. If fine and dry, all will probably go well, and the venture will prove amply remunerative; but when cold and wet weather prevails, especially during the latter half of the summer, when the fruit should be ripening, it is most vexatious and disheartening to see all one's labour and expense wasted, with scarcely a possibility of preventing the loss. Intending growers should be prepared for such an emergency, which may occur again at any time.

About ten years ago, I described, and within certain limits recommended, in somewhat similar terms to those in your article, the adoption of the Tomato as a field crop in an issue of the *Mark Lane Express Annual*. But one or two wet summers followed, and wrecked the hopes of those who had given the system a trial; and when, a few years subsequently, I had the opportunity of putting out a considerable number of plants under fairly favourable conditions, another showery summer and wet autumn destroyed the crop almost entirely, and resulted in a loss instead of a gain. Last season, again, I planted out some hundreds of good forward plants (chiefly Early Eveham), and secured a really enormous crop of fruit, though the soil here is very unfavourable for the growth of Tomatoes generally, many plants carrying 10 lb. or 12 lb. a-piece, and some, more; but a sudden change to cold and wet weather towards the end of September, when the crop was at its best, induced a bad attack of disease, and spoiled nearly half the total yield. Could the plants have been protected by some means at that time the result would have been something extraordinary; but failing this, the only thing to be done in such cases is to cut the whole of the trusses entire, and finish them in a fairly warm greenhouse, or else to pull up the plants bodily, and hang them up in any warm, dry place until all the fruit that can ripen has done so.

The importance of getting strong, forward plants ready to be put out at the earliest possible date is of the utmost importance. Late or backward plants, though they may do well up to a certain point, and the summer may prove fine, are almost sure to get caught by the wet weather that usually arrives in August or September, and then the bulk of the fruit is spoiled. Even if it does not become diseased, the fruits decay round the stalk and drop off. I employ whenever possible good, stout plants in 5-inch pots, singly, with one truss set or setting, and one or two more expanding, and they ought to be ready to plant out in fairly warm and sheltered spots, on an early opportunity after the first week in May. Such plants soon get to work, and afford an early as well as an abundant crop, but to produce, say, 10,000 of such plants, requires an area of glass of something like 5000 sq. feet, exclusive of pathways, &c. or half-a-dozen houses of 100 feet by 12 feet each. These, however, could of course be utilised for growing another crop within them subsequently.

The plants must be supported by some means, for any fruit that touches the soil is sure to become decayed, diseased, or eaten by slugs, &c. On light, dry soils, and in a warm season, water will probably be required to some extent, and, as a rule, more so during the early part of the season while the plants are growing, than later on. A mulch of littery-manure laid over the roots, however, saves

a lot of labour in this direction, and benefits the plants greatly in other ways also.

Of all the varieties I have tried in the open air (and this comprises nearly the whole of the leading kinds), I have found nothing to equal, much less surpass, the Early Eveham. It is at once the hardiest, dwarfest, most prolific, and the surest setting variety in cultivation, and the only one of which I can say that I have never known a healthy plant to fail to set a single blossom naturally. I

The fruit is rough, certainly, but by carefully selecting the best plants for a few years, I have secured a type of which the bulk of the fruit is nearly as smooth as that of E. Ruby, and averages 3 or 4 ounces apiece. Trusses of 2 to 3 lb. apiece are quite common in this variety, and plants only 3 feet high will carry on an average five trusses each. Next to this variety, I find the old Large Red (selected), Ifield Gem, and Chemin Rouge, to afford the best results. B. C. R.

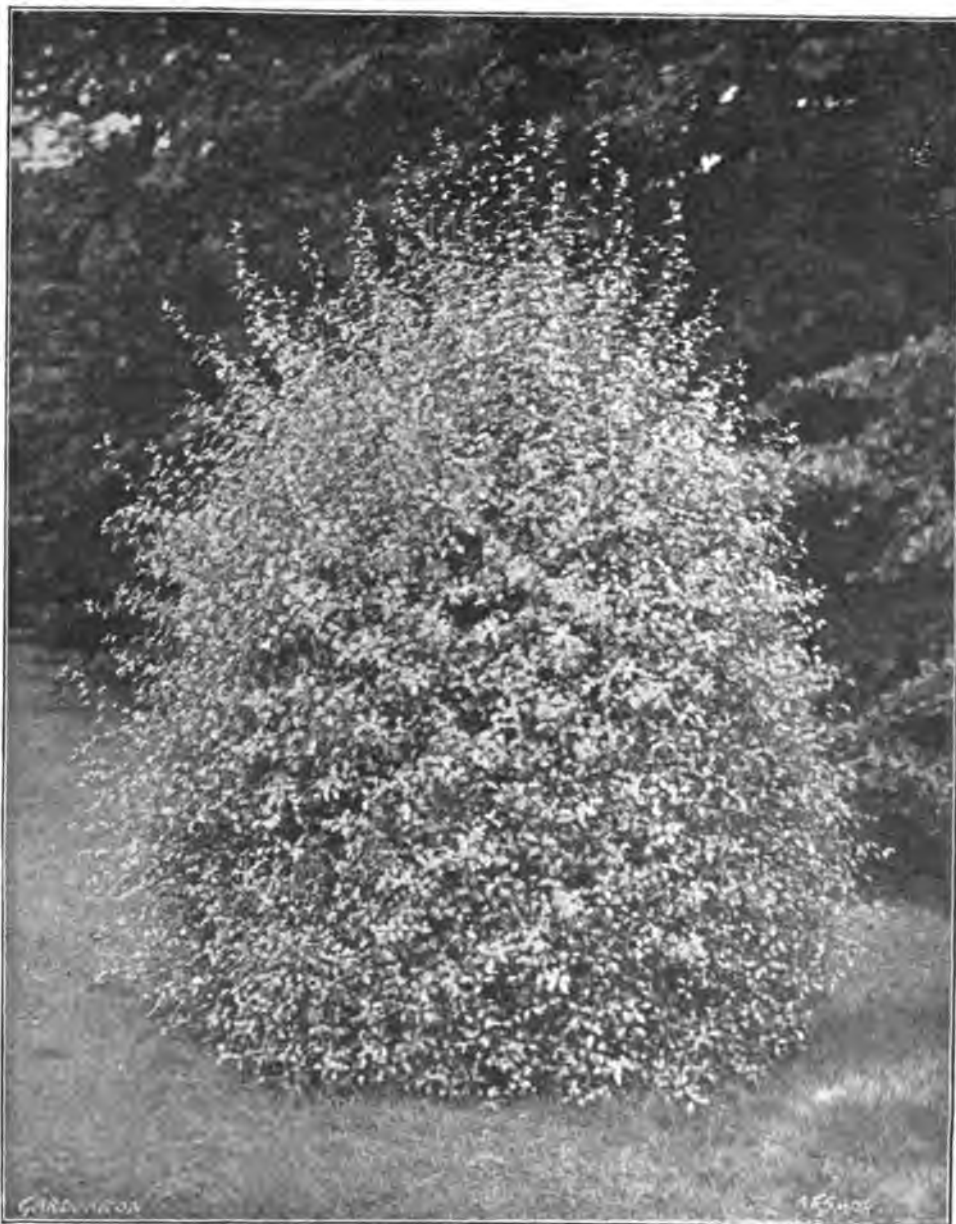


FIG. 120.—PITTOSPORUM COLENZOI, IN LORD ANNESLEY'S GARDEN, CASTLEWEILAN, CO. DOWN.

had a batch of it under glass a few years ago, and though the crop was very heavy, the fruit was too much corrugated, sutured, or "rough" for this purpose, but believing it to be admirably adapted for outside work I tried it in this way the following year, and with such excellent results that I have sworn by it ever since. One year I was tempted by some remarkably fine weather in April, to put out a few plants on a rather sheltered south border the last week in that month, but colder weather following, the plants were white with frost several times in the early mornings, but I sprinkled them with cold water, and they seemed none the worse, and fruited abundantly.

PITTOSPORUMS.

I OFTEN wonder why it is that these lovely shrubs are not more usually grown by lovers of plants. In a recent number Mr. Burbidge referred to the specimens in these gardens, where we have grown them in quantity for many years. I venture to send two photos, one of *P. Mayi* (fig. 121), which is the most common, and which we find perfectly hardy—in fact, we generally choose it for the most exposed situations; and one of *P. Colensoi* (fig. 120), not named after the Bishop, but after a forest conservator in New Zealand, and which is considered here one of the most beautiful plants in the garden. In

the month of May, when *P. Mayi* is covered with its purple flowers, on a still evening the scent is so powerful that you can detect it fully 30 yards away from the plant, and the bees come to it in thousands.

Nearly all of the *Pittosporums* are natives of the southern hemisphere, and they grow here with great luxuriance. In the terrible winter of 1895 we certainly lost a large plant of *P. eugenioides*, about 6 feet high, which the frost killed to the ground, but all the others were uninjured. The following are the varieties grown in the gardens here: *Pittosporum Buchanani*, *Colensoi*, *coriaceum*, *crassifolium*, *erioloma*, *eugenioides*, *P. e. variegata*, *floribundum*, *lucidum*, *macrophyllum*, *variegatum*, *Mayi*,

P. Balfouriana is kept up as a distinct species from *P. aristata*, the differential characters assigned to *P. Balfouriana* being the subcylindrical cones, $3\frac{1}{2}$ to 5 inches long, with scales furnished with minute incurved persistent spines. In *P. aristata* the cones are described as ovate, from 3 to $3\frac{1}{4}$ inches long, their scales furnished with long, slender, horn-like prickles. We have not seen any cones which could be fairly called intermediate, but the resemblance is so close, that it is a matter of opinion whether the two should be kept separate or united. The cone scales of *P. Balfouriana*, as represented in Sargent's figure, are broadly ovate acuminate, whilst in *P. aristata* they are represented as sub-orbicular, with a long, slender horn.

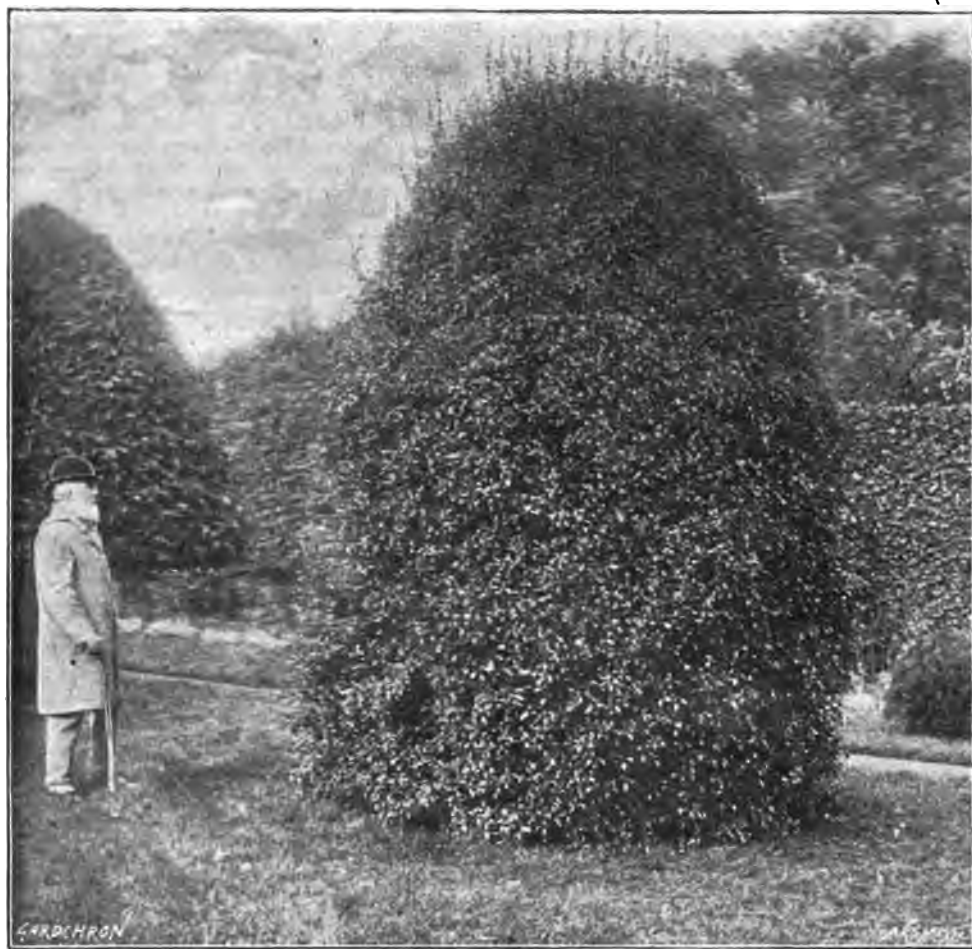


FIG. 121.—*PITTOSPORUM MAYI*, IN THE GARDENS, CASTLEWELLAN.
(SEE P. 370.)

nigrescens, *Ralphii*, *rhombifolium*, *rigidum*, *tenuifolium*, *Tobira*, *P. T. variegatum*, *undulatum*, *phyllyræoides*. *T. Ryan*, *The Gardens, Castlewellan*.

TREES AND SHRUBS.

PINUS BALFOURIANA VAR. *ARISTATA*.

We are indebted to Mr. Croucher, of the Ochtertyre Gardens, near Crieff, for specimens of the cones of this tree. We have already given an illustration of the cones, which we have taken to be a variety of *Balfouriana*. But since that time, Professor Sargent has enriched the literature of the subject by his superb work on the *Silva of North America*. The eleventh volume of that publication (published in 1897) is devoted exclusively to the American species of *Pinus*. We note that in it

P. Balfouriana grows on rocky slopes and ridges on Scott Mountain, California; in similar situations near the head of the Sacramento river, and on the southern slopes of the Sierra Nevada, growing with *Pinus contorta* or *Pinus monticola*. *P. aristata* is said to occur on the Rocky mountains of Colorado, southern Utah, central and southern Nevada, southwest California, and north Arizona, mixed with *Pinus flexilis* and *Picea Engelmanni*.

P. aristata, as grown in British gardens, is remarkable for its short, curved, brightly-coloured leaves, in fascicles of five; the fascicles being themselves densely clustered in rounded masses, with intervals between the clusters, thus producing a beaded appearance.

We are not sure that we have ever seen the true *Pinus Balfouriana* in British gardens; the specimens we have under that name might well be those of *P. aristata*. There are some differences in the

number and position of the resin canals; thus in most of the specimens named *aristata*, there is but a single resin canal in the centre of the dorsal surface, whilst in specimens called *Balfouriana* the number of resin canals is variable. Until cones are produced, it is not possible to give a satisfactory opinion upon specimens sent. *M. T. M.*

THE HERBACEOUS BORDER.

HYPERICUM HUMIFUSUM.

THIS is the name of a little native St. John's-wort, which those who observe flowers in their country walks have often seen growing by the roadside, on rather bare, grassy banks. It is a prostrate evergreen perennial, botanically speaking, a shrub, that is to say it never dies back or loses any of its growths, and having only one root-stem, it covers a larger area every year with its leaves and branches. It also multiplies rapidly by self-sown seedlings. I have given this description because I have found it the best out of many plants I have tried for covering the surface of the soil where delicate and weak bulbs are grown, as it both prevents caking and anticipates the growth of that bane of wet soils, the *Marchantia*. The veil it makes is so thin, and so easily pierced, that anything can grow up through it, though the soil below continues clean and free from moss and lichen. The Himalayan St. John's-wort, *H. reptans*, might be used in the same way if sufficiently hardy to resist cold winters in the open border, but it is not so in my garden. At least a dozen dwarf carpeting plants might be named as apparently suitable, amongst them *Erinus alpinus*, *Mentha Requieni*, *Arenaria balearica*, *Veronica repens*, but there are objections to all of them. Some of the dwarf mossy *Saxifrages* have been recommended, with the suggestion that they support the flowers of those bulbs which come out before their leaves; but where slugs are as common as they are at Edge, these plants afford them a nice shelter, under which they feed upon the flower-buds of the bulbs as fast as they rise through the soil. The next best covering to the *Hypericum*, especially where a larger surface has to be covered quickly, is *Acæna microphylla*, or another species of similar habit, but prettier in its colouring, *A. Buchanani*. These do not seem to shelter slugs much, and cover large spaces on some of my borders without doing any harm. *C. Wolley Dod*, *Edge Hall, Malpas*, Oct. 29.

THE CHEMICAL COMPOSITION OF MEADOW-GRASS.

THE experiments were commenced in 1856, and are still in progress, so that the present is the forty-fourth year of their continuance. There are about twenty plots, two of which have been continuously unmanured, and the remainder have respectively received different descriptions or quantities of manure of known composition. A report on the "Agricultural Results" was published in the *Phil. Trans.*, Part I., 1880; and a second on the "Botanical Results in the *Phil. Trans.*, Part IV., 1882. The present paper deals with a portion of the "Chemical results."

In all cases, of both first and second crops, the dry matter and the ash, and in most the nitrogen, have been determined. In selected cases determinations have been made of the amount of nitrogen existing as albuminoids, and in some of the amount of "crude woody fibre," and of crude fatty matter. More than 200 complete ash analyses have also been executed.

It was found that the chemical composition of the mixed herbage was very directly dependent, not only on the seasons and on the supplies within the soil, but very prominently also on the description of plants encouraged, and on the character of their development; so that it was essential to a proper interpretation of the variations in the chemical composition, to bear in mind the differences in the botanical composition. Hence a summary table was given showing the characteristic differences in the botanical composition under the different conditions as to manuring, the influence of which on the chemical composition it was sought to illustrate.

As the investigation involved the consideration of the chemical composition of the mixed produce of about twenty plots over forty or more seasons, including the discussion of the results of more than 200 complete analyses of the ashes of the separated or the mixed herbage, attention was called to the state of existing knowledge as to the rôle or function in vegetation of the individual constituents found in the

ashes of plants; and this was seen to be very imperfect. Further, in calculating the percentage composition of the "pure ash," the plan usually adopted was to exclude not only the sand and charcoal, but also the carbonic acid. The authors considered, however, that the presence and the amount of carbonic acid associated with the fixed constituents in plant-ashes was a point of considerable significance, and they entered into some detail as to the methods of determining the carbonic acid in ashes, and as to the results obtained.

In order to throw some light on the connection between the growth of the crops and their mineral composition, results relating to the separated gramineous, the separated leguminous, and the separated "miscellaneous" herbage of the mixed produce, grown without manure and by different manures, were first discussed. To obtain more definite evidence illustrating the connection between character and stage of growth, and the composition of the products—especially the ash-composition—results relating to the Bean-plant, taken at successive periods of growth, and also to the first, second, and third crops of Clover, were next considered. Lastly, in further illustration, results as to the nitrogen and the ash-composition of crops of three different natural orders—Wheat representing the Gramineæ, Swedish Turnips the Cruciferae, and Beans and Clover the Leguminosæ—were given.

The general result was, that there were very characteristic differences in the composition of the ashes of different crops according to the amounts of nitrogen they assimilated. Red Clover, for example, yields large amounts of nitrogen over a given area, part of which is due to fixation, but much is certainly taken up as nitrates from the soil; and the results show, that the greater the amount of nitrogen assimilated, the more is the ash characterised by containing fixed base in combination with carbonic acid; presumably representing organic acid in the vegetable substance before incineration. The conclusion was that, independently of any specially physiological function of the bases, such as that of potash in connection with the formation of carbohydrates, for example, their office was prominently also that of carriers of nitric acid, and that when the nitrogen had been assimilated, the base was left as a residue in combination with organic acid—which was represented by carbonic acid in the ash. Further, existing knowledge—as to the condition in which combined nitrogen is found in soil waters, as to the action of nitrates used as manures, as to the presence of nitrates in still-growing plants, and as to the connection between the nitrogen assimilated, and the composition of the ash as had been illustrated—pointed to the conclusion that, at any rate a large amount of the nitrogen of the chlorophyllous vegetation on the earth's surface was derived from nitrates; whilst, so far as this was the case, the *raison d'être* of much of the fixed base found in the ashes of plants would seem to be clearly indicated.

The various results and conclusions above referred to were found to afford material aid in the interpretation of the differences in the chemical composition of the mixed herbage of the different plots which was next considered, so far as the first crops over the first twenty years were concerned.

For the purposes of the illustrations the differently manured plots were arranged in four groups as follows:—1. Plots without manure or with farmyard manure. 2. Plots with nitrogenous manures alone. 3. Plots with mineral manures alone. 4. Plots with nitrogenous and mineral manures together. Average results for each plot, generally for a period of eighteen years, 1856-1873, and including the percentages of nitrogen, crude ash, and pure ash, in the dry substance of the produce; also the percentage composition of the pure ash were brought together in a table, and are discussed in detail. The close dependence of the chemical composition of the mixed herbage on its botanical composition, and on the character of development of the plants, was throughout illustrated. It was further shown, that the mineral composition of the mixed herbage was very directly dependent on the supplies available to the plant within the soil. Indeed, when it was considered that the mixed herbage of permanent grass-land includes plants of very various root-range and root-habit, and that some of them vegetate more or less almost the year round, it was not surprising to find that the composition of the produce was, upon the whole, a somewhat close reflection of the available supplies within the range of the roots. It was, in fact, much more so than in the case of individual crops grown separately. Within certain limits, this was the case even with the constituents of, so to speak, less functional importance than those which more obviously determined the description of plants encouraged and the character of their development. It was at the same time obvious, that when the more functionally important constituents are available in relative abundance, those which are of less importance in this respect were taken up and retained in less amount than they otherwise would be; the result being determined in great measure by the character of growth induced.

For example, if potash be liberally available the produce is much more stemmy, and the amount of soda, of lime, and to some extent of magnesia also, will be less relatively to the potash. In defect of sufficient potash, on the other hand, more of soda, or of lime, or of both, will be taken up and retained; but the herbage will at the same time be more leafy and immature. That is to say, the constituents are not mutually replaceable in the processes of growth, but accordingly as the one or the other predominates, so will the product of growth be different.

There can be no doubt, that luxuriance or vegetative activity is intimately associated with the amount of nitrogen available and taken up. Further, it may be stated that chlorophyll formation to a great extent follows nitrogen assimilation. But the results relating to the increased amount of non-nitrogenous substance yielded in the mixed herbage under the

influence of the various manures clearly indicated that the nitrogen being taken up, and the chlorophyll formed, the carbon assimilation, and the carbohydrate formation, depended essentially on the amounts of potash available. It may be stated as a matter of fact that, in practical agriculture, artificial nitrogenous manures are chiefly used for crops containing a comparatively low percentage of nitrogen in their dry substance, and yielding comparatively low amounts of nitrogen per acre. Indeed, they are mainly used for the increased production of the non-nitrogenous bodies—the carbohydrates—starch and cellulose in the cereals, starch in Potatoes, and Sugar in the Sugar-cane and in root crops, for example. And now, in the case of the mixed herbage of grass land, it was seen that, provided the mineral constituents, and especially potash, were abundantly available, a characteristic effect of nitrogenous manures was to increase the production of the non-nitrogenous bodies. *Sir J. B. Lawes and Sir J. H. Gilbert in "Proceedings of Royal Society, 1899."*

CARDIFF CASTLE GARDENS.

THE following remarks refer to a few features in these gardens that impressed me during a recent visit there:—

The Apple-trees, which have been planted twenty years, and are upon the Crab stock, may best be described as large bushes; they are chiefly planted by the sides of walks, enclosing the vegetable quarters, and are about 15 feet in height, whilst their lower branches have a spread of about 22 feet in diameter. A remarkable feature of these trees is that their branches are clothed, almost the whole length, with fruit-bearing spurs. The lower spurs have been retained in vigour by keeping the branches sufficiently thin to allow the sun and light to penetrate into the centre of the trees. I was not surprised that Mr. Pettigrew was unable to conceal his pride in these grand trees. The fruit at the time of my visit had been gathered, but I saw it in the fruit-room, and its quality was excellent. The following varieties were most prominent:—Cox's King, Ribston, and Blenheim Orange Pippins, Warner's King, Reinette du Canada, Rymer, Alfriston, Wellington, Beauty of Kent, and Bramley's Seedling.

The fruit in the earlier vineries had been exhausted, but amongst the later Vines the Alicantes were very noticeable. The house is span-roofed, 60 feet long by 24 feet wide, and 20 feet high. The Vines, which were planted sixteen years ago, differ from each other to the extent that some are confined to one rod, and others have as many as seven. But this circumstance has no apparent effect upon the crop, which is a remarkably good and even one throughout the house. The bunches were symmetrical in shape, and were composed of large berries, well finished in point of colour and bloom. The weight of the bunches averaged about 2 lb. each, some of them reaching 3 lb., and there were about eighteen bunches to each rod. They are produced upon short-jointed wood, and rather small in size compared with that of the bunches. The roots of the Vines have the run of both outside and inside borders, and the stimulants employed are liquid cow-manure and concentrated artificial manure. Mr. Pettigrew has a firm conviction of the efficacy of the former, and of top-dressings composed of maiden soil, and an addition of crushed old mortar or lime.

Having heard of Mr. Pettigrew's success with pot-Vines, I was quite prepared to see good canes in readiness for next year, but not such as were shown to me, standing upon a bed of ashes, situated so that the canes might get all the sun possible. The canes are about 12 feet in length, short jointed, and have stout leaves and prominent buds, while the largest canes measure 2 inches in circumference at a foot from their base. They were grown from eyes started early last February. The vinery in which they will be fruited is a span 12 feet wide and 10 feet high, with a centre walk, and raised narrow borders on either side, in which the Vines, after being turned out of their pots, will be planted early in February, and trained upon an arched trellis, so that the points of the rods reach some distance down the opposite side to that where they are planted. This arrangement has the effect of checking the flow of sap, and consequently also the buds near the points of the Vines from

taking the lead at the expense of the lower ones. The varieties grown in this way are Alicante, Alnwick Seedling, Gros Maroc, Foster's Seedling, Buckland Sweetwater, Black Hamburg, Muscat of Alexandria, and Madresfield Court. Each cane is allowed to carry sixteen bunches of Grapes.

Cucumbers and Melons were in evidence, and the varieties Cucumber Cardiff Castle, and Melon Holborn Favourite, were both raised by Mr. Pettigrew; the former being generally known and especially valued by market growers, needs no further comment. The Melon is above medium size, beautifully netted, white fleshed, and of delicious flavour.

A plant-stove of the same dimensions as the Alicante vinery contains a collection of well cultivated plants, and nearly the whole length of one of the side stages was occupied by a healthy lot of Calanthes, chiefly C. Veitchi, in 6-inch pots. The most conspicuous feature in the house at the moment were three plants of Allamanda Hendersoni, growing in pots, placed at equal distances beneath the apex of the house. They had long, bare stems, reaching a trellis some 5 feet in width, fixed near the top of the house throughout its length. From end to end the trellis was covered with shoots furnished with bright foliage, and abundance of large flowers, affording a gorgeous display.

A long row of Belladonna Lilies planted near the front wall of a range of glass-houses was flowering splendidly, and a great many spikes had been cut. They are treated in a like manner to those described by Mr. H. J. Clayton in the *Gardeners' Chronicle* for October 7. *Thos. Coomber*. [A descriptive and illustrated article upon the Marquis of Bute's gardens at Cardiff Castle was published in the *Gardeners' Chronicle*, September 9, 1893. Ed.]

ALLAMANDA HENDERSONI.

OUR illustration (fig. 122), taken in the garden of W. Long, Esq., Thelwall Heys, Warrington, exhibits a plant of Allamanda Hendersoni, growing in the best position for the plant; namely, on the roof of a stove, where it would be exposed to the most ardent rays of the sun. The plant has evidently benefited by its position, judging by the number and size of its blossoms. The view gives only a portion of the plant, which extended doubtless up the roof to the apex; and was obligingly forwarded to us in September last by Mr. R. Poulton, the gardener at Thelwall Heys.

SCOTLAND.

AMONG THE APPLE-TREES.

LATE autumn is always a busy time for those gardeners who to their other duties add the study of pomology, and treat the fruit-trees under their charge with that amount of care which is so essential to continued success. It is surely taking a not too optimistic view of the situation to believe that the number of those who continue to limit their attention to an annual pruning during the season of rest is decreasing, and that the practice is now confined very largely to those who are content to follow leisurely in the rear. All who pursue hardy fruit-culture intelligently, must naturally have their attention directed at this season to the condition of the trees. It is the period when a revision of the arrangement and disposition of the branches and shoots alike of standard and of dwarf trees can be made with the greatest certainty; when over-luxuriant growth may be checked by root-pruning with the least risk of the operation having a bad effect on the trees; when worn-out subjects may be removed, and their places filled with young ones.

I wish to confine the remarks which follow solely to Apples, as being the most important of all hardy fruits, and also because what may be enunciated concerning these, will apply to a great

extent as well to other hardy fruits cultivated in the open garden.

The elimination of whole branches or of shoots, which, from whatever reason, have become too crowded, is a practice which requires annual attention. The same trees may not every year call for thinning, but there will always be some, and the time best suited for the work is after fruit has been gathered and before the foliage has fallen. It is then possible to determine to a nicety the position each branch ought to occupy, in order to allow the foliage on all parts of the trees to have access of direct sunshine. And it is well to remember that

quality can only be obtained from trees which do not possess a multiplicity of branches, and their numerous shoots and mass of foliage.

The sum of the above remarks is, naturally, that there is slight danger of anyone thinning branches too severely, and that an open arrangement of the shoots is to be recommended. It may also be noted that large spurs, which are frequently unfruitful or else produce small fruits only, are best cut off at the present time.

But even when due attention has been afforded trees in the above respect, there will generally be some individuals which still fail to fruit with regu-

generally is effective, is to cut a trench from 3 to 6 feet distant from the bole of the tree, and one-third or one-half round its circumference, according to the size of the tree, and then to sever every root met with; moreover, all roots passing downwards, from near the middle of the ball, must be sought for and cut. The remainder of the circumference should be treated in like manner the next year, or two years later. At least a portion of the soil employed to replace that discharged in cutting the trench should be good loam, and in any case it ought to be new soil. Trees which have been properly prepared in their earlier years at once



FIG. 122.—INTERIOR OF A HOTHOUSE IN MR. W. LONG'S GARDEN, THELWALL HEYS, WARRINGTON, SHOWING A PLANT OF ALLAMANDA HENDERSONI IN FLOWER. (SEE P. 372.)

the removal of branches or of shoots which are a bar to others enjoying that necessary element to the full, is not a wasteful practice, because setting aside for the moment the fact that a tree cannot be fruitful in portions where light is excluded, the lesser quantity of fruit borne by the tree will exceed in weight and quality that borne by a greater number of such shoots, because in this instance the individual fruits will be greatly increased in size. There is yet another reason why branches should be very thinly disposed, and it is one which has perhaps received less attention than its importance demands. It is, that a tree is capable of bringing to the fullest development only a limited number of branches; or in other words, that an annual supply of fruit of full size and good

quality, or which, if fruitful, produce it of a quality not so good as desired. The only remedy for these defects is either lifting and transplanting, which is the best method to pursue with trees still young and easy to handle; or, in the case of older subjects, to prune the roots of the trees where they stand. In every instance where the former method can be safely carried out, it is preferable, as conducing to the production of fruits of the best quality, hence it is a practice that compensates the trouble of occasionally transplanting all trees while yet young. Those, however, which have not been so treated, or which have grown out of the early condition thus imposed upon them, can by no other means than that of root-pruning be induced to assume a fruitful habit. The simplest form of root-pruning, and one that

respond to this kind of treatment, whilst those not so prepared may take a year or two ere they begin to bear fruit with regularity.

In addition to these, there are, in many gardens, trees so old that digging round them as a means of rejuvenation exerts no influence for good, and it is a waste of time and of ground to permit them to remain, and the only sensible method of proceeding is to grub them up and plant young trees in their places. For this and other purposes a small nursery, or, at least, a corner of the garden, should be devoted to the production of young fruiting trees to be ready on any occasion to transplant. These are, by annual transplantation, kept in a healthy and fruitful state, and the roots always so close at home, so that a removal to a permanent

position gives no check either to their progress or vigour.

It needs hardly to be urged that the staple, previous to planting the young tree, should have been removed, and new soil, &c., brought in, and that this material should be of as simple a nature as possible, avoiding animal dung above all things. In the process of planting, it may be indicated not only that the practice of planting deeply cripples the energies of the tree, but the opposite practice, even to the extent of raising the bole a few inches above the general ground-level, while in no degree inimical to vigorous growth, tends also to a fruitful habit. There are cases, such as in gardens, the soil of which is composed of inert material, where surface-planting is undoubtedly beneficial, and is not an uncommon practice. It is not, however, so generally recognised that very poor peaty soil, or that superimposed thinly on a bed of gravel or sand, is equally hurtful to Apples, and in these cases really wonderful results are effected by planting the trees almost on the surface, and covering the roots with a layer of the best procurable soil. It is also noteworthy that in northern districts, where under ordinary conditions fruit of such fine varieties as Ribston Pippin and King of the Pippins can be produced of good size and colour only when trained against a wall, the mere raising the soil a foot or so above the general level in open quarters, and planting the trees therein, exercises a very beneficial effect—not indeed so great as that derived from a wall, but still greatly superior to planting on the ground-level.

There are other points connected with this subject which I would like to touch upon at the present moment; but one only needs mention the question of variety. It is a universal failing among gardeners to cultivate too many varieties. At the same time it is a failing that leans to the side of virtue; but when one continues to shuffle along with varieties which on an average of years indicate their unsuitability to the soil or the climate, then it is time to make a clearance of them. Young gardeners need to be warned not too hurriedly to replace varieties which are found generally to succeed in the district by others that are more popular, until they have determined by actual trial the value of these. Indisputably valuable sorts, such as Wellington, Alfriston, Lord Suffield, Hawthornden, Stirling Castle, and Cellini, cannot be unreservedly relied on everywhere, and what is true of these, may be true of others. The writer may be allowed to illustrate his advice by a case in point. A few years ago, several hundred trees were required for a certain purpose, and they were ordered from a leading firm of nurserymen, who on their part most kindly advised the substitution of a more popular variety, which, however, had proved unsuitable, and had to be refused. The selection made by the gardener has proved eminently successful; how it might have turned out if experience had not taught him to reject the *bona fide* offer of what most people would have considered a better, cannot of course be determined; but in the circumstances, he certainly acted not injudiciously. B., East Lothian.

FRUIT REGISTER.

TREE-STRAWBERRIES.

THESE have been obtained by Mr. L. Baltet by tying up the runners so as to make them assume a vertical direction, and by removing all the lateral buds which are produced on this shoot. Tree Violets are produced in the same way.

DIAMOND JUBILEE GRAPE.

A figure of this new Grape is given in the number of the *Gardener* for November 4. It was raised by Messrs. D. and W. Buchanan, as a cross between Cooper's Black and Gros Colmar. The berries are oval, deep black, and of excellent quality.

THE WEEK'S WORK.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener, North Mymms Park, Hatfield.

Phyllocactus.—As soon as these plants have completed their growth for the season, they should be rested by withholding water at the root to a great extent; all that is required being as much as will keep the cladodes plump until flower-buds appear in the spring. Much root-moisture afforded regardless of the needs of the plant, is always injurious to the *Phyllocacti*, and the sure result of over-watering during the winter is loss of roots, and, as a consequence, an unhealthy appearance. It is, however, not an easy matter to kill them outright by neglect. The beauty of the blossoms of the newer crosses is so striking that no amount of attention to their simple requirements ought to be lacking. The plant may be safely wintered in a house having a night temperature of 50° to 55°, and it is possible to winter them in one with a minimum temperature of from 45° to 50°. It is very necessary that the pots in which they are grown should be well drained, the plants suffering greatly from a water-logged soil; and even at the present season, every pot should be examined, and if the drainage be found defective, it should be put into good order.

Richardia Elliotiana.—The foliage of the latest of these plants is now dying off, which is an indication that no more water should be afforded till growth has recommenced, either naturally in the early spring, or sooner, by moderate forcing. When the soil in the pots has become dry, lay them on their sides under the stage in an intermediate-house for two months, taking care that they are placed out of the way of drip. Upon the first signs of new growth, place the plants in the light, and afford water. If spathes are required in the winter, roots of a flowering size, which have been resting for two months at the least, should be selected. Let them be put into 6-inch pots with silver-sand immediately around them, and the top of the root kept at about 1½ in. below the surface of the soil. The potting-compost may consist of loam two parts, peat or leaf-mould one part, and a considerable quantity of silver-sand. The pots should be drained with large crocks in order that there may be no need to afford water directly after potting the roots; the soil should be used in a fairly moist state, and water sparingly applied till the roots begin to push into the soil. A place on a shelf in the stove will suit them for the present.

Cannas.—These plants must receive no more water after this date, but be dried off, and then stored for the winter in a late Peach-house or other cool, dry structure, from which frost can be excluded.

FRUITS UNDER GLASS.

By W. SAUNDWELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

The Orchard House.—Where several succession Peach-houses exist, it is a good practice to get forward with the winter work in the orchard-house before the very cold weather sets in: pruning, washing, tying the trees, and cleansing the glass. The foliage of Peach and Nectarine-trees may now be easily removed with a new birch-broom, and that of other fruit-trees in this house comes off equally early. Where the cleansing of the fruit-houses is made a kind of reserve work for the young gardeners and labourers in bad weather, the cold houses should be the first dealt with. It is not necessary to put the borders in good order at the present time unless the weather being very cold, a set-to at such hard labour is a welcome change to tying and pruning the trees. The present time affords a suitable opportunity to re-arrange the trees. Replace worn-out ones with others obtained from the nursery, or from the walls in the home garden. If such trees in the home garden and nursery are periodically root-pruned, as they may require it, they are removable without much, if any, check being inflicted, and carry a crop of fruit next year as good as an undisturbed tree. In pruning and training, the aim of the operator should be the preservation of as much fruiting-wood as is necessary for the obtaining of a good crop, without any crowding of the summer shoots ensuing. In many

gardens the head-gardener prunes all the indoor trees, but the men are entrusted with the tying, and they should be instructed to remove any branches which, if left, would tend to crowding.

Pot-trees now standing out-of-doors should be sunk in the soil, or on beds of coal-ashes, or the pots and roots protected by leaves and litter against frost. The pruning of such trees may be performed at any period before March. In gardens where the bullfinches are apt to take the buds, pot-trees, especially Plums and Pears, should be frequently examined, and measures taken to protect them if it is seen that there is a loss of buds. During the next few weeks, especially in mild weather, all cold fruit-houses should be well ventilated day and night.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain BOLSFORD, Westnabirt, Tetbury, Gloucestershire.

Berry-bearing Trees and Shrubs.—When the frosts have destroyed the flowers, and the deciduous trees and shrubs have lost their leaves, berry-bearing trees and shrubs, if planted in quantity, help to brighten up shrubberies, lawns, and the walls about a garden. Amongst plants effective when grown against a wall, or creeping over bold masses of rockwork, or forming a rugged outline to shrubberies, are the *Cotoneasters*, of which *C. congesta*, *microphylla*, *rotundifolia*, *thymifolia*, are distinct in the form of the foliage and size of the berries. The evergreen bush, *C. Simonsii rupestris*, and the deciduous varieties of *C. frigida*, *affinis*, and *lævis*, all produce pretty red and coral-coloured berries, which remain a long time in beauty. *Crataegus pyracantha*, *frutcola lutea*, and *C. p. Lelandi*, clothe a wall with dark green foliage the whole of the year, and afford masses of orange-scarlet coloured berries on growth of the previous year; and by a course of judicious pruning, the plants may be made to fruit over the whole plant. The plants which I have mentioned are in every instance hardy, and capable of thriving in most soils, and cool or warm aspects. *Eunymus europæus* and *C. latifolius*, with their red fruits, afford nice contrast when planted amongst dull-looking shrubs. *Hippophae rhamnoides* (Sea Buckthorn), with its glaucous foliage, and clusters of orange-coloured berries, has a good effect when planted on the edge of the shrubbery, or as a group by themselves, but being dioecious, male and female plants should be planted in close proximity to each other, and in light or sandy soil they will grow and produce suckers freely. *Arbutus Unedo*, with its Strawberry-like fruit, and *A. Andrachne*, both of which possess greenish-white flowers, which are borne in clusters, are very pleasing, and being rather tender, should only be planted in warm and sheltered positions. The variegated and green-leaved *Aucubas* berry freely since the male variety has been introduced from Japan. Hollies of all kinds, green and variegated-leaved, are all beautiful when laden with fruits. *Berberis vulgaris*, with coral-red fruits; *B. atro-purpurea*, with purple; and *B. aristata*, with black fruits, succeed well anywhere, even in the most exposed situations. *Pernettya mucronata*, and its many seedling varieties, bearing pink, rose, red, and crimson-coloured, also white berries, are exceedingly handsome plants to serve as edgings and small beds; *Skimmia oblata*, with bright vermilion-tinted berries; *S. o. var. Veitchii*, coral-red; *S. japonica*, red-coloured berries. *Pernettyas* and *Skimmias* succeed in a mixture of peat and loam, or in loam which does not contain lime.

Gladiolus.—Though the hybrid varieties of *G. Lemoinei* and *G. Nancaianus* are considered hardy in warm, light soils, it is much safer to treat them in the same manner as is done with the *G. Brechleyensis*, *G. gandavensis*, and *G. Childsii* sections, that is, to lift the corms and store them in a cool, dry place till the spring. It is noticeable this year that the stems of these plants have remained green till a much later date than usual, owing to the autumnal rain and absence of sharp frosts. In lifting the corms, cut off the flower-shaft, but leave the stem and leaves, and tie several together in bundles, hang them up in a cool shed or house till dried, and when the stems part readily from the corms, lay out the latter on trays or in drawers. The brood attached to the parent corms should be separated and kept by itself in dry sand, to be sown thinly in drills next year to grow larger.

Lobelia splendens and its varieties may be raised by seed sown in the spring, but where plants already exist, stronger plants may be obtained by division. At this season the plants should be lifted entire, and stood in a coolinery till the soil becomes dry, when the stems should be cut down and the plants potted or boxed, using leaf-mould or light soil to fill in around them. Let the roots be kept in a cool, well ventilated pit or frame, affording only as much water as will preserve them in a healthy state without inducing growth during the winter.

Salvia splendens and *S. patens*.—The first-named plant will succeed in the open ground, and may be raised from seed sown early in January. *S. patens*, on the contrary, should be raised from cuttings taken in the spring, and its roots protected from frost similarly to those of the *Dahlia*, by lifting and drying, and afterwards storing them in dry earth or fine coal-ashes.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

The Globe Artichoke.—The stools should be cleared of the flower-stems and decayed leaves, and be afterwards protected with a thick layer of tree-leaves and litter against frost. All seedlings which produced inferior heads should be discarded, and the stock of good varieties increased by division for the making of new plantations in the months of March and April.

Cabbages.—The mild, moist weather has favoured the growth of the early varieties rather more than is desirable, and it will be advisable to lift the plants with a spade, and then make the soil about them firm by trampling it. Let this be followed by moulding up the stems as far as the leaves.

Tripoli Onions.—The beds should be freed of weeds by the hand, and a liberal dressing of sifted soil or wood-ashes afforded, and the soil made firm on either side of the lines with the feet, the foot-marks being removed with the Dutch-hoe. It is always desirable to make two sowings of Tripoli Onions, for should the first get too forward, the plants may be drawn for salads, &c., and the second allowed to make bulbs.

Celery.—The final earthing-up of all late Celery should now be performed, taking advantage of fine days in doing this job. Let the plants be held so that but little soil gets into the heart, and squeeze it firmly round them; then bank up firmly, affording a sharp slope to the top of the ridge on either side. When sharp frost threatens, afford protection with bracken or light litter, removing this when the frost lessens.

Lettuce.—The leaves of Lettuce, after a spell of moist, mild weather, become tender, and in that state liable to injury from very slight frosts; and it is well to be prepared with litter, &c., for covering the plants lightly. The stock of available garden frames should be filled with Lettuces taken up from the beds, being careful in doing so not to break or bruise the leaves. Air should be freely admitted to the frames whenever there is no frost, and the leaves kept dry; therefore, there should be no drippy lights. Should the Lettuce-plants be inclined to run to flower, seeds of Cos varieties may be sown occasionally in boxes or seed-pans, in a heat of 55° to 60°, and such plants will be found very useful as salad during the winter.

Endive is liable to injury by even slight frost, especially the moss-curl varieties, and means of protection should be kept in readiness close by the beds.

Chicory.—A number of the plants may be lifted, and put in large pots or boxes, to be forced in a dark place—such as a mushroom-house or cellar, or under the stages of a greenhouse.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WIGAN, Bart. Clare Lawn, East Sheen.

Dendrobium Phalanopsis Schroderianum, a plant imported in recent years in great numbers, and distributed in many instances at auction sales, will, in some cases, have been acquired by gardeners who had no experience with imported plants of this fine autumn-flowering Orchid. As soon as a consignment or a plant is received, every part should be carefully examined for the now well known *Dendrobium-beetle* that is apt to infest

these plants in their native country. I do not advise the washing of the pseudo-bulbs unless there are evidences of the insect, as injury to the dormant eyes may occur, and I should suppose that if a close watch be kept for them, and when observed, effective means are adopted against them, but little harm will be done. The plants having no leaves to preserve, it is unnecessary to protect them from strong sunlight; and they may be stood upright on a stage where light and heat in a heated house and no water afforded, the moisture contained in the air being sufficient for their present needs and for a long time to come. Some of the pieces will shortly push forth roots, when potting must be undertaken. Small pans, with perforated sides, and provided with wire loops by which to suspend them are the best. Let these be three-parts filled with crocks, over which place a compost consisting of two-parts peat and one of sphagnum-moss. The long pseudo-bulbs should be secured to the wire suspenders in order to prevent swaying about. A position near the roof of an East Indian-house is a suitable one. Do not immerse the plants or otherwise afford water during the winter, excepting on a few fine mornings, when they may be placed on the floor and gently sprayed.

Dendrobium atrovireolaceum.—Plants of this species which may have been imported about this date last year, having now become established, will probably be showing their flower-scapes. My experience with this plant is, that early in the year strong sunlight will give the young leaves a yellow tinge, but on heavy shading being afforded the plants, this discoloration was stayed. In most instances, two pseudo-bulbs have been produced in succession, though in all probability the later ones will not flower until next season. It appears to be a plant that is injured by severe drying-off, the pseudo-bulbs shrivelling very much if the compost remains dry for even a few days. It is, however, necessary, in order that the plants remain dormant during our winters, as little water as possible be afforded.

Dendrobium Wardianum and *D. crassinode*.—The flowering nodes of these two species are showing signs of enlargement, the leaves have fallen, and new growth is visible, which, to some cultivators, would suggest that more heat and moisture should be afforded the plants; this, however, is not advisable. Our plants were placed with the Mexican *Laelias*, and they are at present in a well-ventilatedinery, in which they will abide till I can distinguish the flower-buds, which is the right time to remove them to the Mexican-house. At the present time, and until root activity commences, water should be afforded only when the young pseudo-bulbs begin to shrivel. It is my practice to cut off the pseudo-bulbs below the flowering-nodes when flowers are required for decorative purposes in the dwelling, and plants thus treated for several years in succession show no ill effects from the practice.

Dendrobium Brymerianum and *Harveyanum*.—The Cattleya-house is the better one for these two species, and much less water should be afforded now that the growth of the pseudo-bulbs is completed, although these being thin, it is not advisable to keep the material in a dry state for any length of time.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Pruning Wall Trees.—Where pruning of the Pear-trees has not been commenced, there should be no further delay in commencing, so as to run no risk of delay from inability to carry on the work owing to hard weather. Early pruning is recommended as being conducive to the well-being of the trees. In the case of wall trees pruned in late summer, the necessary operations will be light. Aged trees may need the removal of a few of the long spurs, which ought to be done annually, sawing them off at about 2 inches of their junction with the branch, and smoothing the wound with a knife. It is found that the early removal of these spurs induces growth to start readily from them in the spring. If growth was renewed after the summer pruning, there will be shoots to be cut back below the break to a couple of dormant buds on the branch. The rest of the pruning will consist of shortening the leading shoots of the current year's growth to 1 or 2 feet in length, according to their strength, and cutting back weakly shoots still more, say to two

or three eyes. Young trees that are trained in the horizontal or the fan shape, must be so pruned that the branches will be regularly distributed, the past season's growth being shortened to ensure its breaking at the required points, in order to produce a symmetrical tree. Strong shoots may be left 2 or more feet in length, and weaker ones proportionately shorter. The centre leader should be pruned according to the distance apart which next year's shoots are intended to come, leaving one bud on either side, and a terminal bud, which, when it grows, will carry on the leader still higher. Cordons require to be pruned in a similar manner to a tree on a wall, and the spurs thinned out and shortened where unduly long. Providing Pear-trees are free from scale and other insect-pests, the training of the branches may immediately follow the pruning. Large branches will need tying to wall-nails, studs, or holdfasts driven into the wall, with tarred string, which will last a couple of years, and all doubtful ties should be renewed, so as to avert disasters occurring when the trees are laden with a crop of fruit. Shreds or bast do for fastening the current season's shoots. Mossy trees, and those infested with the white-scale, should be unfasted from the wall partially or wholly, and the moss removed by dry scrubbing with a stiff brush; whilst against scale insects a solution of Gishurst Compound-soap, used warm, at the full strength advised in the directions, should be applied with a new scrubbing-brush. It is very necessary that the crevices of the bark be well cleansed of scale, both young and old. In about three weeks the trees may be syringed with the soda and potash mixture, which will destroy any parasites that may remain, and give the trees a healthy appearance. To make this wash, dissolve 1 lb. of caustic soda and 1 lb. of crude commercial potash in 10 gallons of hot rain-water, and use at a temperature of 120°. Old walls, the pointing of which has been much damaged by driving nails into the joints of the brickwork should be "re-pointed," after loosening the trees from the wall. If a small quantity of cement be mixed with the mortar, the pointing will last a long time. The holes and crevices in old walls should be filled up every few years, as they form lurking-places for earwigs and other insects, which devour and spoil the fruit.

Miscellaneous.—The Apples in the fruit room should now be examined, and all fruits in the least degree decayed removed. There are always a few fruits which, from various reasons, do not keep, and these usually begin to decay during the first few weeks after being stored, and to neglect to throw them out is to invite wholesale loss. A fruit-room should be afforded air occasionally, when the outside temperature nearly corresponds with that of the room. Where fruit-trees were grease-banded early last month as a safeguard against the winter-moth, it is now advisable to examine the same, and re-dress with the adhesive substance any that are found to be dry.

A USE FOR MALT COMBINGS.—Few persons are acquainted with the fact that the sprouts from malted Barley, the so-called malt-combings, possess high manurial value, especially for plants which are grown in pots and tubs. The manure is better made in a cask or cistern, in the proportion of 40 lb. of comb to 60 gallons of water, the whole if possible being stood in the sun, in order to ferment. When the fermentation is passed, the water is fit for use, either diluted slightly with clean water or at its full strength. Many householders in towns, who frequently find a difficulty in obtaining manure-water, and which, when obtained, is evil-smelling and unfit for application to plants in and about the dwelling, would do well to make a note of this. It is a capital manure for Myrtles, Pelargoniums, Nerium Oleander, Fuchsias, Cannas, Aralias Ficus (India Rubber-plant), Ampelopsis, Ivy, Periwinkle, Roses, &c. When the first filling of water is exhausted, a little more malt-combing may be added, and the vessel re-filled and fermented. Unsoaked malt-combings make an admirable manurial mulch for Roses, a surfacing of soil being put over all, and the whole afforded water during the season of growth. The use of this waste substance as a manure has long been recognised in this country, but we are all of us apt to forget, and fly to the dealer in manure.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, Nov. 21	Royal Horticultural Society's Committee. National Rose Society's Committee Meeting.
WEDNESDAY, Nov. 22	National Chrysanthemum, Floral and Executive Committees Meet.
THURSDAY, Nov. 23	Dundee Chrysanthemum Show (3 days).

SALES.

MONDAY, Nov. 20, and the following Tuesday, Wednesday, Thursday, and Friday,	Dutch Bulbs, at Protheroe & Morris' Rooms.
MONDAY, Nov. 20.—Sale of Nursery Stock, at the Cooksbridge Nursery, near Lewes, by order of Mr. W. J. Woolard, by Messrs. Protheroe & Morris, at 12.30 o'clock.	
MONDAY, Nov. 20.—Bulbs, at Mr. Stevens' Rooms, King Street, Covent Garden, at 12.30 p.m.	
TUESDAY, Nov. 21.—Clearance Sale of Glass Erections, Greenhouse Plants, &c., at the Mill Hill Nursery, Mill Hill Road, Acton, by order of Mr. J. Humby, by Messrs. Protheroe & Morris, at 1 o'clock.	
WEDNESDAY, Nov. 22.—Great Clearance Sale of 120,000 Fruit Trees, at Perry Hill, Cliffe, near Rochester, by order of Mr. W. Horne, by Messrs. Protheroe & Morris, at 11.30 o'clock.	
WEDNESDAY, Nov. 22.—Great Sale of Japanese Lilies, Palm Seeds, &c., at Protheroe & Morris' Rooms, at 4 o'clock.	
WEDNESDAY, Nov. 22.—Roses, Shrubs, Plants, Orchids, &c., at Mr. Stevens' Rooms.	
THURSDAY, Nov. 23.—Bulbs and Roots, &c., at Mr. Stevens' Rooms.	
FRIDAY, Nov. 24.—Imported and Established Orchids, at Protheroe & Morris' Rooms.	

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period November 5 to November 11, 1899. Height above sea-level 24 feet.

1899.	OCTOBER 29 TO NOVEMBER 4.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
			AT 9 A.M.		DAY.	NIGHT.	RAINFALL.	At 1-foot deep.	At 2-feet deep.	At 4-feet deep.
			Dry Bulb.	Wet Bulb.						
			deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.
SUN.	5	S.W.	55.1	53.8	61.2	54.0	1.25	54.1	52.7	53.1
MON.	6	E.N.E.	49.5	48.4	52.5	48.8	0.02	53.8	53.2	53.1
TUE.	7	S.S.W.	50.2	48.8	55.7	35.3	0.32	50.2	53.1	53.3
WED.	8	S.W.	50.8	48.1	51.5	49.4	...	50.9	52.4	53.3
THU.	9	W.S.W.	51.9	46.8	65.9	46.4	0.44	50.1	52.1	53.3
FRI.	10	S.S.W.	57.0	54.2	59.4	45.2	...	50.1	51.8	53.2
SAT.	11	S.S.W.	50.8	46.1	55.9	42.3	...	49.6	51.8	53.0
MEANS...	...	...	52.2	49.5	56.0	45.9	2.03	51.2	52.4	53.2

Remarks.—The first part of the week was mild and wet, the latter part being remarkable for strong south-westerly gales.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—41°.

ACTUAL TEMPERATURES:—

LONDON.—November 15 (6 P.M.): Max. 52°; Min. 39°.

Fine—dull—foggy—no meteors seen on night of 15th.

PROVINCES.—November 15 (6 P.M.): Max. 54°, Scilly: Min. 37°, north-east Scotland.

The Wheat Problem.

SIR WILLIAM CROOKES has published, through MURRAY, Albemarle Street, his remarks on the production of Wheat in this and other countries, and the probable scarcity of this food at no remote period. Sir WILLIAM's remarks were originally included in his address as President of the British Association at Bristol, in 1898, and they have now been revised in the light of the numerous criticisms and comments elicited by the address. Sir WILLIAM's conclusions are, "that under the present conditions of heedless culture, a scarcity of Wheat is within appreciable distance; that Wheat-growing land all over the world is becoming exhausted, and that at some future time—in my opinion not far distant—no available Wheat-land will be left." Sir WILLIAM knows how to meet the emergency. "But I also pointed out that Nature's resources, properly utilised, are ample. I urged that instead of being satisfied with an average world-yield of 12.7 bushels an acre, a moderate dressing of chemical manure would pull up the average to 20 bushels, thus postponing the day of dearth to so distant a period that we and our sons and grandsons may legitimately live without undue solicitude for the future." No doubt Sir WILLIAM has some justification alike for his pessimism and for his optimism. Taking his figures as correct, there is no question that the yield is far less than it might be—than it is, in fact, under favourable conditions of season and manuring. Climatal drawbacks we cannot withstand, but by improvements in tillage, more frequent rotation, the more careful selection of sites, soils, and varieties, and specially by the use of nitrogenous manures in judicious combination with mineral manures, much, very much, may be done to increase the quantity and improve the quality of the product.

At present the cost of nitrogenous manures is a great drawback to the development of Wheat-culture, but we can surely trust the chemists of the future to find some means to enable us to utilise the enormous stores of atmospheric nitrogen at present allowed to remain inert. Omnipresent bacteria may be pressed into the service, as, to some extent, they are already in the case of the leguminous plants.

Whilst we must mainly look to the chemists, the botanists and physiologists will do their share. Out of the many thousands of starch and gluten-producing plants, why is it that we are practically confined to the culture of so very few? Hereditary endowments and cultivation from prehistoric times no doubt supply at present overwhelming reasons for the cultivation of cereals; but these reasons, powerful as they are now, are becoming less, as Sir WILLIAM CROOKES tells us, and they by no means preclude us from making trial of other plants. The various species of Rumex or Dock, to take one illustration, yield farinaceous seed in vast abundance. At present it fills no other purpose than to feed the sparrows, who, wiser in their generation than we, avail themselves of it freely. The Great Water Dock (*Rumex hydro-lapathum*) may be indicated among other species as amply worth experimental culture for this purpose. Its seeds are large (relatively), very abundant, and should present no special milling difficulties. Even supposing that the possible presence of tannin and the quality of the flour rendered it unsuitable for some purposes, it might be utilised for others, and so set free some of the Wheat now employed. There are thousands of plants awaiting trial and experiment, but no doubt much time would be needed; whilst the experimenter would, as

usual, have to encounter obstinate prejudice or listless apathy. These would be surely, if slowly, overcome, especially if Sir WILLIAM CROOKES' prophetic warning showed signs of fulfilment, and especially if some enterprising man could show that "there was money in it."

There is one thing which Sir WILLIAM CROOKES seems to have overlooked, and that is the power which is in the hands of the selector and the cross-breeder. Those who have witnessed the experimental cross-breeding of Wheat as practised, for instance, by Messrs. CARTER & Co., must have been struck with the results of cross-breeding and selection in materially increasing the yield, in developing forms suitable for special localities, as well as others which, relatively at least, are free from the attacks of mildew. We are not able to give statistical details, but no one who has had his attention drawn to the subject can have any doubt as to the vast increase in produce over practically the same area of Potatoes, Sugar-beet, fruit, and other crops during the last few years. This has been effected by careful selection and judicious cross-breeding. What has been done for the crops we have mentioned can be done for the cereals—indeed, to some extent it has been done—matters which at present attract too little attention; but when Sir WILLIAM's gloomy vaticinations show signs of approaching fulfilment, the pace will be accelerated, and the public will call on the chemists and on the botanists to do their part in averting the calamity. They will not be found wanting, and they will probably be able to show that there is still a sufficiency of available Wheat-growing land in the world, even in the presence of a steadily increasing population.

"The Gooseberry Growers' Register."

We have alluded to this unpretending little publication issued year by year by ED. FOULD, Bingley, because it contains a careful record of the weights obtained in certain varieties of Gooseberry. The value of such a register is probably greater than is contemplated by the enthusiasts, who exhibit their productions in friendly rivalry in the various towns and villages, chiefly in the north of England. On p. 78 is a table showing the heaviest berry in each year from 1809 to 1899. The arrangement of the other tables on pp. 80 to 86 is not quite clear to outsiders, though the preparation of the little volume shows an improvement over some of its predecessors. The heaviest red berry (shown, we presume, in 1899), was "Bobby," which weighed 25 dwts. 10 grs.; the heaviest white berry was "Transparent," which weighed 25 dwts. 18 grs.; "Ringer" headed the list of yellow berries with 20 dwts. "Stockwell" was the heaviest green berry, weighing 22 dwts. 9 grs.

In the table at p. 80, it is not clear whether the prize list given refers to 1899 exclusively. We do not make out what the figures 1 to 9, arranged horizontally at the top of the columns, refer to. "M.P. and S.P." are mysterious, though we can conjecture their meaning. The column headed "totals" needs explanation as to how the totals are made up. Similarly, the column referring to weights probably refers to the heaviest weight of a particular variety for this year 1899. No doubt all this is as plain as a pikestaff to the competitors, but, as we have indicated, the interest of this Register is not merely local, so that it is most desirable that "outlanders" should be able to avail themselves of the statistical details here given.

To students of variation, the varieties of

Gooseberry are specially interesting, as the forms that are cultivated are all examples of pure variation, unaffected by any cross with other species. The history of these varieties as recorded year after year becomes thus one of importance, even though it is confined to one feature only—weight. We earnestly hope that these records will continue to be kept with accuracy.

THE FORTHCOMING CHRYSANTHEMUM SHOW AT DUNDEE, ON NOVEMBER 23 TO 25.—This important event promises to be a great success, and only second in Scotland to that of the Royal Scottish Horticultural Association, held on Thursday last in Edinburgh. The show will not consist of Chrysanthemums, but will include plants, fruit, and vegetables. Herr Iff's celebrated orchestral band from Glasgow will perform on each of the three days that the show lasts.

fruit is globular or somewhat flattened, of the size of a Crab-apple, deep red, streaked with violet. As it produces abundance of seed, it will not be long before this interesting species finds its way into our gardens.

OUTDOOR PEACHES IN CROMARTY.—Mr. HENDERSON, The Gardens, Cromarty House, Cromarty, N.B., sends us a photograph of a dish of Peaches grown outside. The variety is Waterloo, and proves in that northern locality to be a fine cropper, with fruit of good size.

BUTTERFLY CYCLAMEN.—Mr. ERNST BENARY, Erfurt, sends us a good coloured plate, showing numerous variations of this curious race, which was introduced by M. DE LANGHE-VERVAENE, of St. Gilles, Brussels, and figured in these columns, January 30, 1897. The petals are reflexed, broad, undulate, and fringed at the margin. The colours range from white, cream-coloured, violet, to deep rosy-lilac. In some cases the edge is marked with a thin coloured edge on a light ground, as in a Picotee.

PRESENTATION.—Mr. PIRIE, who for the past twelve years has been head gardener to H. CALLANDER, Esq., Preston Hall, Midlothian, was waited on by a number of friends on Thursday evening, November 9, and presented with a purse of sovereigns, on the occasion of his retirement from the management of the gardens at Preston Hall. Mr. SMITH, Oxenford, in a few well-chosen remarks, made the presentation, and Mr. PIRIE very feelingly replied.

CEDAR CATKINS.—From more than one correspondent we have this week received specimens of the male flowers presumably of some Cedar. They have been found abundantly on the ground, and attracted attention as resembling caterpillars of a hawk-moth. A tree of the Lebanon Cedar at Kew is laden with catkins just now. It would seem, therefore, that the pollination of the female flower takes place at this season also. We do not know whether it is the case with Cedars, but in some Conifers there is a cavity at the top of the ovule in which the pollen remains for a long time before it germinates, and impregnates the ovum in the archegonium.

THE BOTANY OF ANCIENT EGYPT.—Among the plants discovered by MM. LORET and POISSON in the Egyptian museum at the Louvre, Paris, are the remains of the White Lily (*Lilium candidum*), the Cedar of Lebanon (*Cedrus Libani*), *Populus euphratica*, *Trapa natans*, *Abrus precatorius*, *Citrus Limonum*, and *Adansonia digitata*—truly, a remarkably interesting addition to our knowledge of the botany of ancient Egypt.

BOTANICAL GARDENS, NILGIRIS.—From the Annual Report, dated August, 1899, submitted by Mr. PROUDLOCK, we learn that there was a prolonged drought of about fifty days in the months of February and March last, and the young plants had consequently to be watered during that period. With this exception, the year was, on the whole, favourable for gardening purposes. Mr. PROUDLOCK has considerably improved the condition of the gardens. His experiments upon the juice of the Papaya-tree at the Barliyar Gardens, are likely, if conducted on a large scale, to prove a source of income to the gardens. The question of the possibility of creating rubber-producing forests in this district seems to have been settled for the present. While the cultivation of the Ceara rubber-trees has been fully established in Southern India, the climatic conditions or soil are not suitable for encouraging the secretion of rubber in the trees to such an amount as to make their introduction a commercial success.

"THE NEW FORESTRY."—Under this title Mr. SIMPSON is about to publish a book relating to the Continental system of forestry as adapted to British woodlands and game preservation. It consists of a review of British forestry practice down to the present time, contrasted with continental, and particularly the German forestry



FIG. 123.—THE MONUMENT ERECTED TO THE MEMORY OF JEAN LINDEN, AT BRUSSELS.
(SEE LAST WEEK'S ISSUE, P. 360.)

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society's Fruit and Floral Committees will take place on Tuesday, November 21, in the Drill Hall, James Street, Westminster, from 1 to 4 P.M. A lecture on "Fruit-growing in South Wales" will be given by Mr. J. BARHAM, F.R.H.S., at 3 o'clock.

— **ROYAL HORTICULTURAL SOCIETY'S EXAMINATION, 1900.**—The day suggested for these examinations, April 17, being Easter Tuesday, they will be held on Wednesday, April 25. W. WILKS, Sec.

DEVON AND EXETER GARDENERS' ASSOCIATION.—An instructive lecture was given by Mr. W. CHARLEY, gardener at Wonford House, Exeter, at the last meeting, entitled "Garden Walks and Drives," which treated the matter at some length. The superintendent of the Exeter Public Grounds presided, and introduced a useful and interesting discussion.

SOLANUM PIERREANUM.—Thanks to the kindness of Mr. GUMBLETON, we have had the opportunity of seeing a fruit of this remarkable species, described by him in our last issue. The

methods, which are fully illustrated and described by the author. Mr. SIMPSON visited some of the best German forests in 1897, with the special object of ascertaining in what manner the system there adopted, in the extensive State forests of Prussia and elsewhere, could be adapted to the smaller-wooded areas and existing conditions on private estates in Britain, so as to enable proprietors and their foresters, where so disposed, to adopt the newer methods now so strongly recommended by all competent authorities, with such assistance as a handy book may afford. The work will be published by Messrs. PAWSON & BRAILSFORD, Sheffield.

THE FIXATION OF CARBON.—The following extracts, showing the importance of the stomata in leaves, are taken from Dr. HORACE BROWN's address to the Chemical Section of the British Association at Dover:—

"There can, of course, be no doubt that the primary source of the organic carbon of the soil, and of the plants growing on it, is the atmosphere; but of late years there has been such an accumulation of evidence tending to show that the higher plants are capable of being nourished by the direct application of a great variety of ready-formed organic compounds, that we are justified in demanding further proof that the stores of organic substances in the soil must necessarily be oxidised down to the lowest possible point before their carbon is once more in a fit state to be assimilated.

"The conclusions drawn are that respiratory egress, and assimilatory ingress of carbon dioxide, do not occur in the upper side of a leaf if this is devoid of stomatic openings, and that when these openings exist on both the upper and under sides, the gaseous exchanges of both physiological processes are directly proportional to the number of stomata on equal areas, hence, in all probability, the exchanges take place only through the stomata."

"Our results, on the whole, are decidedly confirmatory of Mr. BLACKMAN's observations. The side of a leaf which is devoid of stomatic openings certainly neither allows any carbon dioxide to escape during respiration, nor does it permit the ingress of that gas when the conditions are favourable for assimilation. On the other hand, when stomata exist on both the upper and under sides of a leaf, gaseous exchanges take place through both surfaces, and, as a rule, in some sort of rough proportion to the distribution of the openings. There is, however, under strong illumination, a greater intake of carbon dioxide through the upper surface than would be expected from a mere consideration of the ratio of distribution of the stomata."

"Nevertheless, the general connection between gaseous exchange and distribution of stomata is so well brought out, that we must regard it as highly probable that these minute openings are the true paths by which the carbon dioxide enters and leaves the leaf."

HYBRID BETWEEN DAHLIA AND HELIANTHUS.—It is not to be surprised if some gardeners have doubts as to the possibility of securing hybrids between two such distinct genera. The records of hybridisation, however, should induce botanists to keep an open mind on such matters, and to await practical demonstration before pronouncing an

* There is one important fact to be borne in mind when considering how far these observations exclude the possibility of cuticular osmosis. In the many leaves we have examined, Mr. Ecombe and I have found that the occurrence of stomata on the upper surface of the leaf is always correlated with a much less dense palisade parenchyma. The cuticle and epidermis under these conditions are in a much more favourable state to allow carbon dioxide to pass into the leaf by osmosis than when the closely-packed palisade cells abut against the epidermis, as they do when this is impermeable.

+ Granted that the stomata constitute the paths of gaseous exchange, it is clear that the amount of diffusion through them, other things being equal, must depend very largely on the extent to which they are opened. The delicate self-regulating apparatus which governs the size of the openings is so readily influenced, amongst other things by differences of illumination, that a priori we should not expect the stomata on the upper surface of an isolated leaf to be in the same condition as those of the more shaded lower surface. This may very well account for the stomatic ratio of the two sides not being in closer correspondence with the assimilatory ratios, as found in most of our experiments carried out in bright sunshine. In light of lesser intensity there is always a closer correspondence of the two ratios. There is also another possible explanation of the facts. Since we have good reason to believe that the principal part of the assimilatory work is carried on by the palisade parenchyma, which occurs in the upper part of the leaf, the tension of the carbon dioxide in the air spaces of that part of the mesophyll is probably less than it is in the spongy parenchyma. There will, therefore, be a higher 'diffusion gradient' between the carbon dioxide of the outer and inner air in the former case than in the latter, and this would certainly tend to a more rapid diffusion through the openings in the upper side of the leaf.

opinion. Specimens of a Dahlia have been lately submitted to us by Mr. E. J. Lowz, which undoubtedly show some disturbing influence as a consequence of pollination with the pollen of Helianthus. This is manifest in the greater thickness of the leaf, which has much of the coriaceous texture of the Helianthus, and traces of the stiff, rigid hairs characteristic of Sunflowers. In another case evidence of disturbance, if not of intercrossing, is seen in a Dahlia, the flower-stalk of which, instead of being devoid of leaf-structures as it is usually, bears in spiral series a large number of oblong leaves like the bracts of the inflorescence. We have frequently observed morphological changes resulting, as it would seem, from the irritation or disturbance set up by cross-pollination without any actual blending of parental characters, but in these instances distinct traces of a real cross are observable.

STOCK-TAKING: OCTOBER.—It is gratifying to find, from the Trade and Navigation Returns for October, that the improvement in both imports and exports continues. As to imports, the increase foots up at £5,531,616—the value for the month being £44,130,818; and for the same month in 1898, £38,599,202. This certainly looks like good business, and the supply of food shows such an increase as to warrant the assertion that trade all round, war notwithstanding, is in an excellent condition. Here is our usual excerpt from the "Summary" table of imports:—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	38,599,202	44,130,818	+5,531,616
(A.) Articles of food and drink—duty free ...	13,572,295	15,621,108	+2,048,813
(B.) Articles of food & drink—dutiable	3,182,481	3,800,474	+117,993
Raw materials for textile manufactures ...	3,729,068	4,768,585	+1,039,447
Raw materials for sundry industries and manufactures	5,445,853	5,770,023	+324,670
(A.) Miscellaneous articles ...	1,179,478	1,489,971	+310,493
(B.) Parcel Post ...	110,556	80,251	—30,305

The increase in food supplies is a very large one, and is followed by accessions to the values of raw materials for textiles, metals, manufactured articles, &c. In one department of imports there is a decrease, viz., in fruit, roots, and vegetables, as will be seen from the following table:—

IMPORTS.	1898.	1899.	Difference.
Fruits, raw:—			
Almonds ... cwt.	37,850	39,786	+1,886
Apples ... bush.	694,037	840,744	+146,717
Cherries ... "	...	...	...
Grapes ... "	346,049	284,666	—61,383
Lemons ... "	96,830	95,416	—1,414
Oranges ... "	91,731	87,879	—3,852
Pears ... "	109,217	74,152	—29,065
Plums ... "	93,307	46,785	—46,522
Unenumerated ... "	222,177	198,968	—23,209
Roots and Vegetables:—			
Onions ... bush.	748,348	970,127	+221,779
Potatoes ... cwt.	105,112	325,595	+220,483
Vegetables, raw, unenumerated ... value	£119,373	£100,643	—£18,730

It is some time since we had such a long list of minus entries, so matters seem to be favourable to home producers. By the way, London barrows and street stalls are rather a pretty sight just now, and the poor folks' pence are purchasing good value. There are Bananas and Pomegranates at two a penny; oranges, of a sort, at three a penny; Apples and Pears at from 2d. a pound; good foreign Grapes at from 3d. a pound; even Pine-apples have got the length of the stalls, but, lacking the means, they are passed by. It is also

interesting to note the higher prices current for Canadian Apples, &c.—evidence of the care now exercised in selecting, packing, &c. The returns for the ten months show a total value of £400,134,971, as against £383,248,614, for the same period in 1898; or an increase of £16,886,357. A few lines may now be given to—

EXPORTS.

The figures representing the exports of British and Irish produce and manufactures for the past month are £23,699,021, compared with £19,863,019 for October, 1898; or an increase of £3,836,002. There is no decrease reported in the sectional columns, and the greatest increases are in metals and articles manufactured therefrom, also in machinery; yarns and textile fabrics look up well. It is noteworthy that cotton goods keep well up in the East, whilst linens keep their position in the West. The gain on the ten months is £25,458,041. The figures for the ten months just ended is £218,050,218; for the same period last year, £192,592,177. All comment is spared by reason of these eloquent figures.

TOBACCO-JUICE IN FRANCE.—All Tobacco-shops in France, says the *Society of Arts Journal*, must keep a stock of tobacco-juice, rich in nicotine, and of guaranteed quality. For spraying purposes, one part is mixed with 100 parts of water. The spraying of plants should be done after sunset, and they should be sprinkled with clean water on the following day. For fumigating hot-houses the proportion is one part of juice to five of water. The mixture is sprayed upon bricks or iron sheets heated to a temperature sufficiently high to produce rapid evaporation. It is claimed that insects and fungous parasites are absolutely destroyed by this process. Regarding the use of this product in the Alpes Maritimes, the United States Consul at Nice says that it is rapidly coming into general favour for all the purposes mentioned above. He has seen it used with complete success in curing what is popularly called "le noir." This parasitic affliction is not confined to Orange, Lemon, Olive, and other trees, but has been most disastrous to such vegetables as Potatoes, Beans, Peas, Tomatoes, &c. He has also seen whole rows of Orange-trees so thickly covered with parasites that every leaf appeared coated with soot (hence the popular appellation, "le noir"), and he has been enabled to verify the fact that three or four applications of the lotion have prevented the disease from attacking new leaves, and have caused the disappearance of the black deposit upon those attacked. A proprietor of an Olive-grove in Nice has recently stated that the use of the juice in combating "le noir," which has destroyed many thousands of Olive trees in the department, is most costly, but at the same time very efficacious. The spraying machines used to spread the mixture are the same as those employed in applying sulphate of copper to vineyards. Efforts have been made to ascertain whether the use of tobacco-juice would not be more desirable in treating Vines for the cure of oidium—a parasitic disease of the Vine-leaves [and berries]—than sulphate of copper, but it appears impossible to discover anyone who has experimented with the two treatments. It would appear, at first sight, that tobacco-juice would be preferable, as sulphate has always been considered a preventive of attacks upon the Grapes themselves, especially after the bunches are completely developed, whereas the oidium attacks only the leaves, and indirectly the vitality of the plant.

MR. MALCOLM DUNN'S LIBRARY.—The sale of the late Mr. MALCOLM DUNN'S library was effected on the 9th inst., in DOWELL'S Rooms, Edinburgh. In addition to the ordinary trade purchasers, there was also present a strong contingent of the gardening fraternity, who, to a large extent, controlled the bidding, with the result that not only good prices ruled, but in some instances, books sold at higher rates than it is possible to obtain them through the ordinary channels. The best prices were obtained for the *Transactions of*

the *Botanical Society of Edinburgh*, 110s.; *Botanical Register*, 32 vols. £19; HARVEY-BROWN'S *Fauna*, small octaves, 50s., 52s., and 90s.; one volume of PLATTE'S *Jewell House*, 31s.; the 1863 edition of REID'S *Scots Gardener*, an imperfect copy, lately bound, 52s. 6d.; HILL'S *Profitable Art of Gardening* (1574), 95s.; a nice copy of LONDON'S *Arboretum et Fruticetum Britannicum* (1844 imprint), 50s. Works other than those devoted to gardening and kindred pursuits, brought also good prices.

THE GERMINATION OF SEEDS.—The last number (420) of the *Proceedings of the Royal Society* contains an account of some experiments on the influence of liquid hydrogen on the germinative power of seeds, by Sir WILLIAM THISELTON DYER and Prof. DEWAR, which are of a very remarkable character. Sir WILLIAM DYER took seeds of *Brassica alba*, *Pisum sativum*, *Cucurbita pepo* (Vegetable-marrow), *Mimulus moschatus*, *Triticum sativum*, and *Hordeum vulgare*. The germinating power of the seeds from which these samples were taken was tested previously by Messrs. SUTTON & SONS. These seeds were entrusted to Professor DEWAR, who exposed them for half an hour to a temperature of -250°C . All these seeds germinated at Kew. A second set of seeds were subjected by Professor DEWAR to actual immersion in liquid hydrogen for six hours; whereas the first set were cooled in a vacuum, being sealed in a glass tube. The second set of seeds germinated as well as the first, although they had been subjected by Professor DEWAR to the almost inconceivably low temperature of -453°Fahr . below the temperature of melting ice. On the contrary, protoplasm is known to be disintegrated by a temperature of 75°C . (167°F .); and if seeds have germinated after exposure to a higher temperature than this, it must be because the investments of the embryo are non-conductors, and the extreme heat mentioned has never reached the embryo.

NITRAGIN.—Miss MARIA DAWSON, B.Sc., London and Wales, has a paper in the *Philosophical Transactions*, B. vol. 192, in which she records her experiments with nitragin. The author first of all, gives an acceptable summary of our knowledge of the tubercles found on the roots of Leguminosæ, and of the part they play in the life of the plant. The bibliographical references are very full and useful. In the next place, the lady-bachelor narrates her own observations and experiments on the tubercles and their contents, and then details her experiments with "nitragin." She concludes that nitragin really does contain the organism which is involved in the formation of the tubercles, and that it does, when artificially applied, produce the outgrowths in question.

KEW SEED LIST.—As an appendix to the *Bulletin of Miscellaneous Information*, is issued a list of seeds of hardy herbaceous plants and of trees and shrubs. These seeds are not sold to the public, but are available for exchange with other botanic gardens, foreign or colonial, and with regular correspondents of the garden. The list is alphabetical.

DUTCH BULBS.—The high price of these articles is due, it appears, to the spring-frosts that occurred in Holland after the bulbs had begun to grow. Fungoid attacks completed the stock of adversities.

TEA BLIGHTS.—Tea-planters in Ceylon have till lately enjoyed a considerable immunity from insect or fungus visitation, but, as inevitably happens when large numbers of any particular plant are grown in close approximation, pests are now beginning to spread. Mr. J. C. WILLIS, the Director of the Peradeniya Botanic Garden, has therefore called the attention of planters to the subject in a circular. The two principal blights are fungi *Pestalozzia Gulpini*, or grey blight, and *Colletotrichum Camellie*, or brown blight. The nature and characteristics of these fungi are explained, and the best methods of treatment detailed.

MOREA IRIIDIODES, VAR. MACLEAI.—This lovely Irid is well known to our cultivators. It is a native of the Cape Colony and of Natal. The variety above-mentioned is even more beautiful than the type, as is evidenced by a flower shown to us by Mr. Gumbleton. The flower is flattish or slightly cupped, more than three inches across, with white, oblong lanceolate spreading sepals, oblong obovate petals, white, with a large club-shaped orange blotch on the narrow claw-like part of the petal, and extending to the middle. The three petaloid styles are erect, broadly lanceolate, rich violet, with a narrow white edge. Mr. Baker, in his *Handbook of the Irideæ* (1892), p. 62, mentions the plant under the garden-name of *Diates Macleai*.

MAGNOLIA LENNÉ.—From Straffan, Kildare, Mr. BEDFORD obligingly sends us fruits of this lovely Magnolia. The plant is against a west wall, and has not fruited since 1893. The fruit is oblong, about 4 inches long (10 to 11 cent.), 2 inches wide, consisting of a closely-packed spike of fleshy follicles; each follicle is about 1 inch (25 mill.) long, leathery, and of a deep rose-pink colour, containing a single seed attached to the carpel or follicle by a slender funicle or thread. The seed is oblong-obtuse at both ends, rather more than half-an-inch long (15 mill.), and of a brilliant orange-pink colour. The vivid coloration of the carpels and seeds seems to be intended as an attraction for birds, by whose agency the seeds are dispersed. Magnolia Lenné is supposed to be a form of the Chinese *M. obovata*, and by some, as by FOCKE, is considered a hybrid, but there is no direct evidence that we know of in support of this conclusion. It is said to have originated in a garden at Vicenza, but was brought to Erfurt in 1850. It was figured in 1866 in the *Revue Horticole*. Mr. BEDFORD would do well to raise some seedling plants, and note the results.

SYSTEMATIC BOTANY.—Anatomists and students of development are beginning to find out that no one set of characters is sufficient for classificatory purposes, but that all must, so far as circumstances allow, be taken into consideration. M. PARMENTIER, a distinguished anatomist, on concluding a paper on the utility of anatomy for classificatory purposes, says: "We cannot too highly admire the genius of the illustrious botanists who, guided by morphological details only, have established the classification of the species of the vegetable kingdom with such insight, that the classification may be considered natural, being almost always confirmed by anatomy." M. PARMENTIER'S paper is in the *Bulletin of the Royal Botanical Society of Belgium*, xxxv., p. 37, 1896.

"NATURAL AND ARTIFICIAL METHODS OF VENTILATION." (London: ROBERT BOYLE & SON, 64, Holborn Viaduct).—This is a "compilation published with the view of demonstrating the comparative values of so-called natural and artificial methods of ventilation when the former is scientifically applied; and how ventilation may be successfully achieved with the simplest means by an intelligent comprehension of the laws which govern the movements of air and the utilisation of the powerful natural forces which are unceasingly in operation." The work is carefully done, the information being on the authority of specialists, and relating the results of practical experience.

THE NERVE-WAVE (LA VIBRATION NEUVEUSE).—The subjoined extract is taken from the evening address, delivered by Professor CHARLES RICHER, on September 15, at the Dover Meeting of the British Association, as translated by Professor MARCUS HARTOG, in *Nature*.—

"Thus, the nerve-wave in its form and period, and in the mode of its 'damping,' is comparable with the various waves of the unbounded universe in which we live, move, and have our being. But this resemblance must not lead us away from the recognition of the abyss that separates the nerve-wave from all the other phenomena within our reach. The vibrations of the forces scattered about us are—at least with the greatest probability—blind phenomena, which know not themselves, which are the slaves of irresistible fatality. The nerve-wave,

on the contrary, knows and judges itself; it is self-knowing or self-conscious; it can distinguish itself from the world which surrounds it, and shakes it. Since it possesses intelligence—for intelligence and consciousness are synonymous terms—it is susceptible of perfectibility; it is capable of right reasoning, and of wrong reasoning; it can attain a moral ideal forbidden to those brute forces which follow their fated course; it can conceive the idea of truth and justice when it is a question of defending the innocent, of establishing brotherhood among men. Consciousness, intelligence, the making for higher perfection—these are characters that have nought in common with the characters of other waves; they seem to be phenomena of another, a higher order. This vibration, whose physical conditions we have studied, enters into the domain of morals; and this fact establishes its essential difference from all other vibrations.

"Assuredly the prodigiously rapid and regular undulations of light, and of electricity, appeal right justly to our admiration; but nothing is so admirable as this disturbance of the nerve-cell, which is self-knowing, self-judging, self-transforming, which strives to amend itself, and which from the stimuli which strike it, can deduce some of the laws ruling the vast universe distinct from it. The nerve-wave of man—himself the last result of evolution—is the most perfect term of the things and of the beings which it is given to us to know.

"Vast as is the world, mighty as are the fires of the infinite stars, the intelligence of man is of a higher order than these; and I would fain exclaim with the great philosopher, Immanuel Kant: 'More than the starry Heaven above my head, one thing fills me with admiration—the moral law is the heart of man.'"

SOLANUM INTEGRIFOLIUM.—One of the most ornamental plants in the show-house at Kew just now is the plant under the above name. The plants are 18 to 24 inches high, with leaves that belie the name given to the plant in their sinuous, almost lobed margins. The midrib bears vicious-looking spines on the upper surface, but the chief features are the scarlet fruits of the size of a small Apple, deeply furrowed, and of a brilliant red colour. They make very effective decorative plants at this season.

LATE-FLOWERING LINQ.—A correspondent from Woking sends us a spray of the common Heather in full bloom. The plants begin to bloom every year in October after the others are over, and look gay throughout November. The variation is a desirable one, but how or why it originated it is hard to understand, as the external conditions are presumably identical.

PUBLICATIONS RECEIVED.—*Anne Pratt's Flowering-plants*, vols. II. and III., Nov. 15 to 20.—*The Photogram* (London and New York), October. This includes a short paper on arranging flowers to be photographed. The results aimed at and attained is the production of a pretty picture: from a botanical standpoint the illustrations are of little value.—*Prospectus and Time tables, County School of Horticulture, Chelmsford*, for the Session 1899-1900.—*Tropical Agriculturist*, September and October.—*Bulletin of the Botanical Department Jamaica*, August. This contains notes on collecting Rubber; and scale insects, remedial measures and insecticides.—*Bulletin of Miscellaneous Information, Trinidad*, July, including papers: "The Nicaraguan Coffee Disease," "Cacao Pod Disease (*Phytophthora omnivora*)," "Amherstia nobilis," "Trinidad Palm," "Cane Seedlings," and "The Mango" (with figures).—*Bulletin de l'Institut Botanique de Buitensorg*, No. 1.—*Annual Report of the Department of Parks, City of Boston*, 1898, illustrated.—*Syllabus of Horticultural Classes*, by T. H. Smith, 4, New Street, Kenilworth.

PLANT PORTRAITS.

PEAR, *Belle de Juillet*. An early Pear, as its name implies. M. Burvenich gives it a good character in the September number of the *Bulletin d'Arboriculture*.

PUYA THOMASIANA, *Revue Horticole*, October 1. Caulescent, with linear, recurved leaves, each about 1 yard long, and a terminal panicle 6 to 7 feet in height, of metallic-green flowers.

RHODODENDRON SMIRNOWI, *Revue Horticole*, November 1. A Caucasian species, with white down on the under surface of the leaves, and trusses of pale lilac flowers. The description is furnished by M. Marc Micheli.

ROSE DUCHESSE OF AUSTRIAN, *Revue de l'Horticulture Belge*, October.

ROSE MADAME WAGRAM, and COMTESSE DE TURENNE. *La Monteur d'Horticulture*, September 10.

IRELAND.

STORM IN DUBLIN.

A STORM of great violence visited this metropolis on Friday morning, the 3rd inst., lasting up to mid-day; it caused a great amount of destruction. Many of the parks were heavy sufferers, notably

the one attached to Trinity College. Several fine trees were blown down in the suburbs; private gardens had their trees uprooted. Fortunately, there was no fatality occurred from this brief tempest.

GLASNEVIN BOTANIC GARDENS.

An unusual feature in the above Gardens is the flowering of a plant of *Arachnanthe Lowi*, a Bornean Orchid, which has been in the garden for sixteen years, and this is the first time it has produced blooms. The plant carries six racemes, five of which are more than 7 feet, and one about 6 feet in length, and each raceme possesses thirty-three blooms on the average. The collection of *Cattleya labiata* is finely in bloom. A. O'Neill.

HOME CORRESPONDENCE.

WEBB'S VICEROY TOMATO.—I have grown this Tomato with many other varieties, but have not had one to equal it among the others. It is a splendid out-of-doors variety. I have had about fifty plants of this Tomato planted on a south border, and have been gathering fruits of a large size since the first week in August. Each plant has borne on an average 16 lb. of fruit. I like to try all the varieties of new Tomatoes, and in Webb's Viceroy I find one that will have my best attention. It is a splendid market variety, the fruits coming up to a weight of 13 ozs. each. It is as good under glass as in the open; my plants are still producing 6 to 10 lb. of nice ripe fruit each week. Should sharp frost set in, I shall place them in pots under glass for furnishing a late supply. Wright, Oakfields, Kingswinford, Dudley.

POTATO EARLY BIRD.—Mr. Baylor Hartland tells at p. 332 an interesting story of the securing of two crops from the above-named variety in one season. The name of the Potato is, perhaps, a little confusing, as a good many years ago the late Mr. Charles Turner put into commerce a selection from the Ashleaf Kidney under this title, and some time after that had disappeared from lists, I raised an early white kidney by crossing Duke of Albany or White Beauty of Hebron with pollen of the Ashleaf Kidney, and that was put into commerce under the same appellation. Does Mr. Hartland refer to either of these varieties when he says that the one he mentions was his own "introduction," or does he mean by that term it is his own "raising," which is a different thing? But there is no novelty after all in what he details with respect to the getting of two crops in one year in that way. Only last year I purchased seed-tubers from the Canary Islands, and in April exposed them to "green," planted them a week later, and obtained a capital crop in that way. I have seen it done also by the aid of tubers from a very early planting on a warm border, or under a frame, the tubers being lifted before ripe, exposed for a week, then planted, and giving a good crop in September. There are few practices or experiments in connection with Potatoes that have not been tested in this country many times over. One of the remarkable features of the late Potatoes this season is the way they kept up green vigorous tops without having on them the least evidence of fungus, even into October. That is very unusual in the south. The best croppers this year, and therefore the best friends to the growers, have been the strong late croppers. These have produced four times the crop earlier ones have. A. D.

THE BEST CROPPING POTATOS.—May I ask some of your readers who have had much experience in the cultivation of Potatoes, to inform me which out of the following varieties they have found to be the best in every point, viz., Magnum Bonum, Maincrop (Clarke's), and Up-to-date, giving the quantity harvested per acre; also the best price per ton obtained, and to state which variety proved to be the best disease-resister. There have appeared in a local daily paper several letters written, I should say, by men with very limited experience, condemning "Up-to-date" all round. One gentleman told me he had seen Up-to-date and Maincrop growing side by side, and the latter gave a crop twelve times larger than Up-to-date, but this I know is absurd. Another says Up-to-date will not keep when pitted. The next letter says that Maincrop will command a price two-thirds larger

than Up-to-date, and that the former is far superior to the latter. I have grown several hundred tons of Magnum Bonum and Up-to-date, and have found both to be wonderful croppers, and to withstand the assaults of the fungus as well as any Potatoes that I have grown. I doubt if this Maincrop can be such a wonderful Potato as these letters would make it out to be, and before getting in my fresh stock of seed Potatoes for next year I shall be glad to have the opinion of some of your readers, knowing that your valuable paper comes in touch with the most experienced men in England. Joseph Loader, F.R.H.S.

RAGGED-SCHOOL CHILDREN.—The Corporation has again granted the use of the Guildhall for the Annual Banquet to the Ragged-School Children of London, and the Prince of Wales has once more sent me a donation to, if I may quote the words of His Royal Highness, "the excellent fund which you are again kindly raising for providing dinners and hampers for the poor and crippled children of the metropolis at Christmas." Last year, after providing a banquet at Guildhall for about 1,400 poor children, I was enabled to send 4,324 hampers to deserving little cripples, whose affliction very often keeps them prisoners in one room from year's end to year's end. I trust that with the renewal of your valued sympathy and assistance, we shall do better still this year, by increasing the number of hampers to 5,000. May I ask your readers to help me again this winter to brighten the lives of some of London's little cripples. Subscriptions should be sent to me here, marked "Children's Fund." W. P. Treloar, Alderman and Sheriff, Ludgate Hill, London, E.C.

BEGONIA FUCHSIOIDES FOR SUMMER BEDDING.—Having this year a dozen plants to spare of this handsome old scarlet-flowered Begonia, I planted them for experiment in a mixed bedding arrangement. The result exceeded my expectations. The plants when put out early in June were about 3 feet high, and they began to grow and flower forthwith, and have continued flowering freely up to the present time. The plants with their bright scarlet-tinted flowers are very effective planted in this manner. I used them in connection with variegated-leaved Abutilons and variegated *Dactylis glomerata*, the soil being covered with the latter. The plant withstands dry weather as well or even better than other fibrous-rooted species of the semperflorens type, and may be employed in dry gardens where the tuberous-rooted Begonias do not succeed. Cuttings of the plant root readily in a mild bottom-heat; and if these are rooted at this season, they make nice plants by May next. C. Herrin, Dropmore, Bucks.

PLUM COE'S GOLDEN DROP.—I was glad to see "H. T. M.'s" note on the long-keeping qualities of this superb dessert Plum. Were anyone restricted to one table Plum, few would hesitate to elect Coe's Golden Drop. A few might prefer the Green, Golden, or Transparent Gage, or the Jefferson, Woolton Black, Kirke's, or Imperatrice; but for constant fertility, hardiness, and vigorous constitution, none can approach Golden Drop. Trained on west or east walls, and in the open quarter, in all forms, and under varied conditions of culture, this variety seldom fails to succeed from one end of the country to the other. In thousands of gardens where most of the Gages and other choice Plums are uncertain croppers, the Golden Drop is sure and reliable; and I have noted of late that it seems to be more grown north than south of the Tweed. I wish to cordially endorse all your correspondent has so well said in these columns at p. 330. He says his fruits were grown on a west wall. I have also found that flies and wasps give less trouble on west walls, and on dwarfs and cordons than on south walls. On west, east, and north walls, the usual season of ripening is from the middle to the end of September, and the season may be extended to similar dates in October. And I have also found that Golden Drop Plums grown on eastern and northern aspects escape spring frosts better, and the fruit keeps longer after they are ripe from cool sites than warm ones. To keep Golden Drop or Blue Imperatrice or other Clingstone Plums sweet and sound for weeks or months after gathering, they must be unbruised and unbiten by insects, as well as being dry when gathered. Neither must the fruits be roughly handled in the gathering and storing; this should always be done with extreme care. "H. T. M." does well to caution growers against removing the

stalks from the fruits; and for that matter all Plums for dessert are best gathered with their stalks. A sharp knife is better than scissors for gathering Golden Drops for long keeping. With an expert touch of a sharp knife, the base of the Plum-stalk is healed out. I do not agree with wrapping the Plums in tissue paper, wadding, wood-shavings, or storing away in air-tight jars or boxes in cool chambers. Any well-ventilated loft or empty chamber, the average temperature of which is 40° to 45°, will keep these Plums for six weeks to six months [!]. A room for storing these long-keeping Plums might be wired over near the ceiling, or splits of wood or thin bamboo rods stretched across from side to side at 6 in. apart; from these supports the Plums might be suspended with bouquet-wire, almost touching each other. Hung thus the fruits are doubly safe through the ties, and the small heel left on the top of the Plum-stems in gathering. In all the manipulation of the fruit, such as the suspension after gathering and storing, the stalk and not the fruit should be handled. Golden Drop Plums thus stored may be kept for a year or more, though this is seldom necessary. But it is often of great use and special value to have a good supply through the Easter holidays, and with cool quarters and thorough ventilation, and careful inspection, there is little or no difficulty in keeping Golden Drop Plums in serviceable quantities till midsummer. "Not without shrivelling," I fancy I hear some of my practical friends saying. Well, perhaps not. But the amount of that, and the time of it, will largely depend on where the Plums were grown, how they were gathered, and where they were stored, how, and when. D. T. F.

DAHLIA BLOOMS.—I send a few Dahlia blooms cut in the open garden this afternoon. We have at the present time some hundreds of really good flowers. The Cactus and the decorative varieties are by far the best. The Show Dahlias, of which we grow but very few, hold the wet, become too heavy for their stalks, and hang down their heads. George Stanton, Park Place Gardens, Henley-on-Thames, November 13. [Delightfully fresh. On the same date Dahlia blooms were on sale in Covent Garden. Ed.]

BOOKS FOR UNDER-GARDENERS.—Now that the days are shortening, and the long evenings are again with us, the more studious class of under-gardeners will begin to consider which "out of the vast number of books to be had at the present day," they are going to read to occupy their spare time; and as under-gardeners as a rule have but very little spare time, they do not wish to waste it in perusing volumes from which they are likely to reap little or no benefit. To all those of the above class who require a thoroughly good instructive book, I strongly recommend the works of Charles Darwin, especially to those interested in the remarkable family of Orchids. To these, the book entitled *The Various Contrivances by which Orchids are Fertilised by Insects*, is particularly suitable. How frequently one hears the remark from people looking through Orchid-houses, "What a singularly-shaped flower, &c." In fact, they often seem to regard Orchids as freaks of Nature, and when looking at a *Catasetum* flower, they say "I don't see much beauty in that." Yet comparatively few under-gardeners can explain in a satisfactory manner the reason of all these peculiar structures, and what purposes they serve. Whereas, if it were only explained to the people passing the above remarks of the remarkable contrivance possessed by the *Catasetum* for ejecting its pollen masses when bees or other insects, visiting the flowers for the purpose of gnawing the fleshy substance found upon the labellum, touch a long, tapering, sensitive projection, called the antenna. This antenna, when touched, conveys a stimulus or vibration to a certain membrane, which is instantly ruptured. This sets free a spring by which the pollen masses are shot forth like an arrow in the right direction, and adheres by its viscid extremity to the back of the bee; it is thus carried to the flower of the female plants, and fertilisation is effected in a similar manner to all other members of the Orchid family. They would then cease to look upon them as ugly, ill-formed flowers, or "Freaks of Nature," and consider them the most interesting species of an interesting family. The same author also explains the marvellous construction of the *Cypripedium*, *Coryanthes*, *Masdevallias*, and other things too numerous to mention. It is not necessary, as some people think, to be a botanist, or well up in all

sciences, to understand these works. They are all written in the simplest manner possible, scientific terms being avoided. Therefore, anyone who knows anything at all about the subjects he deals with, can understand them thoroughly. His works are all the result of many years study, and his theories are now generally accepted to be the correct for working purposes. *R. W.*

THE "CLOISTER" FRUIT-PROTECTOR.—After trying one of these articles over a Pear, I was agreeably surprised, after several weeks, to find the fruit to be much better-flavoured than a fruit not so protected, which grew alongside on the same tree. The variety was Williams' Bon Chrétien, a good one for test purposes, the flavour being very pronounced. The protected fruit showed no deviation in appearance from the others, the russet-markings on the skin being just the same. The fruits were grown on a wall with an east aspect. I suppose the protector absorbed and conserved the sun's heat, and thus influenced flavour. The main idea with the inventor appears to be protection

LAW NOTES.

BULBS BADLY PACKED.

A case of considerable interest to bulb importers occupied His Honour Judge Whitehorse at the Birmingham County Court recently for nearly six hours. It was an action brought by Adrian Klinkenberg, a bulb-grower of Lisse, near Haarlem, against Messrs. Thomson & Co., nurserymen, of High Street, Birmingham, to recover £67 4s. 3d. for bulbs supplied. Defendants paid £23 12s. 3d. into court, and pleaded as to the remainder of the claim that the bulbs were unsaleable by reason of their being badly packed. The plaintiff's case was, that on June 28 the defendants gave him an order for bulbs to the amount claimed, and in accordance with their instructions he delivered them to agents at Rotterdam, who transferred them to England, per the steamer *Winslow*. Upon

time head-gardener to the Dowager Countess of Jersey on the Osterly Park Estate, Heston. On Mr. Welch leaving, John Shrimpton took his position as head-gardener, and served under the Dowager Countess of Jersey and the Duchess of Cleveland for the space of twenty-one years. During the late years of his service, the raising of seedling Chrysanthemums under Mr. Seward engaged much of his attention. The earliest to be produced were Japanese William Seward and John Shrimpton, followed by Dorothy Seward, Mrs. John Shrimpton, John Seward, Charles Shrimpton, John Neville, Joseph Brooke, Elsie Neville, incurvata Hanwell Glory, and others. Most of those named were awarded Certificates of Merit. His loss is greatly deplored by his employer; for, to use Mr. Seward's words, "he was a painstaking, conscientious, honest man." As a cultivator he possessed excellent abilities, and displayed them in his work. John Shrimpton died of cancer after a long and painful illness, and was buried in St. George's Cemetery, Hanwell.

ENQUIRIES.

We have received the following letter from Mr. J. A. Warren, of Springhurst, Hartburn, Stockton-on-Tees:—"About eighteen months ago we made a small ornamental pond at the lower end of our garden, which is fed by a small, natural spring. The pond is dug out of the clay, and we covered the bottom with gravel taken from the river, and have planted Water Lilies, which are now well established, and other aquatics around the sides, and also introduced fish. After a few months the bottom was thickly covered with a moss (the botanical name of which I learn is *Mesocarpus* (?), one of the thread pond-weeds). [Please send a specimen. Ed.] At first no notice was taken of it; but, as it grew so rapidly, an endeavour was made to rake it out; but this has not proved successful, for it still continues to grow, regardless of the constant raking, and has now risen to the surface, making the pond very unsightly. If that which floats is scooped up in the morning, in the course of the day more of it rises, and the state of the pond is as bad as ever by night-fall. It is impossible to rake it out in its present stage, as it lies at the bottom as a thick, dark green substance, which flows through the rake on being touched. I should be very pleased if any of your readers who have had the same sort of trouble would kindly give me their experience, and inform me whether they were successful in ridding the water of this pernicious weed without injury to the fish, &c."

ROMAN HYACINTHS.—"Perplexed" would be glad if any of our correspondents would kindly indicate the cause of Roman Hyacinths failing to grow. The bulbs in question were bought at the usual time, potted, and afforded water, and after being allowed to drain, they were plunged in Cocosnut-fibre refuse in a frame. They seemed to make roots all right for a time, but when top-growth had made a little progress, and just before they were taken out of the fibre, the roots began to decay. He says that the bulbs were potted in the usual compost for such plants, and is certain there is nothing in the soil to cause the roots to decay, as a large batch of *Freesia*, potted at the same time in the same kind of soil, are doing remarkably well. The same thing happened twelve months ago, but as he then plunged them in coal-ashes outdoors, it was put down to something deleterious in the ashes. He has grown Roman Hyacinths for more than twenty years, and never knew them to behave so at such an early stage.

MOSS LITTER AS PACKING FOR FRUIT.—It is said that Apples placed in this substance keep for a much longer period in the fruit-room than is the case with the usual method of merely placing the fruits in one or two layers on the shelves. Can any of our correspondents say if this is really the case?



FIG. 124.—A FIELD OF MADAME DESGRANGES CHRYSANTHEMUMS.

from birds and insects, which the device effectually secures, this may also be accomplished by other more readily-applied means; but if by its use flavour in fruits is improved—as at Belvoir—an additional advantage is obtained. I have not tried the protector on the Apple. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

A FIELD OF CHRYSANTHEMUMS.

As affording our readers an idea of the great developments in recent years of the trade in cut flowers little suspected by the public, or indeed by gardeners in general, we illustrate in the present issue (fig. 124), a field in full bloom of the favourite, early-flowering, Japanese variety, Madame Desgranges. The flower is large, pure white, with florets of medium width, and is at its best in the month of September. The plant is of dwarf growth, and therefore very suitable for field culture. We are indebted to the kindness of the Brighton and South Coast Horticultural Co., Ltd., Exotic Nurseries, Worthing, for the opportunity of figuring this field of thirty-seven thousand Chrysanthemum plants.

delivery at Birmingham, the defendants at once wrote to complain that they had arrived for the most part in a rotten condition, owing to the fact that they had been badly packed, having been sent loose in cases instead of in bags. Plaintiff replied that he had packed the bulbs in accordance with his usual custom. Expert opinion was given by both sides upon the method of packing that had been employed, and the jury being unable to agree upon a verdict were discharged.

Obituary.

JOHN SHRIMPTON.—This well-known Chrysanthemum-raiser died on October 23 at Hanwell, where he had lived for the space of fifteen years as working-foreman to Mr. William Seward at The Firs. John Shrimpton was born at Norwood, in the year 1840, and started his gardening career under a Mr. Lamb, head-gardener to Miss Thackwaite of Norwood-green, who was a cultivator and exhibitor of Pelargoniums and Cinerarias. Leaving here on the occasion of the death of Mr. Lamb, he went under Mr. Welch, at that

SOCIETIES.

ROYAL HORTICULTURAL
Scientific Committee.

NOVEMBER 7.—*Present*: Dr. M. T. Masters (in the Chair); Mr. Michael, Dr. Russell, Mr. E. F. Im Thurn, Mr. E. Mawley, Professor A. H. Church, and Rev. G. Henslow, Hon. Sec.

Effects of Fog.—Mr. Wright sent some Vine leaves from Cuswick to show the injurious effects of the recent fogs in the gardens of the Royal Horticultural Society. All Grapes of the Muscat class were by far the most severely injured, the foliage being scorched, and the fruit more or less covered with a deposit. It was observed that the fog occurred remarkably early in the season. Prof. Church noticed that it was peculiarly pungent, causing in one instance a hundred buds of a Camellia to fall in a single day. Injury was also done to Orchids at Chelsea and Gunterbury. The real cause of the injuries is the presence of sulphurous acid and the mechanical accumulation of a sooty matter.

Amaryllis reversion.—Rev. W. Wilks brought an *Amaryllis*, the flowers of which apparently had more or less reverted to the primitive form of *Hippeastrum*, from which the modern types have descended through hybridisation.

Foxglove, hybrid.—A flowering spike of a hybrid between a white-flowered Foxglove and *Digitalis Intea* was sent by Dr. Wilson, of St. Andrews. It was remarkable in having much smaller flowers than those of the usual form of *D. purpurea* × *D. Intea*; and though possessing perfect petals, there were no stamens. Moreover, the flowers were white, but slightly variegated. The white Foxglove was the pollen parent.

French Vineyards Injured.—Dr. Masters observed that having lately seen the vineyards of the Champagne country, also those near Neuchâtel and the lake of Geneva, he did not observe a single perfect bunch of Grapes. They appeared to have rotted through fogs prevailing at the time fertilisation was taking place.

Pinus aristata.—He also exhibited cones of this rare Californian Pine. They are remarkable for bearing a needle-like spine at the back of the thickened end of scales, the so-called apophysis. It was a question whether this be not a variety of *P. Balfouriana*, which grows in the same country and only differs in the smaller spines. It is a good maritime species, bearing dense foliage. They were received from Mr. Croucher of Chisle.

Felurian Mentha.—Mr. Henslow showed a drawing of a regular flower of *Mentha rotundifolia* found wild by the river Wye, near Ross.

LINNEAN SOCIETY OF LONDON.

NOVEMBER 2.—Dr. A. GUNTHER, F.R.S., President, in the chair.

Professor STEWART, F.R.S., F.L.S., exhibited and made remarks on a preparation of the leaves of *Mimosa pudica*, showing the diurnal and nocturnal positions. He also exhibited the embryo and egg-cases of *Cestracion Philippi*.

Rev. G. HENSLAW, F.L.S., read a paper on the Proliferous state of the Awn of Nepal Barley. After describing the two varieties, *Hordeum corale*, var. *Egloceras* and *trifurcatum*, he showed that the inverted flower-buds (which constitute the peculiarity of the monostrophy) were different in the two varieties. In *H. Egloceras* it commenced at a bend in the flattened awn, with an axial protuberance arising from the middle point; in *H. trifurcatum* the hastate form began with two protuberances, one on each side. In Prof. J. S. Henslow's figures (*Hooker's Jour. Bot.*, i., 1849, pp. 33–40, pls. 2–3), the arrested awn widens, the edges folding over until it forms a "cucullus," while the lateral processes of various shapes grow out at the base (really inverted summits) into what he termed "wings." His material, however, was not sufficient to enable him to interpret either the cucullus or the wings. The Rev. G. Henslow's specimens showed that the former often assume the form of two glumes more or less coherent by their edges, while the wings became their awns.

Dr. O. SPARR, in criticising the paper, entered very fully into the structure and development of different species of the genus *Hordeum*.

Dr. W. G. RIDEWOOD, F.L.S., read a paper on the Hyobranchial Skeleton of the new aglossal Toad, *Hymenochirus Boettgeri*.

Mr. HAROLD WAGER, F.L.S., read a paper on the Eye-spot and Flagellum in *Fragaria viridis*.

MAIDENHEAD HORTICULTURAL.

NOVEMBER 2 AND 3.—The autumn show of this society was held in the Grand Hall on the above dates, the exhibits being generally of great merit, especially those of Mr. Perkins, gr. to the Hon. F. D. SMITH, Greenlands, Heston-on-Thames. His cut-flowers and group of plants formed a feature of the exhibition. Groups of miscellaneous plants from several exhibitors were also very attractive, while fruit was shown of excellent quality. The arrangements generally were good, although in one instance, where a quantity of table plants were huddled together on a back stage instead of being disposed in a single line among the fruit dishes, where the effect would have been good and space economised, was one notable exception.

Groups.—For a semi-circular group of Chrysanthemums, "with foliage plants at the discretion of exhibitor," four good prizes were offered, and here Mr. Perkins was well ahead of other exhibitors, with a beautiful group, well arranged, and the plants carrying large flowers; 2nd, Mr. Duns, gr. to Colonel Grey, Bray.

Groups of miscellaneous plants were a pleasing feature, six exhibitors competing for half that number of prizes. Mr. Gibson, gr. to R. W. HUNSON, Esq., Danesfield, Marlow, was awarded the 1st position.

Cut Blooms.—The greatest interest was centred in the open class for thirty-six Japanese blooms in not fewer than twenty-four varieties, and not more than two of one variety. Mr. PERKINS was a good 1st, with the following, among others:—Mrs. White Popham, Australian Gold, Mutual Friend, Mrs. J. W. Birks, Australia, Mrs. Mease, the premier bloom and a magnificent flower; Madame Carnot, Mrs. H. Weeks, Pride of Maidford, Le Grand Dragon, Lord Lindlow, and Nellie Pickett. Mr. Palford, gr. to F. D. LAMBERT, Esq., Moor Hall, Cookham, was 2nd, also having good flowers, a fine Oceana being noticeable.

An interesting class was that for eight vases of Japanese blooms, each to contain three blooms of one variety, and only Chrysanthemum foliage to be used, a 25 Silver Cup being offered as 1st prize. Here Mr. PERKINS was 1st; 2nd, Mr. D. HAYLER, gr. to Mrs. LANGWORTHY, Holyport, Maidenhead.

A somewhat similar class for eighteen Japanese blooms, arranged on a space 5 feet by 3 feet, with the addition of any foliage plants or foliage. Mr. Wood, gr. to Lord Boston, Hedsor, Maidenhead, was 1st with an arrangement of small decorative plants, above which the blooms were arranged.

For twelve Japanese blooms, Mr. Wood was 1st, followed closely by Mr. FULFORD; and for a similar number of incurved blooms, the last-named exhibitor was a good 1st, with a stand of large flowers of excellent quality.

For six Japanese of one variety, Mr. PERKINS was 1st with fine flowers of Mutual Friend. For a similar number of incurved blooms, Mr. FULFORD was 1st with D. B. Crane.

FRUIT AND VEGETABLES.—For a collection of vegetables, Mr. GIBSON was a good 1st. Mr. Hutt, gr. to Captain FARWELL, The Priory, Burnham, was 1st for a collection of Pears, including a fine dish of Pitmaston Duchess; and Mr. Jordan, gr. to RILEY, Esq., Bohemia, Marlow, had a similar position for Black Grapes.

Non-competitive Groups were numerous; Mr. R. OWEN, Castle Hill Nursery, contributed a fine group of Chrysanthemums, consisting of incurved and Japanese varieties of his own raising, Lord Cromer being conspicuous. Mr. R. BROUGHTON and Mr. E. F. SUCH also contributed groups and floral decorations; and Messrs. J. HOUSE & SON, Westbury-on-Trym, Bristol, a collection of double and single Violets.

PORTSMOUTH CHRYSANTHEMUM.

NOVEMBER 1, 2.—A first-class display was that held in the Town Hall by the Portsmouth Chrysanthemum Society on the above dates.

Cut blooms were especially good and numerous. The incurved section displayed more than average merit. The leading class was that for forty-eight blooms, half to be incurved, and half Japanese varieties. Mr. C. PENFORD, gr. to Sir F. FIRZVORSE, Bart., M.P., Leigh Park, Havant, won the premier award. Good specimens of Mrs. J. Lewis, Mrs. W. Mease, Soleil d'Octobre, Australe, Vivand Morel, and Mrs. Honte, in the Japanese; while in the incurved section, Duchess of Fife, Globe d'Or, C. H. Curtis, and Mrs. R. C. Kingston, were noteworthy. Mr. E. J. HUNT, gr. to PANTIA RAILL, Esq., Ashstead Park, Epsom, was a good 2nd.

For twenty-four Japanese blooms, there was spirited competition, Mr. J. ADAMS, The Nurseries, Havant, winning with an even stand of heavy blooms. The new Florence Molyneux, Miss Ethel Pilkington, Mrs. Mease, Phœbus, and M. Chezon de Leché, were conspicuous examples. Mr. C. PENFORD was a close 2nd.

For an equal number of incurved flowers, there was again brisk competition. Mr. PENFORD, with a stand of medium-sized blooms, winning premier honours from Mr. HUNT.

LOCAL CLASSES.

Numerous classes were devoted to growers in the Portsea Island. In the class for twenty-four Japanese, Mr. F. T. STEPTOE, gr. to T. WILLIAMS, Esq., St. Andrews, was an easy winner of 1st prize. Mr. NEWELL, gr. to J. SHADDON, Esq., Dorset House, won 1st prize for twelve Japanese, with heavy blooms. The best incurved blooms in this division, came from Mr. G. ADAMS, Clarendon Road, Southsea, in the class for twenty-four blooms.

AMATEURS.

The exhibits in these classes made a great display, so numerous and good were they. For twelve Japanese, Mr. H. H. LEES, 54, Cedar Road, Southampton, easily gained the leading award, for an exhibit that would have secured a higher position in an open class at most shows. The blooms were large, fresh, fine in colour, and well-staged. Mr. T. LLOYD, Drayton Road, North End, Portsmouth, was 2nd.

PLANTS, FRUIT, &c.

Plants were not remarkable. The best group of Chrysanthemums, interspersed with foliage plants, came from Mr. FORSTER, Brockhampton Nurseries, Havant.

Fruits and vegetables were well shown. Mr. E. HILLIER, nurseryman, Winchester, staged five dozen dishes Apples in splendid condition; and Mr. COUSINS, Swanwick, a smaller collection.

HEREFORDSHIRE FRUIT AND
CHRYSANTHEMUM.

NOVEMBER 1, 2.—This Society held its eighth annual show in the Shire Hall, Hereford, and there was a magnificent display of Apples, which, if not remarkable for great size, were nevertheless of extraordinary colour. Pears were likewise exhibited in quantity, and were of excellent quality. The groups of Chrysanthemums and miscellaneous plants were of considerable merit, but with few exceptions the stands of cut blooms were not of high quality. Collections of vegetables were excellent.

APPLES.

In the class for fifty dishes, Mr. WATKINS, Pomona Farm, Hereford, was, as usual, placed 1st, with a grand lot of clean, highly-coloured fruits—Wadhurst Pippin, Smart's Prince Arthur, Wealthy, Lady Waldron, Peargood's Nonsuch, Twenty Ounce, Livezey's Imperial, Newton Wonder, and Cox's Orange Pippin, were observed amongst the best dishes. Messrs. FEWTESS BAOS, The Old Nursery, Hereford, were a good 2nd.

For thirty dishes, Mr. R. GRINDROD, gr. to G. J. BATES, Esq., Whitfield, Hereford, took the lead with some of the best fruit exhibited, including splendid dishes of Emperor Alexander, Allington, Ribston, Cox's Pippin, Lord Derby, Gascoigne's Seedling, Bismarck, Rymer, &c.; Mr. Ward, gr. to Lady E. POLY, Stokes Edith Park, was a close 2nd.

For twenty-four dishes, including twelve dessert and twelve kitchen varieties, Mr. WOOTTON, Byford, Hereford, was 1st, with a choice collection of well-coloured fruits, Royal Jubilee, Byford Wonder, May Queen, Emperor Alexander, Warner's King, King of the Pippins, and Ribston Pippin being conspicuous. Mr. DAVIS, gr. to W. E. KING, Esq., Bodenham Manor, was 2nd.

Champion dishes.—Mr. GRINDROD secured the prize for the best dish of culinary Apples, with a grand dish of Emperor Alexander; Mr. FOX, gr. to Captain T. G. CORRELL, Garmons, Hereford, that for dessert varieties, with large highly-coloured Cox's Orange Pippin; and Mr. DUNN, gr. to Mrs. WOODHOUSE, Burghill Court, for Pears, with a fine, clean dish of Easter Beurre.

PEARS.

The best collection of twenty-four dishes of Pears was shown by Mr. SPENCER, gr. to G. MOFFATT, Esq., Goodricke Court, Ross, who had fruit of very high quality; his best dishes being Beurre d'Avalon, Doyenné du Comice, Durondeau, Beurre Superfin, Forelle, Beurre Balthé, Beurre Berkman, Beurre Perran, and Duchesse d'Angoulême; Mr. SMITH, gr. to L. J. C. MITCHELL, Esq., following with good, clean fruit.

Mr. GRINDROD was also first for twelve dishes.

There was spirited competition in some twenty classes for Apples and Pears, including collections of Cider Fruit, open only to tenant-farmers; as there was likewise for special prizes offered for Apples as packed for market; and for preserved fruits.

GROUPS OF PLANTS.

Amongst three competitors, Mr. FOX was placed 1st for a group of miscellaneous plants; and Mr. MINARD, gr. to Sir J. RANKIN, Bryugwyn Park, was a close 2nd.

For a group of Chrysanthemums, 12 feet by 7 feet, Mr. SMITH, gr. to R. J. C. MITCHELL, Esq., was 1st with a beautifully arranged lot of plants possessing large flowers, but was very closely followed by Mr. WILLIAMS, gr. to Sir J. PULLY, Lower Eaton.

CUT BLOOMS.

For twenty-four Japanese, Mr. RICH, gr. to G. HADFIELD, Esq., Marlston House, Ross, was 1st with the best stand exhibited; 2nd, Mr. W. DAVIES, gr. to A. W. G. WRIGHT, Esq., Quarry House. Mr. SPENCER was 1st for twelve blooms.

For twelve blooms of incurved varieties, Mr. GRINDROD was 1st; and Mr. C. SMITH, 2nd.

Non-competitive Exhibits.

Mr. WATKINS staged 130 splendid dishes of Apples. The ENGLISH FRUIT & ROSE COMPANY, LTD., King's Acre, Hereford, staged a fine collection of sixty dishes of highly-coloured Apples. Mr. WILSON, Commercial Street, Hereford, exhibited a large collection of sprays of decorative Chrysanthemums, cut from the open, &c.

FRENCH NATIONAL CHRYS-
ANTHEMUM.

NOVEMBER 3.—The fourth annual exhibition of the above Society, which was held in conjunction with the autumn show of the Practical Horticultural Society of the Rhone, was opened on the above date. The weather was all that could be desired, and about 5000 people visited the show on the first day. The display of plants in pots and cut blooms was a very extensive one, and the arrangements made for the convenience of visitors were exceptionally good. Instead of the usual method of staging the cut flowers on tables as in England, the flowers were shown in glass bottles, and then arranged in beds in the level ground with a raised wooden border; the whole of the bottles being covered with green moss.

A similar plan was adopted for the pot plants, nearly all of which were exceptionally dwarf, a system being practised at Lyons, which is known as "culture Lyonnaise," and consisting of striking the cuttings late in the spring, and then severely disbudding, so that the growers obtain very dwarf plants, with from three to seven large sized blooms.

A large number of special prizes was offered consisting of works of art and medals. Among the donors were the President of the Republic, the Minister of Agriculture, the County Council, the town of Lyons, several French societies, the English National Chrysanthemum Society, and the Italian National Chrysanthemum Society, both of which were represented in the persons of Mr. Harmau Payne and Mr. Paolo Radaelli.

The Exhibition was laid out in the usual Continental style, the beds being formed in geometrical forms, with numerous paths between. New seedlings were shown in splendid form by M. ERNEST CALVAT, who had seventeen varieties, out of which the Floral Committee selected eight for first-class Certificates. These will not be sent out till next year, but it may be useful to mention them by name, for as shown there was certainly no sign of this grower's ability being on the wane, as some of the English cultivators are apt to think. They were Madame Adèle Cordonnier, Wibaux, M. O. de Meulensere, Madame Alice Capitaine, Madame L. Druz, Salomé, Madame de Tracquerville, Marquis Visconti Venosta, and Madame V. Delavrie.

Seedlings were also shown in very large numbers by M. BONNEFONS, EYND. DE REYDELLT, Messrs. VILMORIN ANDRIEU & Co., and M. HERRAUD, a comparatively new raiser.

Mr. W. WELLS, of Earlwood, also showed Lord Salisbury, Lord Ludlow, Silver Queen, Janet, Lady Clark, and others, under numbers.

Another English exhibitor was Mr. J. BROOKS, of Totteridge, who had a nice exhibit of six cut blooms.

Pot plants were well shown by Messrs. CHARMET, ROZAIN, BOUCHARLAT, RIVOIRE ET FILS, BRESSY & COMBET, VILMORIN-ANDRIEU & Co., and others.

The English reader will have but little interest in details of the various awards, and we shall therefore content ourselves with saying that in the groups there was a very good oval one contributed by the Municipal Gardens, where M. CHOLET, the originator of the culture Lyonnaise, presides over the Chrysanthemums, and that the best varieties we noticed consisted of the following well-known sorts:—President Nonin, Madame Deis, G. J. Warren, Mari Calvat, Australian Gold, Madame Ferlat, Oceana, Mrs. C. Harman Payne. Others of equal merit were Madame H. Brun, a fine large white Japanese; Le Colosse Grenoblois, immense in size, but which is seldom seen now in England; Secrétaire Rivoire, yellow; Madame Carnot, all good, and large in size; M. Louis Rémy, a fine pure yellow sport from Mrs. C. Harman Payne, N. C. S. Jubilee, Rayonnant, Madame Rozai, a fine, delicate, pale, silvery-pink, somewhat old, but a very effective flower; Mon Petit Jean, and several others. There were also many other varieties, a large number of which are almost unknown in England, but which in no case could be compared with the varieties mentioned.

A curious exhibit came from M. DELVERT, who set up a collection of dwarf Chrysanthemums, rooted and grown in moss only, but which had their nutriment supplied by waterings with a special liquid-manure, prepared under the direction of M. Truffaut, jun., who is well known for his researches on the subject of chemistry as applied to horticulture.

MISCELLANEOUS GROUPS were very well arranged, and consisted of Palms, Ferns, and the usual ornamental and foliage plants. These were contributed chiefly by Messrs. REVOZ, DEVERAUX, and A. MORILL. Carnations, Cactus, Dahlias, Abutilons, Cyclamen, Roses, and many other products were staged.

There were also exhibits of fruit, the finest one being a display of Grapes by Mr. H. FATZER, who was deservedly awarded a work of art in bronze for his Gros Colmar and Black Alicante, and Canon Hall Muscat, and Muscat of Alexandria. In the grounds adjoining the exhibition-hall, which was a large temporary wooden structure, there were numerous Conifers, Magnolias, Palms, Bamboos, and ornamental shrubs, &c. Various implements and garden-tools were also shown.

A LUNCHEON to the jury was presided over by M. GERARD, the President of the Society; and at 2 o'clock in the afternoon M. VIGIER took the chair at a meeting of the Conference. A fine room in the Palais du Commerce was engaged for the purpose, and there was a good attendance to hear M. Gerard, who discoursed upon the subject of cross-fertilisation. M. Chiffot, who dealt with malaria and parasites, illustrated with coloured drawings. M. Ernest was awarded the Gold Medal of the Society for his services in the cause of the Chrysanthemum; and it was arranged that next year's show and Conference be held in Paris.

There was a grand banquet in the evening, presided over by M. VIGIER, the Minister of Agriculture, at which there were present the Prefect of the Rhone, the Rector of the University, General de Goffrier, Messrs. Maxime de la Rochetier, Gérard, Philippe Rivoire, Secretary French N. C. S., Harmau Payne, P. Radaelli, Secretary Italian N. C. S., H. Martinet, G. Chabanne, Lucien Chauré, Dauthenay, Marc Micheli, T. Bevan, W. Wells, Fatzer, Félix Sahut, and many others. This festive gathering was the occasion for the bestowal of several decorations upon members of the Society, who had distinguished themselves in the work of the Society.

On the second day, there was another sitting of the Conference, which was presided over by M. Maxime de la Rochetier. A visit was subsequently made to the Park Tête d'Or, where the municipal greenhouses are situated; and in the evening, the Syndicate of Lyons nurserymen organised a smoking concert, to which the jury and others were invited. It is only fair to say that a most hearty welcome was offered to the foreign visitors, and especially to the deputation from the English National Chrysanthemum Society.

SCOTTISH HORTICULTURAL.

NOVEMBER 7.—At a monthly meeting held on the above date in the Society's Rooms, Edinburgh (Mr. James Greene presiding), and in the presence of an exceptional attendance, there were nominated 117 new members, the largest number ever proposed at one time.

Interesting exhibits of Chrysanthemums were made by Messrs. JAMES GREENE & SONS and Mr. LAMONT.

TEA ROSES IN SCOTLAND.

The lecturer for the evening was Mr. SIMPSON, of the Dalhousie Nurseries, Broughty Ferry, Dundee, and he displayed a nice collection of Roses, chiefly Tea varieties—a fragrant and telling illustration of the subject of his lecture.

Mr. COMFORT exhibited a charming bouquet of Roses, and one of Mignonette, from the open-air, in a locality near Edinburgh.

In Mr. Simpson's exhibit from Broughty Ferry were fine, fresh samples of the following varieties, cut on November 7: Madame Lambert, Marie Van Houtte, White Lady, Lady Mary Fitzwilliam, Rainbow, Papa Gontier, Ulrich Brunner, Perle des Jardins, Mrs. John Laing, La France de '89, Dr. Grill, Duke of Edinburgh, &c.

Scotland is already famed for many things, and Mr. Simpson is anxious to add to her many crowns that of growing the finest Roses, especially Teas. One of her greatest advantages is her cool climate; this greatly extends the season of Scotch Tea and other Roses.

While the English and Irish growers often fail to get good blooms after July, the shrew Northern growers can cut and come again through the summer and autumn. One seldom sees a good Tea or other Rose in France unless it be Gloire de Dijon, and these are poor against the Scotch Gloire de Dijon.

Mr. SIMPSON claims to be the first Scotch grower to bud Tea Roses freely in the open. He was led to do so by an incident that occurred in 1876 or 1877. On visiting the nurseries of Messrs. MORRISON, Aberdeenshire, he was struck with the vigour and freshness of their Tea Roses in the open. Asking how they were produced, he was told that small Briars were potted-up in November, and placed in a cool greenhouse and grafted the succeeding March, planted out the following March, and sold to the trade readily the next November. Mr. SIMPSON had some of these Rosas at the end of November, 1877. These small Teas were "soured," that is, laid in the nurseries at Broughty Ferry; and early in December a time of frost and snow, which lasted for a lengthened period, set in. In March, soon after the long frost broke, an English gentleman named FRANCE, called in search of hardy Tea Roses other than Gloire de Dijon. He was told the history of the Aberdeen plants, and agreed to examine them, and said that if any were alive, they must be hardy. All were found to be alive with the exception of two. "Then and there," says Mr. SIMPSON, "I formed a resolution to bud my Tea Roses in the open, which I have done ever since."

"For several years," said Mr. SIMPSON "we have sown annually some three miles of 4 feet beds of Briar-seeds to supply our own wants and that of our customers. As to the culture of Tea or other Roses, the great secret is to dig well and dung well; turn the top spit over 15 inches deep, and loosen the soil under that with a fork or pick 15 inches more. As to dunging, put some at the bottom of the first trench, then cover with earth with the Rose above it; cover the Rose with earth, then a layer of dung covered with 2 inches of soil to give freedom for the free use of the Dutch hoe through the summer, which is found to be better than watering. Plant in November at a distance of 15 inches square for dwarf trees, and they will then cover the ground well in summer. Prune either at the time of planting in November or in the spring, but not later than March, by which time all Roses in Scotland should be pruned. In pruning we simply shave our Roses over by the ground level, sometimes with shears. In spite of this close pruning, we have too many buds and shoots pushing in April and May. We thin these out to four on each plant, and keep them as far apart as possible. The buds are thinned to one on a shoot, and the shoots are rubbed out to 9 inches down from the bud, as that is found a nice length to cut with flowers; below that length they soon break again, and produce a second and then a third crop of flowers if the plants are strong and healthy. These growths are thinned and treated as the first, and prove hardier than our forest trees, such as Spruce, Beech, Ash, Laurels, and Cedars."

Since 1893 the first blooming of cut-backs and maiden Roses at Broughty Ferry have been as follows:—

Cut-backs.	Maidens.
1898, May 30, Rubens.	1893, June 7, Distinction.
1894, June 6, Rubens.	1894, June 15, M. Van Houtte.
1895, June 10, Rubens.	1895, June 4, Grace Darling.
1896, May 26, Grace Darling.	1896, June 1, Gloire de Dijon.
1897, June 9, Bardon Job.	1897, June 25, Grace Darling.
1898, June 7, Bardon Job.	1898, June 15, Bardon Job.
1899, June 10, Bardon Job.	1899, June 22, Bladud.

Before the meeting closed, it was unanimously resolved that part of the profits of the great Chrysanthemum show of the Association, since held in the Waverley Market, should be given to aid the widows and orphans resulting from the South African War. D. T. F.

COVENTRY CHRYSANTHEMUM.

NOVEMBER 7, 8.—The Corn Exchange, in which the above Society held its fifth annual show, is an ideal building for a Chrysanthemum exhibition; and, in spite of the falling off in the number of exhibits, the quality of those staged was excellent, and the effect produced was admirable.

In the group classes, the 1st prize was well won by Mr. J. Morris, gr. to Sir RICHARD MOON, Bart., Copswood Grange, Coventry.

Two meritorious groups of miscellaneous plants were shown, the premier position being secured by Mr. W. FINCH, Coventry.

Cut Blooms.—For twenty-four Japanese, Mr. H. Blakeway, gr. to P. A. MUNTZ, Esq., Dunsmore, Rugby, was 1st; Mr. J. Blake, gr. to W. H. HERBERT, Esq., The Grange, Coventry, was a decidedly good 2nd.

The best collection of twenty-four incurveds was staged by Mr. A. Chandler, gr. to ARTHUR JAMES, Esq., Ooton House, Rugby.

Twelve Japanese blooms were shown best by P. A. MUNTZ, Esq., Rugby.

MISCELLANEOUS EXHIBITS.—There were large and representative collections of Apples and Grapes, interspersed with autumn-tinted foliage, &c., well set-up by Mr. H. T. Martin, gr. to the Right Hon. Lord LEICESTER, Stoneleigh Abbey; and from the same establishment was a collection of Chrysanthemum blooms, exhibited with the natural foliage of the plants.

Mr. J. R. HARTLEY sent a group of miscellaneous plants, and Sir B. MOON a collection of well-grown Apples and Pears.

Messrs. FINCH of Coventry had a fine show of wreaths, crosses, &c.

Messrs. B. S. WILLIAMS & SON, of Holloway, London, had a fine display of miscellaneous flowering-plants.

ROYAL HORTICULTURAL OF IRELAND.

NOVEMBER 7, 8.—The Royal Horticultural Society of Ireland held their annual display of Chrysanthemums and fruit in the spacious grounds of the Royal Dublin Society, the exhibits being staged in the central hall. During both days it rained almost incessantly. The Lord Lieutenant and party visited the show on the second day, and was received by several members of the Council.

The exhibits on the whole were as numerous as usual, but beyond a few they were not exceptional. Fruit was well shown; and deserving of special mention were the displays of the nurserymen, including Messrs. DICKSONS of Newtownards, MICH DICKSON of Belmont, and Messrs. MADDENS of Cork. The latter stand was more of an educational nature, and from this point of view was worthy of recognition. Messrs. J. HOUAR & SON, Bristol, staged single and double flowered Violets; Mr. J. FORBES, of Hawick, had Begonia Gloire de Lorraine, including the new white sport, Caledonia; Messrs. RAMSAY & SON had a fine group of Palms, &c., also a display of floral designs.

PLANTS IN POTS.

For a group of Chrysanthemums, consisting of not more than thirty plants. A second prize only was awarded to JOHN MILLER, Esq., Bagginistrath House (gr., P. Geoghegan), but the same exhibitor took premier honours; also Lord ARDILAUN's Cup, value £10, for a stand of thirty-six Chrysanthemums.

For twelve plants, WM. CARTY, Esq., Dunroo, Sandymount (gr., Mr. Leen), was 1st.

For a group of foliage and flowering plants, from which Chrysanthemums were not excluded, the premier exhibit, from Lord ARDILAUN, included Cypripediums, Salvia, Cyclamens, Chrysanthemums, Palms, and Ferns, all tastefully interspersed; and reflected great credit on Mr. Campbell his Lordship's gardener. GEORGE DRIMMIE, Esq., Booterstown, was a close 2nd.

CUT BLOOMS.

In the class for a stand of forty-eight blooms, Japanese, in a similar number of varieties, for the Society's large Silver Medal and £10, Viscount ASHBROOK (gr., P. McKellar), was an easy 1st, with a magnificent group, in which the blooms were well developed; 2nd, GERTRUDE, Countess of PEMBROKE, Mount Merrion, Booterstown (gr., H. Crawford).

For the Gardeners' Cup, value £10 10s., and £3, for a stand of twenty-four Japanese, the best exhibit was one from Viscount ASHBROOK; 2nd, C. S. SPEAR, Esq., Springfield House, Glenagary (gr., Mr. Maher).

The best three vases of Chrysanthemums, three blooms in each, own foliage, and stems to be 13 inches above top of vase, the Silver-gilt Medal (H. J. Jones), and added money prize by Society, was won by C. S. SPEAR, Esq., Glenagary; 2nd, Lord ANTRAW, Woodlawn, Galway (gr., A. Porter).

Incurveds.—Chrysanthemums, incurved, stand of twenty-four blooms, not fewer than twelve varieties, 1st prize a piece of plate value £3 3s., presented by the ICHTHEMIC GRANO Co., Ipswich, with money prizes added, was won by Viscount ASHBROOK (gr., J. McKellar); 2nd, GERTRUDE, Countess of PEMBROKE.

The best collection of twelve blooms was from CLIFFORD LLOYD, Esq., Victoria Castle, Killiney (gr., J. Farrell).

The best Japanese bloom in the show was one of Mrs. J. Lewis, from Lord ASHBROOK; and the best incurved was C. H. Curtis, from the same exhibitor.

There were fine collections in competitive classes of Cyclamens, Carnations, and other autumn-flowering plants.

FRUITS AND VEGETABLES.

For a stand of four bunches of Grapes in two varieties, the 1st prize was won by Lord ASHBROOK, Woodlawn, Galway, who had good bunches of well-finished black Alicante, Muscat of Alexandria, and Appley Towers; and the same exhibitor was 1st for two bunches of White Grapes.

The best pair of bunches of black Grapes was from the Right Hon. J. MEADE (gr., J. Colgan), who had superb black Alicante.

The best collection of Apples in twelve varieties was from Lady EMILY BURY.

The best collection of dessert Apples in six varieties was shown by Wm. Goff Pim, Esq., Summergrove, Mountmellick (gr., H. Hartley).

A collection of dessert Pears in twelve varieties was best from J. J. LOMBARD, Esq., J.P., Southill, Upper Rathmines (gr., J. Tobin).

Vegetables, upon the whole, were well displayed. The principal prize-winners were Lord CAREW, Lord ASHTOWN, Wm. Goff Pim, Esq., Mrs. MOORE, and the Right Hon. J. MEADE.

TRADE EXHIBITS.

Messrs. HOON & ROBERTSON had a very pleasing collection of fruits and berries shrubs. Messrs. WATSON & SONS, Clontarf, had an exhibit of border varieties of Chrysanthemums.

Messrs. WELLS & Co., Earlswood, Surrey, had a neat display of Chrysanthemums. Messrs. TAIT & Co. staged a fine collection of Apples and Pears, including nearly 150 dishes.

Messrs. RAMSAY & SONS, Ballsbridge, displayed a group of foliage and flowering plants, measuring over 40 feet by 30 feet in height; it was a magnificent exhibit.

Messrs. SAUNDERS, of Cork, had a meritorious display of fruits. Messrs. ALEXANDER DICKSON, Newtownards, staged a collection of fruit.

WEST OF ENGLAND CHRYSANTHEMUM.

NOVEMBER 7, 8.—The annual show of the above Society was held in the Guildhall, Plymouth. The entries for groups and cut blooms compared favourably with those of previous years.

The leading class for cut blooms was one for forty-eight Japanese, for which a 1st prize of £10 was offered. This was won by Mr. G. Foster, gr. to H. HAMMOND SPENCER, Esq., Teignmouth, who had a fine lot of even and well-coloured blooms, including such leading novelties as *Le Grand Dragon*, *Madame G. Debris*, *Pres. Nonin*, *Jane Molyneux*, *Mrs. J. W. Barks*, and *Mrs. White Popham*. Mr. G. W. DRAKE, Cardiff, was 2nd, with heavy blooms, that lacked freshness.

In the class for twenty-four Japanese blooms and twelve blooms, Mr. FOSTER was again to the front, and Mr. F. G. CLATWORTHY, gr. to F. BRADSHAW, Esq., Lifton Park, was 2nd in the larger class.

For six blooms of a white variety, Mr. CLATWORTHY was 1st, with *Madame Carnot* (good); and for six blooms of any coloured variety except white, Mr. FOSTER won with *Australian Gold*.

For twenty-four incurveds, Mr. FOSTER again took the leading place; 2nd, Mr. STILES, gr. to the Rev. G. LYONS, Teignmouth.

Messrs. PERKINS & SONS, Coventry, had the best floral display, and made a very attractive one.

Groups, &c.—The best group of Chrysanthemums, arranged in a space of 100 square feet, was exhibited by Mr. H. BENNET, gr. to Lady JACKSON, The Pounds; and the 1st prize and a Silver Cup for the best group of Orchids was won by Mr. G. MATHEWS, gr. to Lord AUCKLAND, Kitley, West Plymouth, with a grand display.

Fruit was shown well, and Mr. PAGE had two grand bunches of Muscat of Alexandria Grapes.

Vegetables were also a large feature. Mr. G. LOCK, gr. to B. H. HILL, Esq., Crediton, won the "Sydenham" Cup by one point.

Trade Exhibits.—Mr. W. J. GODFREY, Exmouth, showed several dozen blooms of new Chrysanthemums, and sprays of zonal Pelargoniums; Mr. SLATER, of the Devon Nurseries, a collection of Apples; Messrs. R. VITCH & SONS, Exeter, Violets, &c.

BIRMINGHAM CHRYSANTHEMUM.

NOVEMBER 7, 8, 9.—The annual exhibition of Chrysanthemums was held in the Bingley Hall, and there was such a magnificent display as is rare at any autumn exhibition. Specimen plants, groups of Chrysanthemums in pots, arranged for effect; cut blooms, fruit, vegetables, and miscellaneous exhibits were all good alike. The management at the show in this busy centre leaves nothing to be desired. Mr. Hughes is a model Secretary, while Mr. Latham as Chairman of Committee is a host in himself.

SPECIMEN PLANTS.

Plants were well shown. The leading class was that for nine (Japanese excluded). Mr. C. BRASIER, gr. to Lady MARTINEAU, Edgbaston, was 1st, with freely-grown plants, not too formally trained, and well flowered, and representing popular varieties. Mr. J. WALDRON, gr. to G. CADBURY, Esq., was a good 2nd.

For six large-flowering varieties, Mr. BRASIER was again the most successful exhibitor, and for six Japanese, C. BLUSSET Charles Davis, and V. MOREL were noteworthy in the latter class.

Mr. J. WALDRON won, for three plants of Pompon varieties, with well-blossomed examples of *Sour Melanie*, *W. Westlake*, and *Rose Trevana*.

Single-flowered varieties were capably shown by Mr. WALDRON and Mr. A. CRYER, gr. to J. A. KENRICK, Esq., Edgbaston, who secured the prizes in the order here given.

GROUPS.

Groups of Chrysanthemums and foliage plants were a feature of the show, so numerous and good were they. Two classes were provided. In that to occupy a space of 20 feet by 12 feet, there were six competitors. Mr. J. V. MACDONALD, gr. to E. H. KENRICK, Esq., won the leading award, with plants carrying good blooms, and not too thickly arranged—a fault possessed by some exhibits. Mr. BRAUER was 2nd, grandly-flowered plants, but somewhat flatly arranged.

In the smaller group, Mr. WALDRON occupied the post of honour with an exhibit that contained but few blemishes; Mr. E. J. MUSTIN 2nd.

CUT BLOOMS.

For twenty-four incurveds, distinct, Mr. C. CROOKS, gr. to the Dowager Lady HINDLIF, Droitwich, secured the premier award of £10 with blooms of large size, well set up; *Globe d'Or*, *Duchess of Fife*, C. H. CURTIS, Mrs. W. C. EGAN, P. PETFIELD, Bonnie Dundee, and J. AGATE, were conspicuous examples. Mr. GOODACRE, gr. to the Earl of HARRINGTON, Elvaston Castle, was 2nd, with large but somewhat rough examples.

Mr. CROOKS again won in the class for eighteen incurveds, as also for twelve blooms.

Japanese varieties were more numerous. Mr. GOODACRE scored an easy win for twenty-four blooms of distinct varieties, with heavy, fresh examples of leading varieties. *Madame Carnot*, *Edith Tabor*, M. PANKOUCKE, *Madame Louis Rémy*, *Mrs. Weeks*, *Mrs. Mease*, and *Chenon de Leché* were noteworthy. Mr. CROOKS was a good 2nd.

For eighteen blooms Mr. CROOKS won with a thoroughly good set.

The last-named exhibitor won for any one variety of white, in six blooms, with exceedingly fine examples of *Madame Carnot*. Mr. H. WESTBURY, gr. to C. SHAWELL, Esq., Edgbaston, was 2nd, with *Mrs. Weeks*, in good condition.

An interesting class was that for six blooms of any yellow Japanese. Mr. CROOKS winning with *Phœbus*.

Mr. F. VALLIS, Chippenham, secured the leading award for twelve Japanese incurved, staging typical examples of *Modestum*, *Lady Ridgway*, R. POWELL, *Nellie Pockett*, and T. CARRINGTON.

Mr. J. JUSTICE, gr. to Sir P. TEMPLE, Bart., Worcester, won for twelve anemone-flowered varieties, staging these with typical centres.

DECORATIVE CLASSES.

Floral arrangements made a great display. For the best exhibit in a space of 20 feet by 5 feet, Messrs. POPE & SONS, King's Norton, occupied the leading position with baskets of choice flowers, bouquets, and designs of many kinds.

For a dinner-table, 8 feet by 4 feet, decorated with Chrysanthemums, Ferns, and other foliage, there were nine competitors, making a bold display. Mr. J. A. TIDMUS, Spark Hill, was 1st with an effective design carried out with *Source d'Or* Chrysanthemums and Ferns.

MISCELLANEOUS.

Primulas are always a feature at this show. Messrs. THOMSON & Co., Sparkhill Nurseries, won the premier award for twelve and six single-flowered varieties, as well as for six Fern-leaved kinds, staging their well-known named sorts.

Fruit and vegetables made a grand display.

Non-competitive exhibits were numerous and good. Gold Medals were awarded to Mr. W. J. GODFREY, Exmouth, for Chrysanthemums; to Messrs. J. LAING, Forest Hill, London, for Apples, Palms, and Begonias; and to Mr. DEACON, gr. to the Rt. Hon. JOSEPH CHAMBERLAIN, for a collection of flowering and foliage plants.

Silver Medals to Mr. WELLS, Earlswood, Redhill, for Chrysanthemums; to Messrs. CLIBRAM for *Calosias*, Chrysanthemums, and *Salvias*; and to Messrs. WATKINS, Heideford, for Apples.

HANLEY CHRYSANTHEMUM.

NOVEMBER 8.—The seventeenth annual exhibition of the County Borough of Hanley Chrysanthemum Society was held in the Victoria Hall on the above date.

GROUPS (OPEN).

A very good group was put up by Mr. Smith, gr. to Jas. MADDOCK, Esq., Alsager, in which were very fine blooms of the leading varieties, interspersed with Palms and fine foliage plants, to which 1st prize was awarded; and 2nd to Mr. G. LEWIS, gr. to R. G. HOWSON, Esq., Shetton. A nice group of stove-plants and Orchids was put up by the last-named exhibitor.

Cut Blooms.—Mr. Goodacre, gr. to the Earl of HARRINGTON, Elvaston Castle, was 1st for twenty-four incurved and twenty-four Japanese varieties, having good blooms of the leading varieties in both classes; Mr. G. MADSON, gr. to F. A. BRACE, Esq., Doveridge Hall, 2nd, for twenty-four Japanese; Mr. MACPHAIL, Queen's Park, Longton, 3rd, for Japanese, and 2nd for twenty-four incurveds.

For twelve incurved, distinct varieties, no 1st prize was awarded; 2nd, Mr. MACPHAIL.

For twelve Japanese varieties Mr. MACPHAIL was 1st; 2nd, Mr. McKnight, gr. to T. BOLTON, Esq.

Vases of Chrysanthemums were very good indeed, and Messrs. JENKINSON, Newcastle-under-Lyme, were 1st, for a good exhibit, as they also were in the class for bouquets, wreaths, crosses, and button-holes, being awarded 1st in each of these sections. Mr. MADDOCK, of Hanley, was 2nd.

Amateurs.—The exhibits were strong in cut-blooms, and Mr. LOWE was 1st for twelve Japanese; Mr. LEWIS, 2nd, the same exhibitors being 1st and 2nd in the class for six varieties.

Mr. LEWIS was 1st for twelve incurved varieties; and Mr. LOWE 2nd. Mr. LEWIS was 1st for six varieties incurved; and Mr. LOWE 2nd.

The plants exhibited in pots were very fair specimens considering the murky atmosphere in which most of them are grown. A pleasing group of table plants and Ferns, not for competition, came from W. H. HARRISON, Esq. (gr., Mr. Bates). A group of *Begonia Gloire de Lorraine* was shown by R. G. HOWSON, Esq. (gr., Mr. Lewis), both groups being awarded Certificates of Merit.

Fruit was not largely shown, but was very good in quality.

CHESTERFIELD CHRYSANTHEMUM.

NOVEMBER 8.—The annual autumn exhibition was held in the Stephenson Memorial Hall, and was in every way a success. Groups of Chrysanthemums were a distinct feature.

Mr. E. MOSES, gr. to L. BRITT, Esq., Berry Hill, Chesterfield, won the premier award for a grand lot of dwarf plants, carrying excellent flowers. Mr. BLOXHAM, gr. to R. F. MILLS, Esq., Tipton Grove, Chesterfield, was 2nd.

Prizes were offered for a group of plants that had not been disbudded, to be arranged upon a space of 60 square feet, and a charming result was obtained. Mr. NELSON, gr. to A. BAINES, Esq., Ashgate Lodge, Chesterfield, was 1st, showing small-flowering Japanese varieties, as well as Pompons and single-flowered sorts. All of the plants were profusely flowered and arranged lightly, and in association with well-grown plants of *Cocos Weddelliana*. Mr. MONRY was an exceedingly good 2nd.

In the cut bloom section, Mr. J. EVANS, gr. to Sir H. WILMOT, Chadderton, Derby, won 1st place for twenty-four Japanese; Mr. NELSON securing a similar award for twelve Japanese.

In the "vase" class for four varieties, of three blooms each, Mr. PARKES, gr. to J. M. CLAYTON, Esq., Whittington Hall, Chesterfield, secured the leading award.

Mr. EVANS also won the 1st prize for incurveds in twelve varieties; and showed C. H. CURTIS in grand condition.

GARDENERS' ROYAL BENEVOLENT.

NOVEMBER 8.—In connection with the Bath Chrysanthemum Show, a smoking-concert under the auspices of the Bristol and Bath Auxiliary of this Institution was held in the Club-room, and more than a hundred persons were present.

Mr. G. J. INGRAM, Secretary to the Institution, made an interesting speech, explaining the objects of the Society, the work that was being done, and concluded by appealing to those present to become active supporters of the Fund.

Mr. Ingram complimented Mr. Milburn, who, as Secretary of the Auxiliary in Bath, had worked most energetically on behalf of the Institution. The Institution received upon an average £89 a year from this Auxiliary, and the Bath and Bristol district received from the Fund £144. After Mr. Ingram's speech a considerable proportion of those present gave their names in as future subscribers.

BRISTOL CHRYSANTHEMUM.

NOVEMBER 8, 9.—This Society held its thirty-sixth show in the Drill Hall, Bristol, and notwithstanding that exhibitions were held simultaneously at Bath, Cardiff, and Monmouth, the classes were well filled, and the quality of the exhibits generally good, the groups of Chrysanthemums, and of other plants, collections of vegetables and fruit, and Grapes, being particularly so.

Mr. Taylor, gr. to Ald. CAFFIN, Bath, was very successful with the latter, taking five 1st prizes, with splendid examples. He was also awarded a 1st prize for the best bunch of Grapes in the show, for a large and perfectly-finished one of *Mrs. Pince*. Altogether, the show was a great success, but alas! the familiar faces of the late Messrs. Dumble, Pragnell, and Shingles were missing. They were all present last year.

CHRYSANTHEMUM BLOOMS.

For a collection of thirty-six Japanese, a Challenge Vase, value £12 12s., and £5 was offered as a 1st prize. Amongst six exhibitors, Mr. WILKINS, gr. to Lady THEODORA GUEST, Inwood House, Henstridge, was placed 1st, and having been successful twice previously, the Vase has now become the exhibitor's property. He staged fine, even, well-coloured blooms, including *Mrs. W. Mease*, *Mrs. W. Popham*, *Madame Carnot*, *Anstralle*, J. SCARAMANGA, *Swanley Giant*, *Lady Hanham*, *Madame G. Henry*, *Mrs. H. Weeks*, *Duke of York*, *Australian Gold*, &c. 2nd, Mr. RUNNACLES, Leweston House Gardens, Sherborne.

There were eight entries in the class for twelve Japanese blooms, Mr. HACK, gr. to W. PETTHICK, Esq., having the best; and THE FLOWER & FRUIT CO., Frome, closely following.

Mr. HACK was also 1st for twelve blooms of Japanese incurved varieties; and Mr. ROBINSON, gr. to Lord LUDLOW, was a close 2nd.

In a class (the 1st prize being a piece of Silver Plate) for twenty-four Japanese blooms, in eight or more varieties, three blooms of each, arranged with ornamental foliage, or small plants of Ferns, &c., in a space 4 feet by 3 feet, Mr. HACK was again 1st, with good blooms of leading varieties, relieved with foliage of *Ocotonos*, Fern-fronds, &c. Mr. SUTTON, gr. to W. A. TODD, Esq., was 2nd.

For twenty-four incurveds, Mr. RUNNACLES led with a stand of very fine blooms; 2nd, Mr. F. WILKINSON, gr. to Mrs. TALBOT GRAVES.

GROUPS.

A group of Chrysanthemums, to occupy a space 10 feet by 6 feet, was best from Mr. W. J. Bunker, gr. to A. SHIPLEY, Esq., who had a beautifully-arranged collection, in which the colours were tastefully disposed, and the flowers were large, fresh, and highly-coloured. J. C. GODWIN, Esq., who was 2nd, had many white and yellow varieties in the centre of his group.

A pretty feature were groups of Chrysanthemums arranged with Ferns and ornamental foliaged-plants, in a space not to exceed 60 square feet. Here Mr. Bannister, gr. to H. St. VINCENT AMES, Esq., was 1st, with exceedingly good plants, arranged in great taste. The Chrysanthemums had fine foliage and large blooms, and were interspersed with Asparagus, Crotons, Eulalias, and Palms. Mr. G. Newberry, gr. to J. SAUNDERS, Esq., also had an attractive group.

For a bank of miscellaneous plants, in a space 10 feet by 6 feet, Mr. NEWBERRY was a good 1st, with a very bright and fresh lot of plants. Mr. Knight, gr. to H. CARY BATTEN, Esq., was 2nd.

MISCELLANEOUS EXHIBITS.

Mr. BANNISTER was deservedly awarded a Gold Medal for a splendid collection of vegetables; and Mr. J. West, gr. to C. B. HARE, Esq., Clifton, a Silver Medal for the best Chrysanthemum plant, with a good trained and flowered specimen of the variety C. H. Curtis. Mr. Phillips, gr. to J. M. BANNERMAN, Esq., Wyastone Leys, Monmouth, took the prize for the best Chrysanthemum bloom, with a grand specimen of Duchess of Fife.

In the classes for Apples and Pears, Messrs. BANNISTER, FARMER, PHILLIPS, VIRGO, RUNNACLES, COOPER, and THE FROXE FLOWER & FRUIT CO. were leading exhibitors.

THE BRISTOL AMATEUR HORTICULTURAL SOCIETY

held an exhibition in a wing of the Drill Hall, Bristol, on the same dates as the above, the classes being open only to members. There was a good lot of Chrysanthemum-blooms and miscellaneous subjects exhibited. T. C.

MONMOUTH CHRYSANTHEMUM AND HORTICULTURAL.

NOVEMBER 8, 9.—At the Rolls Hall, Monmouth, this Society held its ninth show, which was the best yet held in Monmouth. The groups and cut-blooms of Chrysanthemums were good, as also were Grapes and vegetables, while Apples and Pears were excellent.

For a group of Chrysanthemums in pots, in a space of 60 square feet, Mr. PITT, nurseryman, Abergavenny, was 1st, who had moderately dwarf plants, furnished with good foliage and fine flowers.

For a group of ornamental foliage and flowering plants, Mr. Phillips, gr. to J. M. BANNERMAN, Esq., Wyastone Leys, Monmouth, was well to the front, with a pretty group composed chiefly of Poinsettias, Celosias, Salvias, Crotons, Eulalias, and Palms, fringed with Ferns.

CUT BLOOMS.

The class for twenty-four incurveds was won by Mr. PITT; and Mr. PHILLIPS was 2nd. The flowers were satisfactory.

The best collection of twelve incurveds was shown by Mr. Davies, gr. to A. W. B. WRIGHT, Esq., Quarry House, Linton; and he was followed by Mr. Lockyer, gr. to J. HANBURY, Esq., Pontypool Park, who was a good 2nd.

In the class for twenty-four Japanese blooms Mr. PITT again took the lead; and the smaller class for twelve blooms was won by Mr. DAVIES, who had a very nice collection.

The Silver-gilt Medal, presented by Mr. H. J. JONES, Lewisham, for six Japanese, distinct, was won by Mr. Spencer, gr. to H. C. MOPFATT, Esq., Goodrich Court, Ross, who had capital blooms of Madame Carnot, C. C. Payne, President Moren, Phœbus, Madame G. Henry, and Cloth of Gold.

Non-competitive exhibits were staged by Mr. Coomber, gr. to Lord LLANGATROCK, who had a collection of Apples and Pears; and by Mrs. WATKINS, florist, Monmouth, who had a good collection of Apples and decorative plants.

ASCOT CHRYSANTHEMUM.

NOVEMBER 8, 9.—A great improvement on last year's Show, was that held on the above dates. The open classes, which are usually the feature of this Show, were well contested.

There were five entries for a group of Chrysanthemums and foliage plants. H. P. LEBELLAN, Esq., Windlesham (gr. Mr. W. L. Farmer), was 1st; and Miss DARRING SMITH (gr. Mr. W. Lane, King's Ride, Ascot), was 2nd.

For a semi-circular group of Chrysanthemums only, the Marchioness of CONYNGHAM, The Mount, Ascot, was 1st.

For a miscellaneous group of plants, Mr. LANE was an easy 1st. Mr. LANE was 1st for two collections of vegetables, consisting of nine and six dishes.

Cut blooms were well represented in the open classes. That for twenty-four Japanese, distinct, was won by T. B. HAYWOOD, Esq. (gr. Mr. J. C. SALTER), Woodhatch Lodge, Relgate. With heavy blooms, but rather pale in colour, Mr. WILSON was 2nd.

For twenty-four incurveds, Mr. W. WILSON was 1st with good heavy blooms; 2nd, Mr. SALTER.

For thirty-six blooms, distinct, eighteen Japanese and

eighteen incurveds, a Silver Cup and money prizes were offered. The only entry was from Mr. W. L. FARMER, who was awarded 1st prize for medium-sized flowers.

Mr. PERRY, gr. to LOUIS SCHOTT, Esq., Penny Hill, Bagshot, took four 1st prizes for blooms in 6's, with much the largest and best blooms in the show. The varieties were, Madame Carnot and Australian Gold; six distinct Japanese; and six incurveds. Mr. PERRY was awarded the N. C. S. Certificate for the best Japanese bloom, for a Madame Carnot. Mr. WILSON had the best incurved, a Duchess of Fife.

CARDIFF CHRYSANTHEMUM.

NOVEMBER 8, 9.—The thirteenth annual show of the above society was held in the Park Hall, Cardiff, on which occasion much interest was evoked by the fine exhibits of fruit from the Royal Garden, Frognore, sent by Mr. OWEN THOMAS. Prominent among the citizens present at the exhibition were Sir Thomas Morel (the Mayor) and S. A. Brain, Esq. (the Mayor-elect), and many members of the Corporation.

The Frognore exhibit occupied a position in the centre of the Hall, covering an area of 24 feet by 8 feet, under a tastefully decorated canopy of gold and green, bedecked at each end with the Royal Arms, and surmounted by the Union Jack. Upon a raised disc, a beautifully-coloured plant of Codium formed the centre-piece, and against each of the four sides of this disc a bunch of Grapes was suspended, and framed by cordons of high-coloured Apples. Down the centre of the table, extending both ways from the disc, imposing arrangements of flowers were placed, effectively interspersed with light foliage, giving a graceful effect to the whole; further, smaller arrangements of Anthuriums, Orchids, Nepenthes, Bamboos, and Palms were cleverly used to relieve the dishes of fruit. An edging of the season's berries gave a pretty finish to the whole.

THE CHRYSANTHEMUMS.

As a show of these flowers the exhibition might be termed a mixed success. In the cut-bloom classes the competition was considerable, but the groups and specimen-plants were disappointing.

In the open classes for the best twenty-four Japanese blooms, for a prize of £5 and a Silver Cup, there were nine entries. Mr. GEORGE DRAKE, Cardiff, carried off the 1st prize, with blooms of Mrs. T. A. Compton, International, Madame Gustave Henry, G. J. Warren, Nellie Pockett, Edith Tabor, Australia, President Nonin, Madame P. Rivoire, Madame J. Bruant, Le Grand Dragon, Simplicity, John Seward, M. Hoete, G. W. Palmer, Madame Carnot, Edwin Molyneux, Pride of Exmouth, Mrs. C. H. Payne, Mrs. Mease, Madame B. Fray, Graphic, M. Chénou de Leché, and Madame G. Debris. G. RUTHERFORD, Esq., Cardiff (gr. J. Howe), was a good 2nd; and Mr. W. ADAMS, Southsea, 3rd.

For twenty-four incurved, distinct, Mr. W. ADAMS was 1st with, among others, Madame Ferlet, Dorothy Foster, Madame Darrier, Globe d'Or, Nellie Trifall, John Miles, President Bevan, Madame C. Roger, Countess of Warwick, Dame d'Or, George Hough, Mdlle. Lucie Faure, Miss Annie Hills, Mrs. Nat. Molyneux, Topaz Orientale, and John Lambert. 2nd, V. STUCKEY, Esq., Langport (gr. James Lloyd), with perhaps larger, but coarser, blooms, including Globes d'Or, Mrs. N. Molyneux, and Madame Ferlet, particularly good. T. W. SWINBURNE, Esq., Winchcombe (gr. James Martin), took 3rd position.

For the best twelve Japanese, distinct, G. RUTHERFORD, Esq., Cardiff, was 1st, with good blooms of Mrs. Mease, G. J. Warren, Mrs. Remy, Le Grand Dragon, &c. Mr. RALPH CROSSING, Penarth, was 2nd.

The best bloom in the show was a Mrs. Mease, in the prize stand.

In the Amateurs' Division for Cut Blooms, twenty-four distinct varieties, R. A. BOWRING, Esq., Cardiff (gr. H. A. Joy), was 1st. A. T. STEPHENS, Esq., Penarth (gr. J. Graham), was 1st for the best twelve Japanese blooms, not fewer than six varieties; and for twelve blooms, incurveds, S. A. BRAIN, Esq., Penarth, was 1st.

Twelve bunches of Cut Chrysanthemums, arranged with any foliage.—In this class Dr. THOMPSON, Canton was 1st, with a nice arrangement of Chrysanthemums, coloured Ampelopsis, Selaginella, and Eulalia species.

The blooms of incurved varieties were undoubtedly inferior to what has been seen at Cardiff in previous years in size and freshness; and the Japanese varieties, though large, were in many instances very coarse, and it was apparent that the judges took note of this fact, for the prizes in all cases were given to the fresher and finer blooms.

PLANTS.

Groups of Chrysanthemums, Open.—Mr. W. TRESEDER, nurseryman, Cardiff, was the only exhibitor, and his exhibit was an excellent one.

S. DEAN, Esq., Cardiff, took 1st prize for four bushes with well-grown specimens of Amase Amiral, Louise, Souvenir de Petite Anie, and President Nonin.

Amateurs.—S. P. HACQUOID, Rumney (gr. Mr. Pinches), took 1st prize for the best group of Chrysanthemums, his plants being well grown and dwarf.

Dr. WALLACE, Cardiff (gr. Mr. Bindon), took most of the 1st prizes in the single specimen class. His plant of the single-flowering Miss Rose was one of the most beautiful objects in the show.

MISCELLANEOUS.

The best arrangement of miscellaneous plants was an exhibit by Mr. G. RUTHERFORD, Llandaff.

Mr. A. E. PRICE, florist, Cardiff, was 1st with an arrangement of the varieties William Seward and Clinton Chaffon; and also took 1st prize for a hand-bouquet; while Mr. RALPH CROSSING, Penarth, had an exquisitely-arranged bouquet of yellow Chrysanthemums, and was more than a good 2nd.

Mr. W. TRESEDER, Cardiff, was 1st for a wreath composed of Chrysanthemums; and Mr. PRICE took 1st prize for a wreath of mixed flowers.

Fruit was not abundantly shown, but it was fairly good; and the vegetables were excellent, especially Carrots, Onions, and Leeks.

TRADE EXHIBITS.

Mr. WILLIAM TRESEDER was much in evidence with blooms of Cactus Dahlias, and his stand of mixed cut flowers was particularly good.

Salvias and Celosias were exhibited by Messrs. CLIBBON, of Altrincham, Cheshire; Mr. RALPH CROSSING's exhibit of the best varieties of Chrysanthemums was showy. While a modest little stand, shown by Mr. JOHN FORBES, Hawick, N.B., was particularly interesting, inasmuch that the new white Begonia, Caledonia, a sport from Gloire de Lorraine, was exhibited in it.

J. GRAHAM showed a collection of dried table-plants, which attracted a great deal of attention, and was awarded a Silver Medal.

NORTHAMPTON CHRYSANTHEMUM.

NOVEMBER 8, 9.—The twenty-eighth annual show of this Society was held on the above dates, and the exhibits were much superior to those observed last season, especially the cut blooms in the Japanese section. In one of the stands was an extremely fine bloom of Madame Carnot.

PLANTS AND GROUPS.

The best group of Chrysanthemum plants arranged for effect came from Mr. COULSON, Cliftonville, Northampton (gr. Mr. Isaac Reeve), who had a beautiful exhibit of leading varieties, the blooms being large, fresh, and of bright colours. The 1st prize won by Mr. Reeve included a Silver Cup, value 15 guineas. The 2nd place was taken by F. G. ADNITT, Esq., J.P., Northampton (gr. Mr. Owen Soden).

For six specimen plants (Japanese), Mr. REEVE and Mr. SODEN were 1st and 2nd respectively.

There were several other classes for plants, in which Messrs. REEVE and SODEN were the most successful competitors, and the varieties staged were chiefly W. Tricker, Madame Carnot, Souvenir de Petite Anie, Vivian Morel, Phœbus, and Madame Ricoud.

For six table plants, Mr. Silas Cole, gr. to the Earl SPENCER, Althorp Park, Northampton, was 1st; and Mr. J. Holland, gr. to Mr. BOSTOCK, Northampton, 2nd.

Primulas are generally shown very well at Northampton, but the chief exhibitor in former years (Mr. Bateman), for some reason not known, did not compete; and Mr. OWEN SODEN, Mr. A. Smith, gr. to Mr. A. TURNER, Northampton, and Mr. BURROWS, nurseryman, Northampton, won all of the prizes.

CHRYSANTHEMUM BLOOMS.

In the section for eighteen incurved varieties, distinct, Mr. SILAS COLE was 1st, having staged some fine blooms. The stand contained a creditable collection, which was arranged beautifully; Mr. Wm. Pearce, gr. to S. LODGE, Esq., Flore House, Weedon, was 2nd. The same exhibitors obtained similar positions in the class for twelve blooms, and were followed by Mr. H. KEMPSTALL, gr. to Captain ISHAM, Lame port Hall, Northampton.

In the class for six blooms of one variety, Mr. COLES was 1st with good blooms of Topaz Orientale; and an amateur, Mr. TIDLER, was 2nd with Ma Perfection.

In the Japanese section for eighteen distinct varieties, Mr. PEARCE was 1st with some grand blooms of Simplicity, G. C. Schwabe, Madame P. Rivoire, Mrs. White Popham, Nellie Pockett, and several other varieties—this stand was well 1st; Mr. COLES was 2nd.

Mr. Woods, gr. to M. COOPER, Esq., Delapre Abbey, Northampton, who was 3rd in this class, had an enormous bloom of Madame Carnot, which caused quite a sensation.

For six Japanese varieties, introduced in 1898 and 1899, Mr. COLES was 1st, with blooms of Mrs. Barkly, Miss W. J. Barks, H. Weeks, Nellie Pockett, Mrs. Coombes, and Mr. Cursham.

Mr. Woods had the best collection of six Japanese, one variety, staging Miss Elsie Teichmann; and was also 1st for six Japanese blooms, distinct.

Mr. Woods also gained 1st prize for a table of blooms arranged with Ferns and foliage plants; Mr. KEMPSTALL was 2nd. The prizes in this class were not proportionate with the amount of work the method necessitates.

The Fruit classes were well contested. Mr. COLES was the chief prize-winner. Mr. Dymock, gr. to Wm. WENTWORTH VERNON, Esq., Stoke Bruerne Park, Towcester, took leading honours for vegetables.

In the amateur section, the contests were very keen, and in some cases the exhibits would have been creditably placed had they been opposed by the exhibits in the open classes. Mr. KIRBY, Milton Street, Northampton, and Mr. BARKAWAY, Lower Thrift Street, Northampton, were the chief winners.

Non-competitive exhibitors included Mr. ARTHUR BAILEY, Abington Street, Northampton, who had a variety of floral designs; and Mr. ALFRED COCKERILL, The Drapery, Northampton, who had a similar exhibit. H. K.

PUTNEY AND WANDSWORTH CHRYSANTHEMUM.

NOVEMBER 9, 10.—The twenty-second annual exhibition of this ambitious Society was held in the Grosvenor Hall, Putney.

The chief feature of interest was that afforded by the class known as the "Tridentine's Prize" for twelve vases of Chrysanthemum blooms in twelve varieties and three blooms of each, for which prizes were offered of £10, £7, £5, and £3, being exactly similar to those offered at Edinburgh for the same exhibits, if we except a Silver Cup. Such prizes as these are offered by very few societies within a hundred miles of London, yet there were but two exhibitors who competed, which illustrates the lamentable disinclination there exists to exhibit in a more effective fashion than that of the usual flat stands, although the vases be provided by the Society.

The 1st prize collection was a very good one, however, and was staged by Mr. F. King, gr. to F. PEARSON, Esq., Oak Lodge, Holmwood, Dorking. Varieties best represented in his exhibit were Mrs. Menne, Phœbus, Lady Hanham, Viriand Morel, and Chas. Davis. Mr. G. J. Hunt, gr. to PASTIA BALLI, Esq., Askead Park, Epsom, who won the Silver Cup offered in this class last year, was not so successful on the more recent occasion, and was classed 2nd; he had heavy flowers, but they lacked freshness, a serious shortcoming, as exhibitions should be as bright as possible, and this can only be done by showing perfectly fresh flowers, and as well coloured as can be secured. Mr. Hunt is a Chrysanthemum cultivator who is rapidly coming to the front.

The rest of the classes for cut blooms, limited to subscribers within the Society's district, were generally well contested. In the incurved section the classes for twenty-four blooms, distinct, and that for twelve blooms, distinct, were won by Mr. Chas. Bentley, gr. to Major W. J. BOSWORTH, Cedar Court, Roehampton, who had much the best flowers.

Mr. J. Dark, gr. to J. HOOKER, Esq., Lombard House, Richmond Road, Putney, staged the best Japanese blooms, and had good specimens of Phœbus, Mrs. Palmer, Oheon de Leche and Chas. Davis, winning 1st prize for the best collection of twenty-four distinct.

There were nice blooms also from Mr. A. Smith, gr. to the LADY SUPERIOR, The Convent, Roehampton, who won honours in the class for twelve blooms.

The 1st prize in a "Maiden" class for six Japanese blooms, distinct, fell to Mr. D. Anderson, gr. to the Dowager Countess of Kintore, Oak Lee, Wimbledon Park.

There were not many exhibits of Pump ns, singles, nor any Anemone-flowered varieties. The best Pump ns and singles were from Mr. CHAS. BENTLEY.

The best group (semi-circular) of Chrysanthemums in pots was one from Mr. John French, gr. to Col. MITCHELL, Cannigars House, Wimbledon.

The competition in the classes for trained and specimen plants was weak. Mr. CHAS. BENTLEY, above mentioned, was by far the most successful exhibitor.

OTHER EXHIBITS.

Barried plants, Primulas, Ferns, and fine foliage plants, suitable for table decoration, added to the interest of the show.

A number of special prizes were offered for florists' exhibits of arranged flowers, in which the Chrysanthemum was used almost exclusively. Honours in these competitions were won by Mr. Newell, gr. to Sir E. SAUNDERS, President of the N.C.S.; Messrs. J. WALBORN & SON, 13, High Street, Putney; Mr. GEO. STRYVEN, &c.

There were grand Apples and Pears staged in competitive classes, and some good Grapes.

Messrs. JAS. VITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, exhibited a charming group of miscellaneous plants, comprising fine foliage and flowering species.

Messrs. J. FENN & SONS, Roupell Road Nurseries, Norwood, London, exhibited a collection of Apples.

BURTON AND SHOBNALL CHRYSA- NTHEMUM.

NOVEMBER 11. The fourteenth annual exhibition was held in St. George's Hall, Burton. The Society was originally started at Shobnall, where, up to two years ago, its annual shows were held.

There was about the same number of entries as usual, but a marked improvement in point of merit was noticeable in both classes compared with previous years. In the open class there were many flowers of perfect shape, tint, and size, the champion blooms, in form and colour, being magnificent. Mr. Sutton, gr. to Mr. H. H. JACKSON, of Moat Bank, cleared the deck in the class under notice, taking premier honours in each section, as well as the champion prizes for incurved and Japanese blooms, and the National Chrysanthemum Society's Certificate for twelve Japanese blooms of distinct varieties.

In regard to the members' class, the chief awards were obtained by Mr. Upton, Gordon Street; Mr. CAUSER, Barton-under-Needwood; and Mr. GOSMILL, Uxbridge Street.

Mr. Upton gained the 1st prize and the National Chrysanthemum Society's Certificate for a group of Chrysanthemums in pots, the awards in this section being given by Lord BURTON. He also took the champion award for incurved blooms, that for Japanese blooms going to Mr. CAUSER.

The groups, as well as cut flowers, were effectively arranged, and floral displays on the part of local professional nurserymen and florists added to the beauty of the show.

WELLINGBOROUGH CHRYSA- NTHEMUM.

NOVEMBER 9.—The fifteenth annual show promoted by the above Society was the best that has been seen in the town. In the open competition for groups and plants, Mr. WARD, Wellingborough, Mr. HAYM, gr. Castle Ashby, and Messrs. H. & W. LACK, nurserymen, Wellingborough, were the chief prize-winners.

Forty-two cut blooms, Mr. Fulford, gr. to Mr. STOFFORD BACKVILLE, Drayton House, was 1st; and Mr. HAYM, 2nd.

Mr. KIRBY, Milton Street, Northampton, beat Mr. IATTIMON, Wellingborough, in the class for twelve incurveds; and was also 1st for twelve Japanese blooms. Much credit is due to Mr. KIRBY, an amateur, for having defeated his professional contemporaries; but for twelve white Japanese blooms, Mr. HAYM had better specimens than Mr. KIRBY.

The vegetable classes were keenly contested; Mr. HAYM had the best collection.

The show has improved very much during the past few years, and promises to become one of the chief exhibitions in the county.

NATIONAL CHRYSA- NTHEMUM.

NOVEMBER 12.—A meeting of the Floral Committee of this Society was held on Monday last. Nine members were present, and there were numerous varieties of the Japanese, in curved, and single-flowered types, to be adjudicated. The tendency of the committee, whilst anxious to show its appreciation of the trouble incurred by exhibitors who send novel ties to these gatherings, is rightly against making the First-class Certificate of the Society too cheap, and several good varieties were therefore "passed," because they were too similar to existing varieties.

The only First-class Certificate awarded—and this was done unanimously—was to the variety Ralph Hatton, an incurved flower, raised by Mr. H. WEEKS, Thurampton Hall Gardens, Derby. The blooms as shown were of large size, and the florets fairly wide, and of good substance. Their colour was that of silver, modified by a mauve blush, resulting from the colour upon the inside of the florets.

The following varieties were "Commended"—Mrs. F. B. Garrard, a very full-flowered, pretty Japanese, in the way of May Manner, from Mr. J. PRISER, Cherry-tree Lane, Iwer Heath, Bucks, who had four other varieties; Mrs. Grogan, a decorative or market variety, of mauve or light purple colour in habit, suggestive of the variety Mrs. Wingfield, from THE BRIGHTON AND SOUTH COAST HORTICULTURAL SOCIETY, Worthing; Vicar of Leatherhead, a large yellow Japanese, most like G. J. Warren, from a cross between Lady Saunders and Edith Tabor, from Mr. H. J. JONES, Lewisham; General Symonds, an incurved flower of bright bronzy-buff; Geo. Towers, a light reddish-purple Japanese, commended for its colour, from Mr. WEEKS; Little Pet, a small-flowered single variety, light rosy-purple, from Mr. G. W. FORBES, gr. Regent House, Surbiton, who had also a number of larger-flowered, single varieties that lacked form and substance in petal; and Mrs. Richard Clayton, a Japanese of promising colour, but not nearly in condition, from Mr. JAS. BEAN, gr. to R. CLAYTON, Esq., Wylam Hall, Wylam, who sent a number of varieties.

Mr. ROSE OWEN, Floral Nurseries, Maidenhead, submitted eight varieties, two of which the Committee desired to see again. These were true incurveds or incurved Japanese varieties, white, with very delicate blush of flesh-colour, named Arthur King, and Capt. A. d'Albert.

Mr. THOS. GILES, Crossfield Nurseries, Surbiton, showed a yellow incurved from a cross between C. H. Curtis and Oceana, but the blooms, though lighter in shade, were too similar to the former variety.

ULSTER HORTICULTURAL.

CHRYSA- NTHEMUM EXHIBITION AT BELFAST.

NOVEMBER 14, 15.—The annual show of the above Society was held on the above dates in the St. George's covered Market, Belfast, which for comparison may be likened to the Waverley Market, Edinburgh, with the balance of light in favour of the former. In nearly every class, competition was keen.

Chrysanthemums, which were the leading feature, were shown in first-class condition. The 1st prize in the champion class went to Scotland, the 2nd remained in Ireland, and the 3rd was carried to England.

PLANTS.

For a group of, not to exceed twenty pots, with foliage plants, 1st prize to Mr. Joseph McIlveen, gr. to ROBERT TRUNETT, Esq., Rush Park, Whitehouse, with a splendidly-grown lot of plants, the majority being fit for showing in a cut state; 2nd, Mr. P. McHaffie, gr. to WM. ROBERTSON, Esq., Netherleigh, Strandtown, who followed very closely.

In a similar class, but for twelve plants only, Mr. Kirkpatrick, gr. to A. D. LEMON, Esq., Edgacumbe, Strandtown, was easily 1st.

For a group of semi-circular form, with a radius of 7 feet 6 inches, Mr. KIRKPATRICK repeated his success, again standing well in advance of his opponents, depending upon medium-sized, well-flowered specimens, rather than upon tall

plants with a few large blooms. 2nd, to Mr. Richard Draper, gr. to J. D. BARBOUR, Esq., Conzay, Downpatrick.

CUT BLOOMS.

Japanese.—The central point of interest in this section was the class for twenty varieties in triplets, to be arranged in vases, £23 being offered in four prizes. The 1st prize of £3 was worthily won by Mr. LANT, gr. to Captain STERLING, of Kair, Dunblane, N.B., who staged some grand examples, remarkably fresh, with much variety of colour; the best were N.C.S. Jubilee (extra), Mr. C. H. PAYNE, Lady Ridgway (very fine), Madame N. Riccord, Mary Molynaux, Phœbus, Mrs. Menne (extra good), Mutual Friend (large and clear), Pride of Madford, Mr. G. W. PALMER, Lady Byron (very fine), M. Chemon de Leche, and Oceana. 2nd prize of £15 to Mr. McKellar, gr. to Lord ASHMOOR, Durrus Castle, Queens Co., who also had some grand flowers. The 3rd prize of £8 to Mr. Goodacre, gr. to the Earl of HARRINGTON, Kiverton Castle, Derby.

For forty-eight cut blooms, in at least thirty-six varieties, Mr. McKellar was 1st, staging fine flowers with much diversity of colour; 2nd, Mr. THOS. BRADSHAW, gr. to the Marquis of DOWNSHIRE, Hillsborough Castle, who came very close to the winner.

For a similar class, open to Ulster only, Mr. BRADSHAW won with a fine selection, the blooms of first-class average throughout.

For twelve blooms of white varieties, Mr. BRADSHAW was 1st with Madame Gustave Henri and Madame Carnot, a very equal exhibit; 2nd, Mr. JAS. MCKELLAR, who staged Madame Carnot better, but Baron A. de Rothschild not nearly good.

For twelve blooms of yellow varieties, Mr. BRADSHAW was again 1st, with a strong stand of Australian Gold and Phœbus, both in first-rate character.

For twelve blooms of any other two colours, 1st prize was awarded to the varieties Vivand Morel and Pride of Exmouth.

For six varieties in vases, three blooms of each, Mr. Reid, gr. to G. H. BROWN, Esq., Tordavia, Helen's Bay, had a strong exhibit, and won easily with Phœbus, Madame Carnot, Edwin Molynaux, Edith Tabor, Graphic, and Australia; Mr. Marshall, gr. to LANCELOT SHAW, Esq., Brooklyn, Knock, being 2nd.

Incurved.—For twenty-four blooms in not fewer than eighteen varieties, Mr. BRADSHAW staged a very even lot of flowers fresh and fully-developed; 2nd, Mr. Robinson, gr. to THOS. H. TORRENS, Esq., Edenmore, Whiteabbey, in whose stand was found the premier incurved bloom in Lady Isabel, a deep, well-formed flower.

For twelve varieties, Mr. Hodgkins, gr. to JOHN TORRENS, Esq., Rosstulla, White Abbey, was 1st with a good stand, the best of which were Perle Dauphinoise, Duchess of Fife, and Jas. Agate. The incurved section, on the whole, was not strongly represented.

Anemone-flowered.—1st to Mr. JAS. ROBINSON, who staged his triplets in vases, the effect being excellent, the varieties being of the standard kinds, and the cushions being well developed; 2nd, Mr. HODGINS.

Single-flowered varieties.—1st to Mr. Mitchison, gr. to Col. Hon. C. F. CRICHTON, Mullaboden, Ballymore, Eustace; these also were set up in vases, but with other kinds of foliage in addition.

The best basket, tastefully arranged, came from Mr. Donald, gr. to JOHN SEPPER, Esq., Fairacre, Fort William Park.

MISCELLANEOUS GROUPS AND PLANTS.

These had no small share in the general effect. In the "open to the trade" class, Mr. HUGH DICKSON, Royal Nurseries, Belfast, whose group was composed of choice, well-grown plants tastefully put together, with no undue preponderance of colour, Orchids, Heaths, Bouvardias, Roman Hyacinths, and a few Chrysanthemums being chiefly relied upon. The group as a whole was well broken up and diversified in character. The 2nd prize went to Mr. WM. MACKE, Knock Nursery, Strandtown, Belfast.

There were many classes for miscellaneous plants, and the exhibits in these were most satisfactory. The greater part of these were for plants in small pots. Mr. McILVEEN was 1st for four specimen Crotons, well-furnished and highly-coloured examples, and also for six plants in 6 inch pots, where he had a truly wonderful exhibit, the plants being well-furnished half-specimens, beautifully coloured.

Mr. P. McHaffie was the most successful exhibitor of Roman Hyacinths, Cyclamen, and double Primulas.

Mr. DRAPER was 1st for single Primulas, and Mr. BRADSHAW for Primula obconica, with plants very freely flowered.

Mr. McHaffie also had the best six Dracenas in small pots; it would, however, have been better had he not employed oil or its equivalent, in order to brighten up the foliage.

For a mixed group, open to gardeners only, Mr. Foster, gr. to JAS. YOUNG, Esq., Abbotcroft, White Abbey, was an easy 1st, with well-grown plants.

NON-COMPETITIVE EXHIBITS

of plants and fruits were contributed. From the Botanic Gardens Park, Mr. McKIMM, the Curator, sent and arranged a most tasteful group of foliage plants. From Mr. T. H. DICKSON, the Curator at another of the Belfast parks, a very bright group was arranged at the opposite end of the building. Messrs. ALEXANDER DICKSON & SONS, Newtownards, contributed a large quantity of Apples, Pears, and Grapes. Mr. HUGH DICKSON, Royal Nurseries, Belfast, staged a large group of Coniferous plants, Veronicas, Ivies, &c.

FRUIT EXHIBITS.

Prizes were offered for a table of dessert fruit, in twelve distinct varieties, separate prizes being offered in the same class for the most tasteful decorations of the same tables with flowers and foliage; thus, two distinct sets of prizes were open to competition. Mr. BRADSHAW was awarded the premier position; the fruit was of first-class quality, and the decorations most appropriate for the season of the year; the flowers used were *Sources d'Or Chrysanthemums*, with tinted foliage, the fruit also being dished up with similarly-tinted vine foliage.

Mr. BRADSHAW was the most successful with Black Grapes, with well-coloured bunches, and with Trebbiano in the "any other white" class. He was, however, beaten in the Muscat class by Mr. HARDING.

Mr. HARDING was first in the principal class for Apples in twenty-four varieties, showing highly-coloured fruits. Mr. BRADSHAW followed closely in this class.

Other and smaller classes for fruits were provided, and the competition was invariably good.

Vegetables, likewise, occupied a large space, classes for which—and for fruit—were reserved for farmers and others who grow for sale.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

NOVEMBER 9.—A. WARBURTON, Esq., Vine House, Haslingden (gr., Mr. Lofthouse), exhibited the magnificent *Oncotoglossum crispum* var. *Lindeni*. The plant produces flowers of good size, and the segments are heavily blotched with rich crimson. The Committee awarded this plant a First-class Certificate, and the additional honour of a Silver-gilt Medal.

THOS. STATTER, Esq., Whitefield (gr., Mr. Johnson), exhibited a very beautiful Orchid in *Cattleya* "Countess of Derby." This variety, which in habit has traces of both *Cattleya gigas* and *C. aurea*, may be classed as one of *Cattleya Hardyana*, with pure white sepals and petals, the colouring in the labellum is gorgeous. A First-class Certificate and a Silver-gilt Medal was awarded. Also a Silver-gilt Medal for a fine group, including *Cattleya Bowringiana*, Statter's var. (First-class Certificate), and *L.C. x Statteriana* (Award of Merit).

G. PHORLAND BALL, Esq., Wilmslow (gr., Mr. Gibbons), again showed his plant of *Cypripedium x Acteus* (*C. Leeanum superbum* x *C. insignis* Sandere), which was awarded a First-class Certificate. The plant being in much better form than when previously shown. Mr. BALL has a very nice group of Orchids (Silver Medal).

W. G. GROVES, Esq., Windermere (gr., Mr. Robertshaw), had a grand plant of *Cattleya x Mantini* nobilior, the spike bearing ten flowers of fine colour and substance (First-class Certificate). Also from the same collection came a grand plant of *Cypripedium insignis* Sandere, with six flowers expanded (First-class Certificate).

Mrs. GRATRIX made her debut at this meeting as an exhibitor, and was awarded a First-class Certificate for a nice plant of *Cypripedium insignis* Sandere.

S. GRATRIX, Esq., West Point, Whalley Range (gr., Mr. McLeod), received a First-class Certificate for *Cattleya labiata* var. *Cooksoni*, a very charming Orchid, having pure white sepals and petals, with a brightly-coloured lip.

J. LEHMANN, Esq., Heaton Mersey (gr., Mr. Edge), staged a very choice group of Orchids, the gem in which was *Cattleya labiata* "Sir George White," which is very similar in character to *C. l. var. Cooksoni*, but much larger. This plant received a First-class Certificate, and a Silver-gilt Medal was awarded for the group.

RICHARD ASHWORTH, Esq., Newchurch (gr., Mr. Pidsley), exhibited *Lælio x Cattleya x Pallas* var. *rubens*, a good form, and well coloured (Award of Merit).

ED. HOLT, Esq., Prestwich (gr., Mr. Murphy), exhibited a good plant of *Cypripedium insignis* var. *Sandere* (First-class Certificate).

T. BAXTER, Esq., Oakfield, Morecambe (gr., Mr. Roberts), received an Award of Merit for *Cattleya labiata* var. *corulæa*, a very distinct form, with a decided bluish tinge throughout the entire flower.

Mr. A. J. KEELING, Bingley, Yorks, staged a very nice group of Orchids, for which he received a Silver Medal. An Award of Merit was made to his *Cypripedium x magnificum* (*C. Pollettianum* x *insignis* giganteum), which is a good addition to the now numerous family of *Cypripedium* hybrids.

ALSAGER AND DISTRICT CHRYSANTHEMUM.

NOVEMBER 15.—The ninth exhibition was held in the School Room, Alsager. The chief feature of this show are the groups, for which there are four classes, and each was well contested.

In the open class Mr. Smith, gr. to J. MADDOCK, Esq., was 1st, with a very fine group of good flowers, relieved with Palms and fine foliage plants; the National Chrysanthemum Society's Certificate was awarded to this group. Mr. Holland, gr. to F. RIGBY, Esq., 2nd.

In division two, Mr. J. Bailey, gr. to J. GIBSON, Esq., won with a very fine group; Mr. GROCOT, gr. to F. W. ELLERBY, Esq., 2nd.

In a class for a group of naturally-grown, or not disbudded plants, Mr. F. Higgins, gr. to F. C. MAGON, was 1st, with a group of well-grown plants.

Two groups were exhibited in the amateurs' section, and these were very creditable, being nearly equal to those in the open classes. 1st, Mr. J. ALLMAN, who was awarded the National Chrysanthemum Society's Certificate.

CUT FLOWERS, FRUIT, &c.

The best collection of twelve Japanese blooms was from Mr. B. SMITH, gr. to J. MADDOCK, Esq., who had also the best collection of twelve incurveds.

Mr. B. SMITH and Mr. J. ALLMAN were successful with specimen plants.

There was a moderate display of fruit. The best Grapes were shown by Mr. B. SMITH, and the best Apples by Mrs. W. ASHMORE.

SCOTTISH HORTICULTURAL.

CHRYSANTHEMUM EXHIBITION IN EDINBURGH.

(By Telegraph.)

NOVEMBER 16, 17, 18.—The annual Chrysanthemum Exhibition was opened on Thursday last in the Waverley Market, Edinburgh, and was a very brilliant event. Cut blooms were staged in abundance, and the plants were much better than any staged in previous years. There was a large show of Grapes and hardy fruits, and abundance of vegetables.

The competition that excited most interest was that for the best twenty vases of cut Chrysanthemum blooms in twenty varieties, three blooms of each. The prize included the City of Edinburgh's gift of £20 and £15 provided by the Society, making a total of £35; and the remaining four prizes were proportionately liberal. There was a very spirited competition, and on Wednesday there were nine entries, but only seven competitors came forward with exhibits.

There was, therefore, a total of 420 blooms, or 120 fewer than was staged at the National Chrysanthemum Society's exhibition in London last week, in the class for Twelve Vases containing five blooms in each. The coveted prize was awarded to Mr. THOS. LUNT, gr. to A. STIRLING, Esq., Keir House, Stirlingshire, who had very large blooms in the freshest condition. Mr. BEISANT, gr. to M. ARMISTEAD, Castle Huntley, was a very close 2nd, with blooms quite as heavy, but wanting in finish; 3rd, Mr. J. W. McHATTIE, gr. to the Duke of WELLINGTON, Strathfieldsaye, Hampshire; Mr. A. CHANDLER, Cotton House Gardens, Rugby, was 4th; and Mr. HAGGART, Moor Park Gardens, Ludlow, 5th.

A smaller class for Twelve Vases containing 36 blooms, which was reserved to Scottish gardeners and amateurs, was won by Mr. D. NICOLL, gr. to J. W. BELL, Esq., Rossie House, Forganenny, who took the 1st prize of the Scottish Challenge Cup and £10. He had fine massive blooms. Mr. A. IRK, gr. to J. THOMPSON PATON, Esq., Norwood, Alloa, was 2nd, with very fine examples; and Mr. BEISANT, 3rd.

The immense number of blooms staged in the important class for thirty-six Japanese, distinct (open), created a magnificent show. There were as many as twelve entries, and the 1st prize of £15 was won by Mr. T. LUNT, who repeated his success in the larger class; but two points only separate his exhibit from that shown by Mr. NICOLL, Rossie; 3rd Mr. J. W. McHATTIE.

PLANTS.

The £10 prize for Chrysanthemums in pots was secured by Mr. CAVANAGH, Murrayfield, with grand specimens, who had also the best four specimens.

The class for a semi-circular group of plants, for which £10 was offered as 1st prize, brought four competitors; Mr. WOOD, Dunmore Park, being accorded 1st prize for a somewhat formal arrangement. Mr. JARDINE, gardener, Ravelston Park, was a close 2nd.

FRUIT AND VEGETABLES.

Grapes were shown in large quantity, Messrs. BUCHANAN obtaining 1st in the class for four bunches. Messrs. THOMSON's prize for two bunches was secured by Mr. LEALIE, gardener, Pitcullen.

The class for a collection of eight varieties of fruit brought two competitors, Mr. D. CARRBERRY, Tower Gardens, Musselburgh, being 1st, with really fine examples.

For hardy fruits, Mr. JAS. DAY, gr. to the Earl of GALLOWAY, Galloway House, was the most successful exhibitor.

Apples were shown in very large numbers.

Of vegetables there were nine collections of ten sorts each. The 1st prize was awarded to Mr. CAMERON, gr., Birnrock, Dundee. Lettuce, Tomatoes, and Cucumbers were the chief features.

The total entries at this fine show numbered 1,125 this year, as against 1,014 last year; and the exhibitors 216 this year as against 204 on that occasion.

Our telegram was despatched from Edinburgh at 1.45 P.M., and the work of judging was then not nearly completed.

GARDENING APPOINTMENTS.

Mr. H. R. WOODCOCK, for eight years Foreman, and more than three years Head Gardener at The Beeches, Fleet, Hants, as Head Gardener to F. GOURLAY, Esq., Kempshott Park, Basingstoke.

Mr. WILLIAM NEWMAN, late General Foreman at Easton Lodge, Dunmow, Essex, as Gardener to Miss BROWN, The Larches, East Grinstead, Sussex.

Mr. J. W. YOUNG, as Head Gardener to T. LILLIE, Esq., The Croft, Ealing, W.

Mr. ALEXANDER MUNRO, Foreman at Glamis Castle Gardens, as Gardener to E. CURRIE, Esq., Itton Court, Chepstow, Monmouthshire.

Mr. ROBERT GREENLAW, Glenavon Gardens, Linlithgowshire, and formerly General Foreman at Scone Palace, Perth, as Gardener to HENRY J. YOUNGER, Esq., D.L., Benmore, Kilman, Argyleshire.

Mr. E. SNELGROVE, for the past three years Gardener at Woodlands Ridge, Hants, as Head Gardener to General Lord A. RUSSELL, Ewhurst Park, Basingstoke.

Mr. A. HAYNES, late Foreman and decorator under Mr. GILMAN at Alton Towers, as Gardener to F. H. COOK, Esq., The Grange, Walton-on-Thames.

Mr. F. TRIBBLE, late Head Gardener at Crosby Hill, Camberley, as Head Gardener to A. STRICKLAND, Esq., Apperley Court, near Tewkesbury, Gloucestershire.

Mr. ROBERT JONES, late of the Cliffe, Nantwich, has been engaged by the Right Hon. the Earl of Gosford to take charge of the gardens at Gosford Castle, Market Hill, and the Rich Hill Castle Gardens, co. Armagh.

Mr. H. D. PROSSER, late Head Gardener at Peover Hall, Cheshire, as Head Gardener to A. W. WILLIAM-WYNN, Esq., Coely-Maen, Welshpool, Montgomeryshire.

Mr. JOHN BALMFOUR, formerly Gardener at Bishopscourt, Isle of Man, as Head Gardener to J. DEWRANCE, Esq., Cranmore Place, Chislehurst, Kent.

Mr. W. MARSH, until recently Foreman in 6 Gardens, Sharnston Hall, Cheshire, as Head Gardener to Mrs. L. JACKSON, Barley Lodge, Lillington, Leamington, Warwickshire.

Mr. WALTER HOLMES, for the past eight years, Foreman in the Gardens, Bayham Abbey, Lamberhurst, Kent, as Head Gardener to E. T. LAMBERT, Esq., Telham Court, Battle, Sussex.

Mr. A. J. MORRIS, for the past ten years Head Gardener at Kingston House, Abingdon, as Head Gardener to G. RANDELL HIGGINS, Esq., The Croft, Burcote, near Abingdon.

Mr. C. STROCKING, late of Marden Park, as Gardener and Bailiff to C. H. FEILING, Esq., Southgate House, Southgate, N.

Mr. ROBERT ADAMSON, late Gardener at Corner Hall, as Head Gardener to Mrs. EARLE, Farleigh Castle, Bath, Somerset.

Mr. J. LEE, for eight and a half years Foreman in the Gardens, Gosford, Longniddry, N.B., as Head Gardener to the Earl of BUCHAN, Gog-Magog Hills, Cambridge.

MARKETS.

COVENT GARDEN, NOVEMBER 16.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	d. s. d.		d. s. d.
Arum Lilies, dozen blooms	8 0-10 0	Maldenhair Fern, per doz. bunches	4 0-6 0
Asparagus "Fern," bunch	2 0 2 6	Oncotoglossums, per dozen	4 6-9 6
Ornations, per doz. blooms	2 6-5 0	Marguerites, p. doz. bunches	8 0-4 0
Cattleyas, per dozen	15 0-18 0	Mignonettes, dozen bunches	4 0-6 0
Bucharis, per dozen	6 0-8 0	Roses indoor, per dozen	2 0-6 0
Gardenias, per doz.	2 6-5 0	— Tea, white, per dozen	2 6-8 6
Gladioli Brenchleyensis, 12 spikes	4 0-6 0	— Yellow, Perles, per doz.	3 0-6 0
Lilium Harriall, per dozen blooms	6 0-9 0	— Safrano, per doz.	2 0-2 6
Lilium longiflorum, per dozen	5 0-8 0	Smilax, per bunch	8 0-4 6
— lancifolium album, per dozen	6 0-4 0	Tuberose, per doz. blooms	0 8-0 6
— lancifolium rubrum, per doz.	8 0-4 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

	d. s. d.		d. s. d.
Apples, per bushel:		Lemons, Malaga, chest	15 0-20 0
— Kings	4 0-6 0	— Messina, case 360	18 0 —
— Ribstonas	4 0-8 0	Lyches, Chinese, new, pkt., 1 lb.	1 0-1 2
— Blenheim	4 0-6 0	Medlars, in boxes	1 0 —
— Nova Scotia, various, barrel	12 0-17 0	Melons, English, each	0 3-1
— Canadian New Town Pippins, barrel	24 0 —	Oranges, Teneriffe, case of 80 to 100	5 6 —
— Cox's Orange Pippin, bushel	8 0-16 0	— Jaffa, case of 144	11 0 —
— Wellingtons, bah.	4 0-7 0	— Lisbon, case	12 0-14 0
— Various Cooking, per bushel	1 0-2 6	— Murcia, case of 420	5 6 —
Bananas, per bunch	5 0-9 0	— Valencia	10 0-13 0
Chestnuts, per bag	6 6-12 6	— Tangerine, boxes	1 0-1 6
— in sacks, Italian	18 0 —	Pears, Californian, cases	8 0-8 6
Cobnuts, per lb.	0 6-0 7	— Catillac, Dutch, basket	8 0 —
Cranberries, case	11 0 —	— French Duchesse, case of 28 or 36	4 6 —
— American, per qt.	0 6 —	— Glout Moreau, crates of 18x21 or 24 fruits	8 0 —
— kegs (Russian)	2 0 —	Persimmons, p. doz.	1 0-2 0
Grapes, English, Alicante, per lb.	0 10-1 8	Pines, each	2 6-4 0
— Belgian	0 4-1 6	Sapucals Nuts, per lb.	1 0 —
Gros Colmar, per lb.	1 0-1 6	Walnuts, Grenoble, shelled, p. bag	4 6 —
— Muscats, A., per lb.	1 6-2 6	— French, sacks, shelled, 45 kilo.	10 0 —
— Almelra, bls.	16 0-20 0		
Lemons, Naples, per case of 420	27 6 —		
— small case	12 0-15 0		

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantum, p. doz. ... 5 0-7 0	Ferns, small, per 100 ... 4 0-5 0
Arbor-vitæ, var., doz. ... 5 0-56 0	Vitis elastica, each ... 1 6-7 6
Aspidistra, p. doz. ... 18 0-36 0	Foliage plants, var., each ... 1 0-5 0
— specimen, each ... 5 0-10 6	Heliconias, each ... 15 0-105 0
Crotone, per doz. ... 18 0-30 0	Lilium Harrial, doz. ... 30 0-40 0
Dracæna, var., doz. ... 13 0-30 0	Lycopodiums, doz. ... 3 0-4 0
— viridis, per doz. ... 9 0-18 0	Marguerite Daisy, per dozen ... 8 0-12 0
Ericas, var., per doz. ... 18 0-36 0	Myrtles, per dozen ... 6 0-9 0
Euonymus, various, per dozen ... 6 0-18 0	Palms, various, ea. ... 1 0-15 0
Evergreens, var., per dozen ... 4 0-18 0	— specimen, each ... 21 0-58 0
Ferns, in variety, per doz. ... 4 0-18 0	Pelargoniums, scarlet, per dozen ... 6 0-8 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. ... 4 0 —	Leeks, per dozen bunches ... 1 6 —
— Jerusalem, per sieve ... 2 0 —	Lettuces, French, doz. ... 0 8 —
Asparagus, Spruce, per bundle ... 0 8 —	— Cos, dozen ... 3 0 —
— Paris, Green, per bundle ... 5 0 —	Mint, per dozen bunches ... 2 0 —
— Giant, bundle ... 12 0-17 6	Mushrooms, house, per lb. ... 1 3 —
Beans, Channel Islands, Dwarf, per lb. ... 0 6-0 10	— outdoor, per lb. ... 0 8-0 10
— French, lb. pkt. ... 0 4-0 5	Onions, bags ... 4 0-4 6
— French, in sieves, per lb. ... 0 4 —	— Onions, picklers, in bags ... 2 6 —
Beetroots, new, doz. ... 0 6-0 9	— Valencia, cases ... 5 0-5 6
— in bush ... 1 6 —	Parley, per dozen bunches ... 1 6 —
Brussels Sprouts, p. sieve ... 1 0-1 6	— per sieve ... 1 0 —
— per bushel ... 2 0-2 4	Parsnips, per dozen ... 0 6-0 9
Cabbage, tally ... 0 4-0 6	— bag ... 3 6 —
— dozen ... 1 0-1 6	Pimentos, per lb. ... 0 6 —
— Savoy, p. tally ... 5 0-8 0	Potatoes, Hebrons, Snowdrops, &c. per ton ... 60 0-90 0
Cardoons, each ... 1 3 —	Radishes, round, breakfast, per dozen bunches ... 1 6 —
Carrots, English, p. dozen bunches ... 2 0 —	Salad, small, punnets, per dozen ... 1 8 —
— good, cwt. bags, washed ... 2 6-8 6	Salsify, bundle ... 0 4 —
Cauliflowers, dozen ... 1 0-2 0	Seakale, per dozen ... 2 1 0
— tally ... 3 6-7 6	Spinach, New Zealand, per bush ... 2 6 —
Celeriac, per dozen ... 1 0 —	— sieve ... 1 3 —
Celery, red, p. roll ... 0 10-1 4	— Winter, per bus. ... 2 6 —
— white, do. ... 0 8-0 10	Tomatoes, English, per lb. ... 0 5 —
Colewort, p. bush ... 0 9-1 0	— Channel Islands, p. lb. ... 0 3-0 4
Cress, per dozen punnets ... 1 6 —	— Canary, deeps ... 1 6-3 0
Cucumbers, doz. ... 3 6-4 0	Turnips, per dozen bunches ... 2 0 —
Endive, new French, per dozen ... 1 3 —	— cwt. bags ... 1 9-2 6
— English, p. score ... 1 6 —	Watercress, p. doz. bunches ... 0 4-0 6
— Batavian, doz. ... 1 6 —	
Garlic, new, per lb. ... 0 2 —	
— per cwt. ... 14 0 —	
Horseradish, English, bundle ... 2 0-2 6	
— foreign, per bundle ... 1 0-1 3	

THE WEATHER.

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
	Above (+) or below (-) the Mean for the week ending November 11.	Above 49° for the Week.	Below 49° for the Week.	Above 49° difference from Mean since January 1, 1899.	Below 49° difference from Mean since January 1, 1899.	More (+) or less (-) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.
0	8 +	31	7	+ 355	- 49	9 +	107	44.4
1	3 +	33	11	+ 194	- 5	9 +	175	29.2
2	4 +	40	3	+ 817	- 114	0 aver	151	21.0
3	6 +	57	0	+ 404	- 212	8 +	139	20.8
4	6 +	50	0	+ 402	- 148	4 +	137	23.4
5	6 +	70	0	+ 569	- 201	15 +	122	22.8
6	4 +	38	2	+ 224	- 80	13 +	192	44.7
7	5 +	50	0	+ 305	- 163	4 +	168	32.4
8	5 +	62	0	+ 618	- 132	7 +	152	31.2
9	3 +	36	1	+ 314	- 97	7 +	198	32.4
10	4 +	53	0	+ 459	- 75	7 +	164	35.3
* 5 +	35	0	+ 839	- 67	11 +	146	24.7	32.5

The districts indicated by number in the first column are the following:—

- 0, Scotland, N. Principal Wheat-producing Districts—
1, Scotland, E.; 2, England, N.E.; 3, England, E.;
4, Midland Counties; 5, England, including London.
Principal Graining, &c. Districts—6, Scotland, W.;
7, England, N.W.; 8, England, S.W.; 9, Ireland, N.;
10, Ireland, S.; * Channel Islands.

ANSWERS TO CORRESPONDENTS.

ARALIA VEITCHI: *N. W. A. Guilfoylei*, which is a free-rooting species easily raised from cuttings, is frequently employed as a stock for those Aralias that are natives of tropical countries. Graft on established stocks in a close case by the cleft, or whip method, leaving a leaf or two on the stock beyond the grafting point. A. Sieboldi and A. papyrifera are readily raised from seed in the case of the first, and root cutting in that of the second; but they are not suitable stocks for Aralias from hot climates, hence your failures.

BOOKS FOR A GARDENERS' ASSOCIATION LIBRARY:
H. T. Manual of Orchidaceous Plants, Veitch; published at the Royal Exotic Nursery, King's Road, Chelsea, London, S.W. *The Orchid Manual*, by B. S. Williams; published at the Victoria and Paradise Nurseries, Holloway, N. *Stove and Greenhouse Plants*, by T. Baines; *The Book of the Vine*, by A. F. Barron; *The Orchard House*, by T. F. Rivers, Sawbridge-worth, Herts; *The Vegetable Garden*, by M. Villmorin, English edition; Murray. *Chrysanthemums*, by E. Molyneux; from the author, Swanmore Park, Bishop's Waltham; *Cactus Culture*, by W. Watson; published by Upcott Gill. *The Fruit Manual*, by R. Hogg; *Manual of Conifers*, by Veitch; *My Gardener*, by H. W. Ward; *Fruit Culture*, by Du Breuil; *Grafting and Budding*, by Baltet, English edition; Longmans. *Tree Pruning*, by A. de Cars, English edition; *Epitome of Gardening*, by Moore and Masters; *Plant Life*, by Masters; Vinton. *Origin of Cultivated Plants*, by De Candolle; Longmans. *Treasury of Botany*; Longmans. *System of Botany*, by Le Maout and Decaisne, English edition; Longmans. *Handbook of British Flora*, by Bentham and Hooker, and Illustrations to the same, 1 vol.; Lovell Reeve. *Student's British Flora*, by Hooker; *Structural and Physiological Botany*, by Asa Gray; Macmillan. *Plants of Shakespeare*, Ellacombe; *Bible Plants*, J. Smith; *Himalayan Journals*, Hooker; Darwin's Works; Murray. *Diseases of Plants induced by Cryptogamic Parasites*, Tuben and Smith; Longmans & Co., London. *The Diseases of Trees*, by Hartig, English edition; Macmillan & Co. *Manual of Injurious Insects*, by Miss Ormerod, improved edition; *The Rose Garden*, by W. Paul, Waltham Cross.

BOOKS: WATERCRESS: J. C. A book by the late Shirley Hibberd, and published by Messrs. Collingridge & Co., London, will afford the information that you require.

CARNATIONS DISEASED: C. D. The plant sent was badly affected by the fungus *Helminthosporium echinulatum*. It cannot be cured, and you should root up all infected plants and burn them. It spreads more rapidly in wet weather than dry, and on plants whose leaves have been denuded of their waxy coating.—E. Semper. The appearances point to eelworms at the root being the cause. The worms have probably been introduced with pasture-loam used in a fresh condition. You will find a figure and description of a plant attacked by eelworms in the *Gardeners' Chronicle*, December 3, 1881, p. 721. We fear there is no cure which would not be as injurious to the plants as the disease itself. Better to clear out every infected plant and burn it forthwith. The eelworms are not likely to go from one potted plant to another, as is the case with plants grown close together in beds.

CATKINS: *Young Gardener*. The catkins or male flowers of *Cedrus Deodara*.

DENDROMETER: A. C. B. You might enquire at some of the leading opticians or makers of mathematical instruments in London.

FLOWER-SPIKES APPEARING AT THE TOP OF THE PSEUDO-BULBS OF ODONTOGLOSSUMS CRISTATUM AND PESCATOREI: F. E. H. The plants occasionally do this after some kind of check has occurred.

GRINIATA CUTTINGS: J. C. Half-ripened cuttings, taken in June or July, with a thin heel of older wood, and 2½ to 3 inches in length, strike readily in pots filled with finely-sifted peat, mixed with a considerable proportion of silver sand, and surfaced with a ½-inch layer of sand. Cover with a bell-glass, and place the pots in a temperature of 55° to 60°, shading the cuttings by a newspaper from strong sunshine. Water must be

afforded when necessary, and the glasses wiped out once a day. Plenty of finely-broken crocks should be placed in the pots, and no bottom heat afforded. Pot off into tubs when rooted, and keep close and shaded from bright sunshine for ten days afterwards. At the expiration of that period, afford air, doing so very gradually. At the end of a fortnight the plants may be put into cold frames, being afforded no shade. On warm afternoons, at about five o'clock, sprinkle the foliage, and close the frames till eight o'clock, when air should be afforded and kept on during the night. The chief foe of *Genistas* (*Cytisus*) is red spider; but sprinkling the leaves late in the day, and a cool night temperature, will prevent any lodgment on the plants.

NAMES OF FRUITS: We are most desirous to oblige our correspondents as far as we can, but we must request that they will observe the rule that not more than six varieties be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. They should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.—G. 1, Crassane; 2, Doyenné du Comice; 3, Easter Beurré; 4, Beurré Giffard; 5, Beurré de l'Assomption; 6, Autumn Nelis.—W. R. 1, Cox's Orange Pippin; 2, Reinette Van Mons; 3, Stirling Castle; 4, Beurré d'Amanlis; 5, Beurré Diel—Enquirer. 1, Catillac; 2, Emile d'Heyst.—S. Winter Pearmain.—Reader. 1, Rambour Franc; 2, Queen Caroline.—G. B. 1, Norfolk Beefing; 2, Margil; 3, Hornead's Pearmain; 4, Hoary Morning; 5, Hollandbury; 6, Grenadier.—M. N. S. Probably, a local variety, and evidently of little value.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—F. W. *Cattleya Dowiana aurea*.—A. L., *Atherstone*. *Pteris cretica albolineata*.

"PEPPERHELLOES": Kylemore. We cannot find such a name, but from your description we guess it may be *Momordica charantia*, a warm greenhouse or stove climber.

RETROGRESSIVE SELECTION: *American Correspondent*. Mr. Galton's article appeared in vol. xxi., 1897, pp. 313, 336, and 348. Articles on similar subject by Mr. Druery will be found in 1895, vol. xvii., pp. 611, 645, and 692.

STEPHANOTIS GRANDIFLORA: T. The plant may be pruned from January to March, the plants then blooming from May till late in the summer. Do not crowd the young shoots, or let them grow into a tangle; let the plant have as much sunlight as possible, and it will then make short, floriferous lateral shoots and spurs, which should be allowed to stand free from the main shoots. The knife should be freely used in removing weak and apparently flowerless shoots, and hard pruning practised just previously to the plant being started. Repot or top-dress the plant as soon as growth is renewed. *Stephanotis*, in order to flower it satisfactorily, requires a rest-period of about three months, during which scarcely any water should be afforded, or only so much as will prevent much shrivelling of the wood. If a plant be portable, it should be rested in a dry house, having a temperature of not more than 50°, or lower than 45°.

WALNUTS: *Macondray & Co.* We do not know the varieties you name. They are mentioned in the French catalogues, but not in the English. Walnuts are budded or grafted, but they will grow from seed; and the seedlings generally come true.

COMMUNICATIONS RECEIVED:—John K. King.—W. P. L.—F. Bostock.—Oshian & Co.—Ernst Bernary, Erfurt.—C. U. Van Turbergen.—Sir M. F.—E. M.—J. F. W.—R. B. P.—T. C.—Littley, Carlisle.—A. Lodge.—E. M.—Ed. B.—W. W.—J. Lockie.—Geo. W.—M. C.—W. H. P.—J. Hudson.—R. P. B.—W. T.—H. D. P.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS:—F. B.—W. W.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE Gardeners' Chronicle

No. 674.—SATURDAY, NOV. 25, 1899.

ROADSIDE FRUIT IN EUROPE.

FRUIT-TREE planting by the roadsides does not make the progress in this country that might be expected. The area that could be thus utilised is in the aggregate very large, and the profit might be considerable. Not only the roadsides in the country districts, but many a mile of railway embankment should be so planted. Low hedges of Gooseberries would, in many places, answer the purpose of Quickset hedges, and yield a crop as well; and many a slope now left bare is well adapted for Strawberry culture. Cordon Apples might also be grown in places, though these would require more skilled attention than need be given to those just mentioned. Other suggestions will readily present themselves.

In some quarters we hear the objection raised that if fruit grew by the roadside it would offer a temptation to felonious boys. Perhaps it might; but if the planting were on a sufficiently extended scale, the amount lost by depredation would be relatively insignificant. Moreover, there are means of preventing the ascent of marauders by encircling the trunk of the tree with one or two coils of barbed-wire, which would as effectually stop the climber as the spikes in the post checked the vaulting ambition of the urchin in one of Leech's pictures. But there is a better plan even than this, and that is, to plant in such situations trees whose fruit once tasted, would leave no inducement to repeat the trial.

In some parts of Switzerland vast numbers of Pears are grown—some along the roadsides, some in the alpine meadows and valleys, even up to 4000 or 5000 feet. The fruit of these trees is not agreeable to the eye, still less is it pleasant to the palate in its crude state. Made into a "compote," it is, however, delicious, and vast quantities are so employed, whilst others are said to furnish a beverage corresponding to our perry. Cherries are grown in the same way, but the fruits are small, and only suitable for culinary purposes, or for use in the distillation of spirits. Great care is taken in the proper planting of the trees along the roadsides, the ground being well broken up, and each tree is secured to three stakes. These not only support the tree and prevent wind-waving, but they protect it from destruction by cattle, mules, or goats.

The following extract, which we take from the *Journal of the Society of Arts*, gives some details as to the extent to which this kind of fruit-culture is carried out in other countries, and affords one more illustration of the way in which we waste our opportunities:—

"The cultivation of fruit-trees along the highways of France is being extended each year. The Government having first set the example, the communes in certain departments adopted this practice as a source of revenue, so that now roadside fruit-cultivation has become an important branch of national industry. It is not, however, only in France that fruit-trees have been planted

along the roadside. The United States Consul at St. Etienne says that in Germany, Belgium, and the Duchy of Luxemburg, the system has been greatly developed, giving satisfaction to the State as well as to local interests. On the Württemberg roads, for instance, the fruit harvest from this source produced in 1878 over £40,000, and last year the returns had more than trebled. The annual revenue derived from the national roads of Saxony planted with fruit-trees, rose from £1800 in 1880 to £8400 in 1892, furnishing a total sum of £68,000 for the thirteen years. In Belgium, according to the statistics of 1894, over 2875 miles of roads were planted with 741,571 fruit-trees, which furnished the large sum of £400,000. In France, the production of fruit-trees is estimated at £12,000,000. In Westphalia, in the Duchies of Baden and Saxe-Weimar, in Alsace-Lorraine, Switzerland, &c., the *employés* of the Administration of Roads and Bridges, and the road supervisors, are instructed in fruit culture. In some of the southern departments of France the roads are bordered with Cherry-trees, producing the small fruit called *Merise* (Wild Cherry), much appreciated for making wine *sui generis*, preserves, and even alcohol. In the Touraine, Plum-trees predominate; while in the Allier, the Walnut-trees transform the roads into shady walks. In Auvergne the Chestnut-tree flourishes; while in Normandy, place is naturally given to the Apple-tree. Some twenty years ago, the picturesque roads of the north-east of France were lined with stately Poplars; but although ornamental, their roots went far and wide, rendering the adjacent meadows sterile, and ploughs were continually stopped by off-shoots lying almost at the surface of the soil. The farmers appealed in such strong terms, that the communes decided upon the fall of the Poplar, and soon axes and saws were brought into requisition, and the roads cleared of these trees in favour of the humble but more useful *Mirabelle* (small Plum), to the great satisfaction of the villagers. Thousands of baskets of this fruit are sent to Paris daily. Some thirty years ago the distillation of the *Mirabelle* was unknown in the country districts, the people plucked it as food for their pigs, but to-day they have learned to make more profitable use of it. They distil it in large quantities, and find a ready market for it. A quart of this alcohol, slightly perfumed, sold five or six years ago for only about 10d. to 1s. 3d.; to-day it brings not less than 2s. or 2s. 6d., while in Paris the best kind cannot be obtained under about 4s. 3d.

NEW OR NOTEWORTHY PLANTS.

IRIS SOFARANA, n. sp.

This new *Oncocyclus* Iris was collected for Messrs. Van Tubergen of Haarlem, on the Lebanon, near Ain Sofar, at a considerable altitude. A large single flower, with very long, narrow spathe-valves, is borne on a scape about 10 inches high. The nearly elliptical fall, convex laterally, is of a dark purple, almost black colour, brought about by very thick-set, reticulate, blotched veins of very dark purple colour on a creamy-white ground, very little of which, however, is visible. Over the claw, and running over the hinder part of the blade is a straggling beard of scattered, long, dark purple hairs; in front of these the netted veins are fused together into a very indistinct "signal." Standard almost orbicular, with a groundwork nearly white, marked with thin, dark purple veins, most conspicuous near the margin, interspersed all over with dark purple dots. The dots are scattered, and the veins thin, so that the whole surface is much lighter in colour than that of the fall. About a dozen dark purple, almost black, long hairs are scattered over the claw. The styles, placed horizontally, are large, broad, concave, dark purple, almost black, with large quadrate, crenate, not serrate crests, marked with branching blotched purple veins on a yellow ground. The ovary, with a short tube, is of the ordinary *Oncocyclus* type. The rhizome is large and compact, and the leaves relatively broad,

10 inches by nearly 1 inch, so broad as to seem, when young, those of an ordinary bearded Iris.

It was sent to Messrs. Van Tubergen as a variety of *I. Lorteti*, but from this it is widely different. It comes nearest to *I. Sari*, but differs from this in the form of the segments in their venation and colour. It is a handsome Iris, well worth cultivating. The illustration (fig. 125, p. 391) is a little smaller than the flower itself. *M. Foster, Shelford, November 11, 1899.*

CATTLEYA LABIATA ALBA "SIR GEORGE WHITE."

Several fine forms of the autumn-flowering *Cattleya labiata*, having pure white sepals and petals, have appeared among recent importations, and the desire to keep that section distinct from those with coloured segments, prompts the lucky possessors to give them the varietal name "alba," qualified by a garden name fixing the identity of each, and, like many of the garden methods, it answers the purpose for which it is intended. Perhaps the finest of its class which has yet appeared has just flowered with J. Leemann, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), who kindly sends a flower of it, with the request that it may be recorded under the name of the brave General who has won the admiration and sympathy of Great Britain and her colonies.

The sepals and petals are pure white, well displayed, and of fine substance. The extended petals measures $7\frac{1}{2}$ inches across, each being $2\frac{1}{2}$ inches wide. The lip is $2\frac{1}{2}$ inches broad, very finely crimped at the edge, pure white, with a chrome-yellow area at the base, streaked with diverging white lines. In the centre of the lip is a ruby-crimson blotch, over which is a purplish shade, the colour getting lighter towards the edge, which is marbled with white. The whole of the lip has a pure white margin nearly half an inch wide, and the flower is excellent in every respect.

It is, perhaps, nearest to *C. l. a. Cooksoni*. Another ally is the *C. l. a. Gilmouris* of Mrs. Briggs-Bury, which, like the one now under notice, and other white forms, was imported by Messrs. John Cowan & Co., of Gateacre, Liverpool. It received a First-class Certificate at the Manchester and North of England Orchid Society, November 9.

CATTLEYA LABIATA PEETERSIANA SUPERBA.

The original form of *C. labiata Peetersiana*, when it was first flowered by M. Peeters, of St. Gilles, Brussels, was regarded as a very remarkable variation, its showy petals being heavily marbled with reddish rose-purple, the normal rose-coloured ground tint appearing between the darker blotches. That variety was eagerly sought after, and is still rare. But there came a rumour that a better thing in that direction had appeared under the above name, and all who have seen it agree that it will be impossible to get a more gorgeously-tinted *Cattleya*. Three plants, all divisions of the same, have flowered with J. Leemann, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), who kindly sends a flower of one of them, the darkest-coloured *C. labiata*, accompanied by the finest white form yet recorded—*C. l. a. Sir George White*. The whole of the flower is of a uniform dark rose-purple, the only other colour being a yellow tinge at the base of the lip, and a few white lines inside the tube where they do not meet the eye. The reverse of the flower is as bright as the surface. *James O'Brien.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUMS FROM MR. R. B. WHITE'S GARDEN AT ARDDARROCH.

A VERY interesting set of flowers of fine and varied forms of *Odontoglossum crispum* is kindly sent by R. Brooman White, Esq., Arddarroch, Garelochhead, N.B. (gr., Mr. Coles). The collection of *Odontoglossums* has already produced many very remarkable new forms. At present, and for some time past, an average of about two hundred spikes of *Odontoglossum crispum* have been open in the *Odontoglossum*-houses at Arddarroch; and

still there are spikes with buds in all stages—a very rare circumstance at this time of the year. One of the most remarkable is *O. crispum xanthotes*, Brooman White's variety, a fine white flower with some clear yellow spots on the segments, and without the brown markings usually seen in the species.

The other flowers may be divided into four classes, viz., the fine, broad-petalled white, which, when really at its best, is still the favourite; the white, tinged with rose or purple; and the spotted forms of both classes. Several of the varieties had one or more large blotches on each of the sepals, while others had smaller spots on all the segments, but no two were alike.

With the forms of *O. crispum*, of what is commonly called the *Pacho* type, was a spray of the elegant *O. c. Lehmanni*, which seems fairly intermediate between typical *O. crispum* and *O. Pescatorei*, its rounded, crimped labellum, much resembling some of the varieties of *O. Pescatorei*; also a very remarkable *O. x Coradinei*, which Mr. Brooman White suggests may be a second crossing of *O. Coradinei* with *O. crispum*, which seems probable. The flowers are nearly as large as those of *O. crispum*, wax-like in substance, white, with nearly half of the area of each segment occupied by large chestnut-coloured blotches. *J. O'B.*

CATTLEYA LABIATA.

We have just received a very exceptional inflorescence of *Cattleya labiata* from Mr. Mason, gr. to Sir Edward Elton, Bart., of Clevedon Court, Somerset, and we think the size of the flowers and number on a spike, "establish a record." There are seven flowers on the spike, and each flower is nearly 7 inches across the petals. The colour is very rich on the sepals, petals, and front lobe of the lip, but in the throat is pale to the opposite extreme.

Altogether, we think the variety is well worthy of record, and we should have much liked to have sent the spike for your inspection, but that we wanted it, with others, for the Emperor of Germany.

Mr. Mason informs us he bought the plant at one of our sales, and there were two spikes on the plant, one with six, the other with seven flowers; and last year, the plant had two spikes with exactly the same number of blooms on. *F. Sander & Co.*

TREES AND SHRUBS.

SAMBUCUS GLAUCA.

At a meeting of the Société Nationale d'Horticulture de France, held on October 12, M. Maurice de Vilmorin exhibited *Sambucus glauca*, Nutt. (*S. californica*, C. Koch—*S. cœrulea*, Raf., ?), with the following notice:—*S. glauca* is a tree of the third dimension, rather more developed than *S. racemosa*; it came originally from the north-east side of the United States, and the area over which it is dispersed extends as far north as British Columbia; it is, consequently, fairly hardy. This tree is particularly well adapted to bear the rather cold climates of the east and of the south-east. The abundant shining green foliage is very beautiful; in October the clusters of fruit are charming, and contrast magnificently with the red fruits of *S. racemosa*. The plant thrives in the same soils that suit the latter, those best suited appear to be sands, fresh, and fairly rich in humus. The specimens obtained by me were growing in good silico-argillaceous earth, moderately fertile.

TABLE FOR DISTINGUISHING THE SPECIES OF SYRINGA.

M. L. Henry has lately published in No. 293 of *Le Jardin*, p. 132, a table summing up very succinctly and clearly the marked distinctive characteristics of the species of *Lilac* properly so called, now known. Their determination can now be rapidly arrived at, and with certainty. Certain

peculiarities which appear not to have been previously noted, are indicated in this work, and deserve to be remembered. Thus, the facts that, of all the *Lilacs*, *Syringa pubescens*, Turcz., is the only one with violet anthers; that *S. Emodi* is the latest to come into leaf, and the only one with protruding stamens; that all *Syringas* may be divided into two very distinct groups, in one of which the inflorescences are borne directly on the wood of the preceding year (*S. pubescens*, *oblata*, *vulgaris*, *persica*, and *dubia*), while in the other they appear at the extremity of the shoots of the same year (*S. Emodi*, *Bretschneideri*, and *Josikaea*).

SICKLY FERNS.

IN Mr. Drury's interesting notes on the treatment of sickly British Ferns (p. 218), he suggests that exotics may be amenable to the same treatment; but I am afraid this is not the case, or, if any will reproduce in the manner described, the examples are very rare. It may, however, be of interest to call attention to the fact that exotics are equally liable to get into a sickly condition, and in some instances it is difficult to trace the cause. Yet in many cases the cause is easily discovered. There is one in particular, that it is as well to call attention to at this season of the year. It is keeping the plants in too much heat at a period when, like the British Ferns, they require rest. I have found that such as would, under natural conditions, rest during the winter, will, if kept in heat, continue in active growth well on through the winter, and although they make good fronds they do not store up strength and make the strong crowns necessary to start into growth at their natural period; they may go on, but the vigour gradually diminishes, until they die out entirely. I have found this to apply to some of the free-growing *Pteris*, &c.

Take a batch of the ordinary form of *Pteris serrulata*, keep some in heat, and some in a cool frame, from October until the middle of January; those in heat will have made some growth, while those in the cool will have remained quite dormant. But take these into heat, and give them a start, and in a very short time they throw up strong, vigorous fronds, and soon overtake those that have been growing through the winter, for these will make only weakly fronds, if they do not stop altogether.

Among the choicer Ferns may be mentioned the *Gleichenias*. A little warmth in the spring, while they are growing, will do no harm, but it is essential that they should be kept as cool as possible, without actually freezing them, from now until February. These beautiful Ferns love a cool, moist atmosphere, but should have plenty of light and sufficient air to prevent damp settling on the fronds. It is almost certain death to *Pteris scaberrula* to endeavour to keep it in heat through the winter; there are several of the *Adiantums* and *Davallias*—in fact, almost all Ferns are better for being kept on the cool side from now until after the turn of days.

Over-watering is another source of evil. So many people seem to think that Ferns must be continually watered; but although they do not like a dry atmosphere, too much moisture at the roots is sure to prove disastrous, more particularly so with newly-potted plants, or those that have large pots. Any that may have been potted on, and show signs of getting weaker, should be dealt with at once. When once a Fern does get into a sickly condition it is difficult to re-establish it again. As soon as it is seen that the new fronds do not develop to their full size, it is a sign of the plant not being quite healthy, and the sooner they are dealt with the better. It will be quite safe to reduce the balls where the roots have not taken hold of the soil, and they may often be potted back into smaller pots, but in this matter it will depend on the condition of the roots, &c. In re-potting sickly Ferns, good drainage is one of the most important considerations, and those which make their fronds

from a single crown (or caudex) should be potted down, so that the new roots which are produced from the upper part of the caudex as it advances may take hold of the new soil.

Under natural conditions, decayed leaves and other vegetable matter gather round the stems and furnish new material for the roots as the stem advances; but when grown in pots it often happens that, in watering, the soil is washed away, rather than any new being added. Sometimes top dressing may be preferable to disturbing the roots below; and later on, after they have made some new roots on the surface, they may have the lower portion removed when re-potting. I do not recommend disturbing the roots of Ferns at this season of the year, except where absolutely necessary. It will be better to top-dress, and be careful in watering, and then re-pot early in the year, when they have made a start into active growth again. Some growers recommend potting before active growth has commenced, but from careful observations I am quite convinced that to disturb Ferns at their roots while they are dormant will weaken them, while when growing freely they will not feel a check, but will take hold of the new soil at once, though, when much of the old soil is removed, or the plants divided, they require shade and a little extra care for a few days.

DECIDUOUS FERNS.

It not infrequently occurs that when these ripen off and lose their fronds in the autumn, they are mistaken for dead, or are lost through improper treatment during the winter. In the first place, though, they require to be kept on the dry side—they should not be quite dried up; and instead of being placed under a stage, a shelf, or some corner, where they get daylight will be more suitable. There is a considerable difference in the time that various Ferns remain dormant. I have known the beautiful *Adiantum lunulatum* to refuse to start until quite late in the spring; it will depend somewhat upon the time they are ripened off in the autumn. It is better that they should be rested early, for this ensures stronger crowns, which not only start early, but make much finer fronds than those which have been weakened by being kept in active growth too late in the autumn. The following are among the most beautiful of the deciduous exotic Ferns:—*A. palmatum*, *A. Henslovianum*, *A. speciosum*, *A. lunulatum* (referred to above), *Nephrolepis pluma*, *N. pluma* var. *Bausei*, *Leucoestegia immersa*, *L. pulchra*, *Onoclea sensibilis*, *Dictyogramma japonica*, and the variegated variety; and some of the *Davallias* lose their fronds, but soon start again. *A. Hemslley*.

SCOTLAND.

TYNNINGHAME, EAST LOTHIAN.

It was with pleasurable anticipations, which were to be more than realised, that the writer entered the policies of Tynninghame, the East Lothian seat of the Right Honourable the Earl of Haddington, in September last. Those who have read with pleasure the articles upon gardening subjects by Mr. R. P. Brotherston, the gardener there, would expect to find many things worth seeing. The writer, on the occasion of this visit (his first), did so, and in the record of some of his impressions which follow, he desires to mention, imperfectly it may be, some of the beauties of Tynninghame from a gardening point of view.

One of the first things to attract the notice is the fine timber on the estate. Lying so close to the sea as it does, Tynninghame is much exposed to storms. Time after time have these played havoc with the trees, and but for the watchful care given, many of the fine specimens still in beauty would long ago have been destroyed. Some blown down have been raised, and many are weighted above the roots with stones to save them from being overturned. The trees have for long been the object of care on the part of the owners,

although in, and since, the time of the sixth Earl, who wrote *A Treatise on the manner of Raising Forest Trees*, there have been many alterations in the arrangements of the policies. An arboriculturist could detail with more skill than the writer could hope to do the sylvicultural features of Tynninghame.

The gardening at Tynninghame is varied in its style. There is no slavish adherence to the practice of any school, but a free use of the best ideas of all, together with many interesting examples of the systems of various eras in gardening practice.

► The flower-garden at the mansion is very effective in every way. One cannot hope to do more than refer to some of the many enjoyable features. The garden is in keeping with the architecture of the building with its noble terraces. Effective, yet tasteful, display of colour is made in the beds, in

fusely planted with bulbs such as Daffodils, *Tulipa sylvestris*, and others. Primroses are in thousands, and the sight in their season must be a charming one.

From the flower-garden we wended our way to the kitchen-garden, where it may almost be said the flowers eclipse the more homely vegetables, and the other usual occupants of these quarters. What may be termed the main walk is flanked by long, broad borders filled with flowers. These are wonderfully fine; they form almost perfect examples of mixed borders. The variety they contain is very large, yet they do not appear at all bizarre. Hardy and half-hardy flowers are used, and these are composed of both perennials and annuals. Grouping is followed, and one may remark that in some of the bold masses of *Montbretias* one could observe the justice of the view ventilated

A walk through an arched way composed of iron-work covered with Apple Keswick Codlin, and with beds of *Narcissi* on either side, carries one in fancy to the days when the trees were covered with bloom, and the Daffodils nodding gently beside. The archway is 440 feet long, and one cannot but think it a happy thought which originated the idea of planting these Apples for their flowers in combination with those of the *Narcissi*. Near by, other borders flanking grassy paths show how pretty is this combination of grass and flowers.

Tynninghame is a place of surprises, and one of those is the quaint little old-fashioned garden which meet one's eye. Surrounded with a low hedge, its little beds edged with Box, and, planted with old herbs, it looks, what it is intended to be, a facsimile of some old dame's cottage garden of the olden time, when Rosemary and Rue, Vervain and Marigold, Thyme and Sage, and many other sweet-scented or useful herbs almost monopolised the space. This was a pretty feature, prettier than some may think, and bringing, as it were, before us a glimpse of the days when fewer plants were at the gardener's command than now.

Interesting, too, was a border of shrubs outside the kitchen-garden walls. Here were a number of the less well known shrubs, such as *Clerodendron trichotomum*, *Xanthoceras sorbifolia*, and several of the shrubby *Spiræas*. Two forms of *Vitis Coignetiae* are on the wall, and appear to be doing well; their handsome leaves were very fine indeed. Unfortunately, *Clerodendron trichotomum* does not bloom—a common experience in Scotland.

The vegetable quarters are largely hidden by the display of flowers in the kitchen-garden, and one might, from many points, imagine that no vegetables were near. They were, however, present in ample quantity for the requirements of the mansion, and one saw that they are as well grown as are the flowers. Fruit, which earlier in the year promised badly, had improved much in the later months, and there was a fair crop of almost all out-door fruits. Plums were, however, a very light crop.

The quantity of glass is not large, and several of the houses are of considerable age. The heavy timbers and small panes of glass are a drawback to successful work with many things, yet creditable are the results produced under careful and skilful management. There is nothing, perhaps, requiring special mention in this department, which is not made a leading feature of the establishment. It is evident that careful attention is given to supplying the family with their requirements in the way of fruit, vegetables, and flowers, of the highest quality. Mr. Brotherston, although of pronounced antiquarian tastes, is in his calling quite abreast of the times. A visit to the gardens under his charge will only help one to appreciate more highly his contributions to the horticultural press. He is fortunate in having the confidence of an employer who takes an interest in the gardens of his ancestral home. *S. Arnott.*

NOTES FROM A SCOTTISH MANSE.

Since last I wrote to the *Gardeners' Chronicle*, I have been in Edinburgh, visiting the Royal Botanic Gardens. There, I saw many fine tropical plants, many of them climbers, still in the full beauty of bloom; there, also, I saw a very famous Orchid, which, when newly introduced into this country by the Messrs. Sander, of St. Albans, created a veritable sensation. I mean *Dendrobium Phalaenopsis Schröderianum*, first discovered by their collector, M. Micholitz, in the island at New Guinea. This is undoubtedly a uniquely coloured Orchid. In the artistically arranged enclosures of the Botanic Gardens there are a number of majestic Palms in a spacious and lofty conservatory; outside, are many noble trees from California and Mexico, and a splendid collection of alpine and herbaceous flowers.

I also visited the nurseries of Messrs. Methven & Co., which are adjacent to the Botanic Gardens,



FIG. 125.—IRIS SOFARANA: NEW SPECIES.

(Two-thirds of the natural size.)

(SEE P. 389.)

the grass, and in the long borders on the terraces. Begonias are not as a rule satisfactory in dry soil, such as forms the staple at Tynninghame. Zonal Pelargoniums, however, more than take their place, and the brilliant display made by a long line of Vesuvius and Henri Jacoby, will not readily be forgotten. There were too many plants used for one to detail. One may, however, refer also to the bed of *Salvia patens* and blue *Lobelia*, to which reference has already been mentioned in these pages, to beds of Fuchsias with a groundwork of Coxcombs and other low-growing plants, to long lines of *Kniphofias* on one of the garden-terraces, to the plants in tubs under a balcony, and to the formal Laurels in boxes, which, however much one is wedded to a less formal style of gardening, one must confess, are quite in harmony with the mansion and its surroundings, and make one admit that their very formality gives attractions to the garden. In the neighbourhood, the grounds are prettily wooded, adorned with shrubs, and the grass pro-

recently by Mr. Brotherston in the *Gardeners' Chronicle*, that these valuable flowers look better mixed than in groups of one colour only. Much of the effect of these truly grand borders was derived from the Hollyhocks they contained. These had, unfortunately, been affected by the disease, but they were, notwithstanding, very fine. It is in vain to attempt to describe this feature of the garden, with its Asters, Pentstemons, Phloxes, Staticea, Sunflowers, and the many other good border flowers which together made up the display.

There is also a Rose border which, in its season, must be of much interest to the owner. It contains many of the old and almost forgotten Roses, which have been collected from many sources. Some day these may again become fashionable, but even now they are full of interest to those who care for studying the flowers which were favourites with our predecessors. Modern Roses have also a worthy place.

where I saw a grand display of early Chrysanthemums, and very late-flowering Pansies and Violas; so that, even from a horticultural point of view, my visit to Edinburgh, though of extremely short duration [some weeks before the publication of this communication], was not in vain. There are other attractive nurseries in the vicinity of the modern Athens, that I must also visit on some future occasion, viz., those of the Messrs. Dickson, and that great Viola specialist, Mr. James Grieve.

On my return to Kirkmaiden I found that my own garden, which had suffered greatly before I left from the equinoctial gales, had like the weather (and in virtue of it), during my absence gradually improved. The voices of Nature for a period were silent; sunlight became triumphant, and growth was restored. The latent energies of the Dahlias and Chrysanthemums revived, though Sweet Peas branched and blossomed as if it were the beginning, and not the end of their season. The late Apples on the trees deepened their rich colours; the Violas revived, and became odorous once more. Even the Tropaeolums, scarlet and yellow (*T. speciosum* and *T. canariense*), though touched with the hoar-frosts, blossomed at intervals; while *Ampelopsis Veitchii*, the self-supporting Virginian Creeper took on, amid the encircling silence and brightness of Nature, most radiant hues. Everywhere throughout the green spaces of the garden Roses were reviving and bursting into bloom; here, *Marie van Houtte* was a primrose-coloured gem; there, *A. K. Williams* and *Captain Hayward*, rivals in beauty, were a lustrous crimson glow. No variety is more precious for autumnal productiveness than that much-loved native of China, the "brave old monthly Rose." It is familiar to the Rosarian from his earliest childhood, like its inevitable companion from fair Provence; both of these are exquisite links in the pure regions of memory between the present and the past. The Moss Roses, also, though their flowers have faded long ere we reach the confines of winter, have similar associations. In many old gardens, such as that at Traquair (whose picturesque environments have been immortalized in Scottish song), there are Roses of this uniquely interesting description hoary in years, and even in aspect, which flower as they did in the old days.

I have still—October—(wonderful to relate!) a stately specimen of *Lilium auratum* in bloom; also several varieties of *Lilium speciosum*, including *S. Kratzeri*, the loveliest of them all. At this season last year I introduced into my garden (regarding them as valuable additions to my collection) two Lilies of considerable reputation, one hailing from oriental, the other from occidental regions—viz., *Lilium rubellum* and *Lilium Burbanki*—of which the former (though several seemingly-reliable bulbs were planted in places, where adequate drainage in winter and ample sunlight in summer were secured) did not produce a single bloom! It is possible that, like many other Lilies, it may take a considerable time to become established; but I greatly fear that like *Lilium Kramerii*, whose bulbs are equally diminutive and not more vigorous in constitution, it is extremely liable to premature decay. *Lilium Burbanki*, on the other hand, was successful beyond anticipation; and I cannot doubt that, like its beautiful parents, both of Californian origin, it will grow stronger and more floriferous year by year.

I cannot close this fragmentary contribution without making some reference to the death of Dr. Alexander Wallace, of Colchester, who was one of my kindest personal friends. Some years ago I made a pilgrimage to Colchester, for the special purpose of making his acquaintance and that of Mr. Benjamin R. Cant. On that occasion Dr. Wallace showed me his nurseries for the cultivation of Lilies, Calochorti, and Irises. To his book entitled *Notes on Lilies*, and which has long remained the leading work on the subject, I owed my first enthusiasm for Lily-cultivation. *David R. Williamson, Manse of Kirkmaiden.*

CHRYSANTHEMUMS.

TIMELY HINTS FOR NEXT SEASON.—Before the flowering period of one season is past, preparation must be commenced for the next. All who wish to have an up-to-date collection in all sections must effect an annual weeding-out of the varieties already possessed. It is just as easy to cultivate new and improved varieties as it is to stick to the older and inferior sorts. Where Chrysanthemums are grown purely for home enjoyment, the yearly addition of new and expensive sorts is not imperative; but in the case of exhibitors it is of the greatest importance that all such that are really improvements should be added, as all the difference may be made in the winning of a 1st prize by the inclusion of a novelty. Examine carefully your collection, and replace all that are inferior in size, form, or colour. The chief aim of the cultivator now is depth in his blooms, with solidity of petal, and pureness of colour. If a variety is of the reflexed section, the florets should tend in that direction. Those varieties that are neither incurved or reflexed, but distinctly of the hedgehog pattern, should be deprecated, as they do not possess the characteristics of one type or another. Take measures to secure that the whole collection is correctly named, or most annoying confusion will arise.

The propagation of next season's plants will need soon to engage attention. The middle of December is sufficiently early to insert cuttings; but it is not too early now to prepare the cuttings. Directly the plants are cut down, as they should be after the flowers have faded, place the pots in a cool, light, airy position in a vinery, Peach-house, or cold frame—any place where they will be protected from frost, and where they will obtain all available light and air. Seek to obtain "stocky" cuttings, about 3 inches long; they cannot be too stout, so long as they are firm, and not too sappy. Some varieties will throw up suckers from the base so freely as to overcrowd each other, thus rendering all weak and unsuitable. Thin out the weakly, to give space to others.

Examine the cuttings carefully for green or black aphids, and if either is present, dust with tobacco-powder, and afterwards vigorously syringe the plants with clear water. *E. Molyneux.*

HOLBECK GARDENS, SCARBOROUGH.

THESE gardens are situated at the extremity of what is known as the South Cliff. To my mind these gardens exemplify two facts—first, the great development of good taste observable in public gardens; and, secondly, an illustration of what may be accomplished in apparently very unsuitable positions, and with few materials, if only the work be set about in the right manner. To the first fact, it may be added that no doubt the *Gardeners' Chronicle* and its contemporaries have had much to do with this development. All well wishers of the uplifting of the public taste can but hope that we are as yet only on the threshold of the matter. Those who know Scarborough and its grand rocky cliffs rising from the sea at a steep angle for some 150 feet in height, will bear me out when I say that twenty years ago a more unlikely spot for a public garden could not well be imagined near the town; and much ingenuity and good taste in forming this cliff into natural terraces, with here and there walks, sloping grass-covered banks, has been displayed. Advantage was taken of forming beds and borders on the upper half of the cliff, away from the spray of the water, when tides are high. Groups and banks of Golden Elder and evergreens, Japanese Privet, are used for backgrounds and shelter to the flowering plants. Amongst hardy plants used were *Harpaliums* in variety, white and red-flowered Japanese Anemones, varieties of *Carnation* of free growth, *Alyssum saxatile*, *Santolina incana*, China Roses, very fine; *Rosa rugosa*, covered with crimson haws at this season; scarlet-flowered *Pentstemons*, and Pansies in much variety. The beds and borders, as may be imagined, are of no

particular form, hence it is difficult to give examples.

I mentioned above that simple materials were used in forming the display. They were nearly all annuals, viz., Stocks, Ten-Week and East Lothian, Asters in variety, very fine; *Dianthus*, *Saponaria calabrica*, *Nasturtium*, self-coloured and of mixed colours; *Tagetes signata pumila*, *Phlox Drummondii*, and annual Chrysanthemums. The three latter were finer in growth and blossom than I have seen before. I ought to mention that *Mignonette* was here, there, and everywhere, covering what would have been otherwise bare spaces with a very free growth. Amongst the more tender bedding out plants were masses and borders of white *Marguerites* covered with flowers, and very vigorous in growth.

My visit was too late in the season to see the place at its best. Still, to me the picture was a very fine one, and well worthy a notice in your columns—hence this note. *H. J. C., Grimston Park, Tadcaster.*

PLANT NOTES.

CRINUM AMABILE.

THIS beautiful *Crinum*, presumably one of the finest of this large family of Amaryllidaceous plants, justly deserves to be included amongst choice stove-flowering plants. The crimson flowers are borne in umbels on a long scape, often as many as twenty to thirty flowers being produced in a single umbel. The leaves are broad, and from 3 to 4 feet long. It was introduced by Dr. Roxburgh in 1810 from the East Indies.

COSTUS IGNEUS.

The beautiful, bright, orange-coloured flowers of this desirable stove-plant are particularly striking, and although only lasting a short time in perfection, they are produced in quick succession for a considerable time, being borne in dense heads on the points of the shoots. It is a native of Bahia, and was introduced by M. Linden in 1882.

IMPATIENS ROYLEI.

Although a common plant in many cottage gardens, *Impatiens Roylei* does not find a place in the more aristocratic herbaceous borders so often as its good qualities entitle it to do. This hardy annual is a native of India, introduced in 1839, and figured in the *Botanical Magazine* and *Botanical Register* as *I. glandulifera*, which name is usually retained by seedsmen. When given generous treatment and a moist situation, this species attains a height of from 9 to 10 feet, commencing to flower at the end of July, and continuing to bear its curiously-shaped flowers of varying colour, sometimes very pale, and at others of a bright purple, till late in the year. Its propagation presents no difficulty; so freely does *I. Roylei* seed, that it has become naturalised in many parts of the country.

Early last August, while taking a stroll beside a stream which in summer slowly trickles its way, and in winter rushes along, a 6-foot deep torrent, through woods and pastures to the river Camel, I was surprised and delighted to see first a few stragglers, and then a whole company of *Impatiens Roylei* growing quite wild on a small island. Even then (August) the plants were well over 6 feet in height, and being shaded, the colour of the flowers was a beautiful soft shade of purple. On making enquiries, I found that for several miles this species grew annually in patches along the banks of this stream, frequently far from any garden. [A caution is necessary in the introduction of this plant. It is apt to be too obtrusive. *Ed.*]

Close by this island was a delightful profusion of wild flowers, the most conspicuous being the purple *Loeselstrife* (*Lythrum Salicaria*). A few days later, my employer expressing a wish to have some flowering plant growing near the water of a small lake, I took men and wheelbarrows, and we care-

fully lifted a nice batch of the Impatiens, and some good clumps of Loosestrife—this was on August 10, during that spell of exceedingly hot weather, and planted them close to the water's edge at the lake, taking advantage of the shade afforded by the overhanging trees. A thorough soaking and damping prevented flagging, and to all appearance the plants suffered in nowise from their removal; even now, towards the end of October, the Impatiens is still flowering. A. C. B.

FLOWER GARDEN AT ADARE MANOR.

WE are indebted to Mr. W. Bowles, head gardener at Adare Manor, for the following particulars

and usually, the best spikes grow on the younger plants, which carry but one. *Yucca recurva* is a better species than *Y. gloriosa* and *Y. filamentosa*, of which we have only a few."

FORESTRY.

PARK CLUMPS OF TREES.

THE park clump, in its usual form, is so intimately associated with the work of "Capability Brown" and his followers, that its existence alone is almost sufficient to justify one in assuming that the place in which it exists to any great extent was either laid out or "improved" by a landscape gardener of that school. In his *Essays*

siveness which proclaims their superiority as works rather of art than of Nature, and if intended as monuments of their creator's skill, answer the purpose wonderfully well.

I am not justified in assuming that every formal clump of trees is the result of Brown's teaching and practice, but it is very probable that this professor of landscape-gardening did more to perpetuate their use than anyone else. There may be a good deal of truth in the suggestion made by Repton in defence of his predecessor, that the objectionable character of these clumps arose quite as much from the treatment or neglect they received after Brown had done with them, as from any fault connected with the original design. But the fact remains, that the chief fault began with the choice of trees used, and the manner of planting them from the

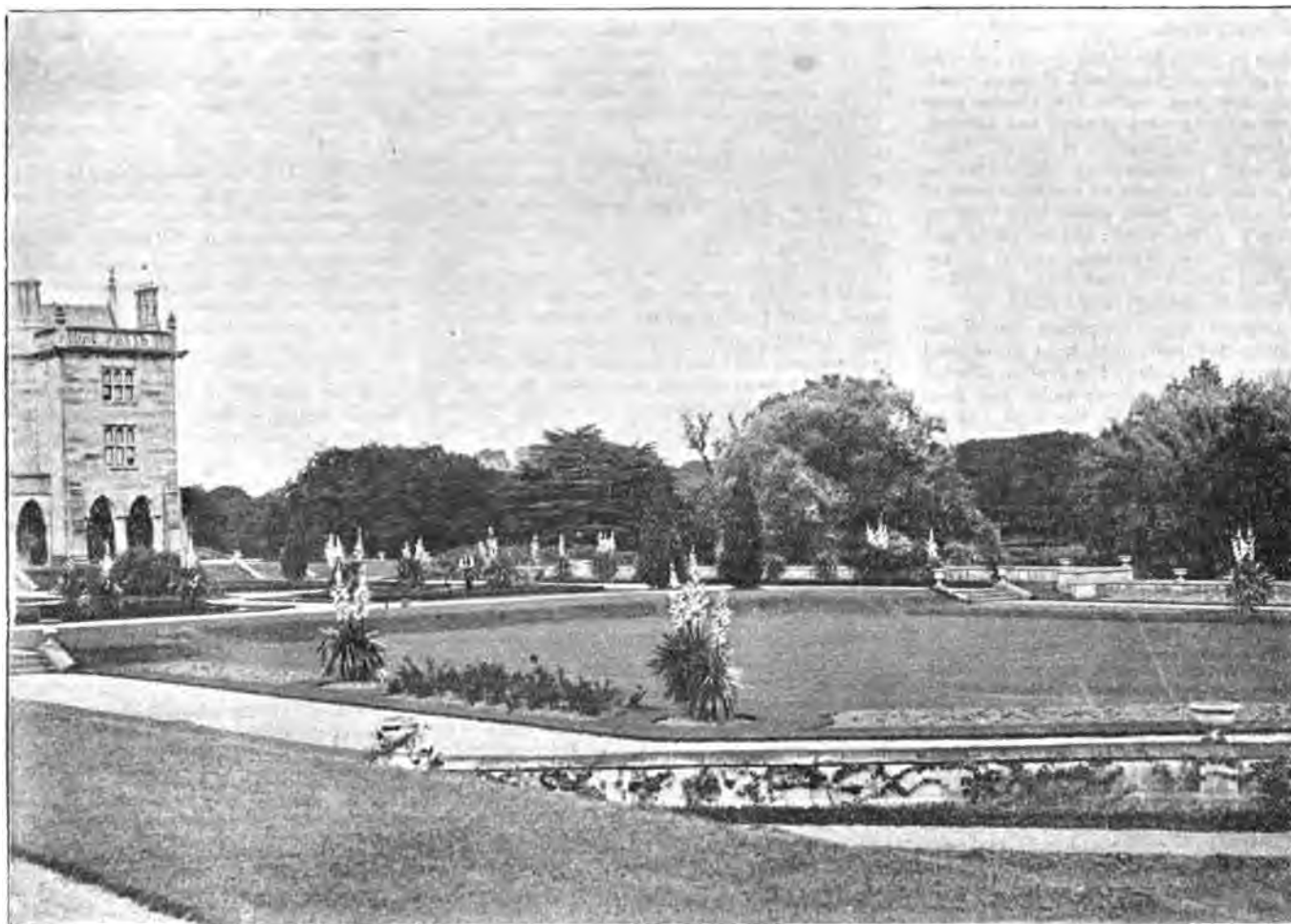


FIG. 126.—THE FLOWER-GARDEN, ADARE MANOR, CO. LIMERICK.

concerning our illustration (fig. 126). "By permission of the Countess of Dunraven, I send for your acceptance a view of the south front flower-garden at Adare Manor, Co. Limerick, taken when numerous plants of *Yucca recurva* were in full flower last summer. The view, taken from the terrace, shows a number of Yuccas that were planted in various positions, with a view to fine effect. The flower-garden consists of four parterres of similar design, with a large clump of Pampas-grass in each. The view shows a portion of the Manor House and flower-beds, which were empty at the time, spring bedding being the only sort carried out. The Yuccas are growing in a strong loam, and they stand our winters without injury. Some idea is afforded of the height of the spikes of bloom, by the man who is standing in the middle distance, and who is 6 feet high. Some of the plants carried five and six spikes,

on the Picturesque, Sir Uvedale Price declares that if ever Brown's disciples were in need of a seal of incorporation for their calling, it need only take the form of a belt, a clump, or a single tree; these, with water, being the only materials with which they made their landscapes.

The chief characteristics of these clumps are their perfectly round or oval shape (as if geometry, rather than taste, determined their outline), their density, and the exclusive use of tall-growing forest-trees in their composition. Their boundaries are usually as sharp and clearly-defined to-day as at the time they were planted, and although the surrounding fences may have been removed for perhaps a century, the line they followed can be traced with the greatest ease. On flat or gently undulating ground, they stand out sharp and distinct from the surrounding trees with a kind of dignified exclu-

first, and to have rendered them picturesque features of a park or landscape, a method of managing them must have been inaugurated at a period when they were still under the eye and influence of the planter.

These clumps are probably least offensive to the eye when composed of deciduous trees such as Oak, Beech, Elm, or Spanish Chestnut, or such an evergreen as Scotch Fir, which assumes a flat or rounded crown in mature age, as the more or less irregular growth of the trees takes of some of the formality of their outline. But when composed, as they frequently are, of Larch, Spruce, and other conical-topped trees, they stand out as distinct from the remaining trees of a park or landscape, clothed chiefly with deciduous forest-trees, as is chalk from cheese, and totally fail to harmonise with their surroundings. Probably the

culminating point of ugliness is reached when small, circular clumps of this description are surrounded by a neatly-trimmed Thorn-hedge in place of the ordinary post and rail, or invisible iron fencing. Then they appear as if completely shut off from the surrounding ground, and as much out of place as a plot of Cabbages or Potatoes on the same spot, furnishing apt illustrations of the evils of rule-of-thumb when applied in ignorance of fundamental principles.

The objects of clumps in a park or landscape are several, the chief of which is the formation of a series of small back, or middle-grounds, which break up comparatively extensive but monotonous prospects, giving them variety and more or less intricacy. They are more essential on flat or gently undulating ground than where hills and eminences are of sufficient size to form in themselves important features in the landscape, as in the former case the view in any direction has an indefinite and gradually diminishing background, giving it a monotonous aspect which is only relieved by masses of trees.

Another use to which the clump can be put with advantage is in the neighbourhood of large woodlands where they can render the change from wood to open country more gradual and natural, and prevent abrupt terminations of either. Their presence in such instances may not always be practicable or desirable from an economic point of view, as, for example, when arable land runs up to the boundary of the wood; but in parks and grass-land under the immediate control of the owner, they can always be used with good effect if properly situated and naturally formed.

Another, though more temporary use of the clump, is in rearing individual trees in exposed situations, or on bad soils. The shelter afforded by close order usually produces taller and finer stems than can be grown in the open, and by careful attention to good and rightly situated trees, park timber may be more successfully and conveniently grown than by planting singly and enclosing each tree in a wooden or iron cage. *A. C. Forbes.*

(To be continued.)

SEASIDE PLANTING OF TREES AND SHRUBS.

[In the spring of the present year we published some articles on the important subject of seaside planting, which, we believe, would be appreciated by those of our readers who might be engaged in or who contemplated this kind of work. The season having come round when planting can be re-commenced, we intend to print other articles dealing with planting, from the pen of one who has had considerable experience, and has an extensive acquaintance with suitable species of trees and shrubs.]

Bupleurum.—First, we have a singular narrow-leaved shrub, included in the large and very varied order of the Umbelliferae, which, to the superficial observer more nearly resembles an Ivy, both by its flowers and the strong odour of its foliage. It is known commonly by the name of Hare's Ear, both to the inhabitants of our maritime counties and also across the Channel. This plant (*Bupleurum fruticosum*), forms a large and neat hemispherical bush, which in winter is attractive by reason of its blue-green glaucous foliage, and in late summer is covered with small umbels of yellowish flowers, which are strongly scented, and very attractive to Haverflies and other insects, similarly to the Ivy. Planted on dry banks having a chalky or rocky substratum, it is a useful and effective plant. There are two distinct species, viz., *Bupleurum fruticosum*, and *B. arboreum*, the latter with broader foliage and smaller umbels than the former, and flowers which at a distance are pleasantly fragrant. There is likewise a golden-leaved variety, which, coming from Siberia, is very hardy, and desirable, and serves as a contrast to the green-leaved forms.

Of the *Escallonia*s, introduced from South America, *E. macrantha*, in 1847, is by far the finest. It flourishes on the south coast, and forms a compact dome-shaped shrub, with glossy, dark green foliage, and terminal growths flower for the greater part of the year. The flowers, which come in short spikes, are of a bright carmine colour, which, in common with a few other flowering plants, are brightest at the sea-coast. It is most at home when planted on dry, rocky slopes, and allowed to develop naturally, when it forms a very attractive shrub. It makes a beautiful garden hedge. Severe frost may, however, kill it back to the mature wood; but its recuperative energy is great, and it makes fresh shoots in abundance in the summer, which, when they have somewhat ripened, flower freely. There is a white-flowered form, of bushy erect habit of growth, which comes from Monte Video, the best form of which is known in nurseries as *M. floribunda*. *E. rubra* (Ingrami of the trade), is a free-flowering, erect-habited variety, but the individual flowers are much smaller, and not massed as in *E. macrantha*, neither has it proved so hardy as either of the two first-named. Lastly, a strong-scented kind, but very hardy, named "illinita," from the varnished appearance of the whole plant. The odour at a distance is that of the "Birdsfoot" Trefoil or Melilot, but closer this odour is markedly unpleasant. It bears numerous corymbs of white flowers, which turn creamy-tinted before falling. It forms a small, neat shrub, desirable as a contrast, and it would probably prove hardy further north than "*macrantha*," or any of the other species. One more recently introduced, called *Phillipiana*, see *Gardeners' Chronicle*, July 27, 1878, p. 109, promises to be a useful addition to the genus, but I have not used it yet. [Messrs. J. Veitch & Sons, Chelsea, have raised *E. Lauglyensis* ×, a variety between this white-flowered *Escallonia* and *E. macrantha*, which has pretty pink blooms. Ed.]

Berberis.—The common Barberry (*Berberis vulgaris*) and its purple-leaved variety, and the small box-leaved *Berberis dulcis*, have proved satisfactory at the sea-side; but the most attractive of the genus (*Berberis Darwinii*) gets browned, its foliage becoming unsightly. Of the noble *Mahonia*s, *M. Beali*, the *M. japonica* of some, have proved only partially satisfactory; while *Berberis aquifolia Harveyi* is an excellent sea-side plant. It differs from the type, in having large, round, entire foliage, which is without spines. The plant is of an erect habit, and flowers freely. All of the above-named thrive in partial shade, and should therefore be so used. They are all handsome in flower and fruit, while the berries are so acid, especially the first-named, that birds will leave them alone except in extraordinarily severe winters.

Rhododendrons.—It goes without saying that where these plants thrive there is nothing to surpass them in flowering shrubs. If they will succeed at the sea-side is a question that is frequently put to me professionally, and I grieve to be obliged to say "No! they will not." It is true that at Bournemouth, Boscombe, and the favoured coast-line of Devon, where plants in masses, sheltered from the sea breezes, they thrive and form grandly attractive masses, but if employed it should be cautiously, and only after plenty of shelter-belts have got up. *Rhododendron ponticum* and its varieties should be those chiefly relied upon, not omitting a variety I had from Mr. Chas. Noble, of Bagshot, and named by him *R. californicum*, which, when planted in suitable soils, as peat, peaty-loam and light loam, grows freely and flowers abundantly. On the south coast, varieties of *R. arboreum*, so brilliant in colouring, may be tried; and also a few of the more hardy Sikkim species, as *ciliatum*, but on no account should these alone be planted, or failure will certainly occur. The dwarf-growing and smaller-growing members of the genus may be planted in the front or second row of the borders, the best of these being *R.*

ferrugineum, *R. præcox* or *davuricum*, and the pretty *myrtifolium*, and to these may be added some of the hardy heaths, especially the red and white-flowered *Erica mediterranea*. The yellow-flowered *Azalea pontica* may be tried in the same sort of soil for the sake of variety; and probably, though I have not yet used them, the brilliant-flowered varieties of *Azalea mollis*. *Experience.*

(To be continued.)

FOREIGN CORRESPONDENCE.

LODOICEA SEYCHELLARUM (THE DOUBLE-COCOA-NUT) AT BERLIN.

THE Royal Botanic Garden, Berlin, received September 25 this year four fresh seeds of *Lodoicea seychellarum*, one of which had germinated during the voyage from its native country to Germany. The seeds were brought to the steamer on August 1, so that they made a journey of fifty-six days. As there exist no data about the weight of the Coco de mer, I give the following ones, taken October 24, i.e., a month after receipt:—

I. 8,275 grammes, on arrival at Berlin; II. 10,315 grammes, began to germinate October 24; III. 11,895 grammes; and IV. 12,645 grammes. It is interesting to learn that the smallest seed germinated first, then the next larger size. The germination begins with a cleft about 2 inches long at the foramen of the seed on that side of the seed where is the carina—that is, the flatter-side. I do not find any remark about this in the literature of the plant. [It has been frequently figured in the *Gardeners' Chronicle*. Ed.]

RAPID GERMINATION OF SEEDS.

A fine specimen of *Myrmecodia echinata* in the Royal Botanic Garden at Berlin flowered and fruited last year very well. The seeds germinated the day after they were sown, i.e., within twenty-four hours. In the house where this plant is growing, there are numerous very minute ants, imported, as it seems to me, with the plants. These ants transport daily large quantities of earth upon plants of every kind, also upon the *Myrmecodia*, and it frequently happens that the seeds of this plant germinate in this earth.

INFLUENCE OF DRYING UPON THE GERMINATION OF PALM-SEEDS.

Seeds of *Oreodoxa regia* sent dry, packed in capsules of paper, did not germinate till after the lapse of one year and a-half; whilst seeds sent in moist wood-charcoal germinated in a few weeks after sowing. Comparing results, it was evident that out of about forty species of Palms, only three or four species germinated when the seeds were sent over here dry, and of these only a few seeds; whilst almost all the seeds of nearly all the species germinated when the seeds had been packed in a moist medium, and arrived in a moist state. *Dr. Udo Dammer, Gross Lichtersfelde, near Berlin.*

CHRYSANTHEMUMS.

SOME little distance beyond the fortifications of Paris on the southern side, lies Chatillon-sous-Bagneux. Here in the Avenue de Paris, after passing many other establishments of a similar kind, the visitor will find a neat, little white house enclosed with railings and a high wall. The entrance is through a *porte cochère* in the wall, which leads to the courtyard of the dwelling-house. Beyond this, and extending for some distance right and left of the house is M. Nonin's nursery, where Chrysanthemums of all kinds are largely grown, and in a style that leaves the visitor with no doubt in his mind as to the capability of the cultivator. We pass first of all some beds of early-flowering varieties in full bloom, and being used to the ordinary arrangement of an English nurseryman's establishment, look about for a large glass-structure in which to find the main body of the collection.

But in France, and especially beneath such a bright blue sky as we had on the day of our visit early in November, such precautions do not appear necessary, and presently we catch sight of a construction something similar to one we saw in Belgium three years ago. Posts 2 or 3 inches thick are driven into the ground at regular intervals covering many hundred square feet. On these are arranged portable lights forming a series

attention to the fact. A fine yellow Japanese we remember seeing in good form at the Paris show a few years since is Comtesse de Beaulaincourt. Mdlle. Louise Brossillon, white, is another. M. Frederic Daupias, sulphur-yellow, is large and promising; Son Altesse le Prince Hussein Kamil, is a fine chrome-yellow Japanese; President Lemaire is one of the Edwin Molyneux type; Jules Bernard, a good purple amaranth; M. Gatellier, rich golden-

Mazuger, a large globular Japanese, with pointed florets, terra-cotta; Frederic Bauer, purple, with silvery reverse; M. Puennes, a fine golden-reddish carmine; Paul Harriot, Madame Laffroy, and several more.

CHRYSANTHEMUMS AT LYONS.

The Chrysanthemum shows in the public parks, although differing occasionally in mere matters of detail are essentially uniform in their arrangement. A large glass structure containing a single sloping bank, or else a central bank of plants in pots, is the prevailing idea. A journey abroad, however, occasionally helps us to find that, excellent as some of our ways are, there are at least other methods in vogue which might be of service to the organisers of English shows, one of the best lessons of the kind being the very artistic way in which the Ghent Chrysanthemum Show is designed and laid out, but which has never yet been imitated by any English society I know of.

The park Tête d'Or at Lyons is a park of which the Lyons people are evidently very proud. Its superficial area is of great extent, and in it are found the municipal greenhouses, a winter garden, Camellia-house, botanic and alpine gardens, the curator being M. R. Gérard, who is also the professor of botany at the Lyons University.

At this park a public display of Chrysanthemums is provided, but not in the way usually adopted here. In the winter garden, which is a beautifully arranged glass structure, containing Palms, Tree-ferns, and other things of the kind, several large groups of Chrysanthemums were set up, and by their colour in such a surrounding of greenery certainly looked most effective. The varieties comprised many not known in England, but among well-established sorts may be mentioned General Paquié, Souvenir de petite Amie, Mrs. C. Harman Payne, M. Chenon de Leché, Madame Carnot, Madame Ed. Roger, Viviani Morel, Madame Gustave Henri, Iserette, Phœbus, Louis Boehmer, Van den Heede, Commandant Blusset, &c.

In another house, interspersed among other Palms, Ferns, and Foliage plants were some very dwarf-grown varieties, of such popular Chrysanthemums as Wm. Seward, President Nonin, Lord Brooke, and those already mentioned, with others less well known, such as Le Drac, Madame Leblanc, Jules Chrétien, Ed. André, Mdlle. Philomène Claret, Madame Zurich, and others. C. H. P.

MR. LEOPOLD DE ROTHSCHILD APPLE.

In this variety we have the result of a cross between one of our best late dessert Apples and one of the brightest coloured Crabs, viz., Cox's Orange Pippin and John Downie Crab. The fruit is small, yellow in colour, and pleasant eating, but still a Crab, scarcely any trace of the Pippin being discoverable, except, in so far as there is, an amelioration of the acerbity of the Crab. The prepotency of the Crab itself, a variety and not a species, is very evident. The tree, as shown in the illustration (fig. 127), is an abundant bearer, and is worth growing as an object of ornament and usefulness. Fruits of the variety were shown by the raisers, Messrs. J. Veitch & Sons, Limited, Royal Exotic Nursery, Chelsea, at the meeting of the Royal Horticultural Society on November 7.

CONTINENTAL NOVELTIES.

HERE ERNST BENARY, of Erfurt, is sending out at this season seeds of the following novelties:—

- Antirrhinum majus Romeo.
- Aster, Dwarf Comet Bridemaid.
- " Mignon Aster, crimson.
- " " Carmine, rose-carmine.
- " (Lady section), Comet-flowered, white, with rose.
- Heliopsis scutellarioides hybr. fl.-pl.
- Cineraria hybrida grandiflora (Fin de Siècle).
- Collinsia tinctoria purpurea.
- Dianthus Heddewigi diadematus albus flore-pleno [or in plain English, double white].
- Pink, Diadem.
- Heuchera sanguinea hybrida.
- Stock, Empress Elizabeth.
- Papaver levis compactum.
- Phlox Drummondii nana compacta, Surprise.



FIG. 127.—MR. LEOPOLD DE ROTHSCHILD APPLE, OBTAINED BY CROSSING COX'S ORANGE PIPPIN AND JOHN DOWNIE CRAB.

of span roofs, beneath which is the collection of large-flowered show plants in pots, all sunk up to their rims in the ground. The ground beneath the ridges is reserved for the path, the plants being arranged on each side in rows of five or six plants each.

M. Nonin, a genial, pleasant, chatty man, soon appears on the scene, and conducts us round in person. On the whole, the plants are very dwarf, the blooms are of large size, and the varieties comprise most of the best from all sources. We are, however, chiefly interested in his own seedlings, and having but little time at our disposal, draw

yellow; Madame Raguenau, old rose; M. Raymond Desforest, reddish chestnut, with golden reverse; Princesse Alice de Monaco, large white; Paul Oudot, an immense rosy-pink, are all but a taste of others that are to follow.

We recognise Madame Gabrielle Debree as being one of the best of the season's novelties in England, but others are as yet not distributed, and of these a note is made of Georges Daupias, a fine Japanese, with long narrow florets, colour pure golden-yellow; Myrto, a silky-white, hairy novelty, with outer florets delicately tinted pink; M. Georges

Petunia, Double Lilliput, Rosa Bonheur.

"hybr. grandif. purpurea albo-maculata.

Giant double Petunia.

Yellow-throated fringed Petunia.

Mammoth Verbenas, scarlet, rose, and carmine.

Mammoth Verbena, Fire-fly, flowers red, with a white eye, said to come quite true from seed.

Saintpaulia ionantha grandiflora violacea.

Tagetes patula nana striata.

Mr. C. LORENTZ, Erfurt, offers the following novelties:—

Carnation, White Queen.

Chrysanthemum carinatum Golden Feather.

Mignonette, Excelior.

Mignonette, Golden Jewel.

Snap Dragon, Black Prince.

Lettuce Harbinger.

Melon Cantaloup, Empress Augusta Victoria.

HAACK & SCHMIDT, Erfurt, announce seeds of:—

Calendula officinalis Favourite.

Dianthus laciniatus salmonens.

Echscholtzia cespitosa.

Heliopsis cucumerifolia, Diadem.

Linaria alpina rosea.

Lychnis alpina alba.

Papaver nudicaule striatum.

Petunia hybrida grandiflora fimbriata fl.-pl. amabilis. [The reader will please note that we repudiate all responsibility for this more than esquispedalian name.]

Senecio elegans fl.-pl. pomponicus.

Tagetes signata pumila sulphurea.

Tropaeolum Lobbianum Princeps Victoria Louise.

Verbena Aubletia, candidissima.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FRANKLIN WILSON, Bart. Clare Lawn, East Sheen.

The effects of mild weather in November.—Mild weather in November is more trying to Orchids generally than a lower temperature would be, and greater care is thereby rendered necessary in respect to heating the structures, and affording water to the plants. The limited amount of fire-heat required to keep the temperature at the desired degree and the moisture-laden atmosphere outside, conduce to the retention of moisture in the plant receptacles. It also promotes root-action, which is not desirable at this season. The gardener is sometimes tempted also, in bright, mild weather, to promote a growing atmosphere in the houses; whereas, he ought at this season, to do all in his power to induce those species naturally disposed, to take their requisite degree of rest. Should such weather continue, by all means allow the plants to obtain the benefits of the genial atmosphere and health-giving light; but be sparing with water, both at the root and about the houses.

Ventilation.—Admit abundance of air to the houses by opening the wall-ventilators in the warm-houses, and those in the roof of the cool ones, whenever outside conditions will permit. A mild west wind should not be considered an objection to having the top ventilators of the cool-houses opened, let it blow ever so hard. Some cultivators have an objection to seeing the leaves of their plants awayed by the wind; though, how that can injure their health, providing it be caused by a soft, moisture-laden wind, is past my comprehension, seeing that such a number of our cool Orchids naturally inhabit the topmost branches of forest trees, which must often be oscillated by the wind. But cold, drying winds, should be excluded as much as possible by closing all ventilators, excepting those on the leeward side, and even these should only be opened slightly, as sufficient fresh air will gain admittance through the laps of the glass.

Watering and damping.—It is impossible to say when, or how often the houses should be damped, without actual experience of the particular houses, and the only true guide is the hygrometer, which must be used in conjunction with the teachings of experience and common sense. During dull, mild, and quiet weather, the houses and plants may be left for several days without any water being applied; especially where the floors and stages contain a large amount of moisture-holding material. During the prevalence of opposite conditions, the floors and stages should be damped in the morning, as soon as the day temperatures are reached, and again later in the day if occasion demands. Generally, the stages receive sufficient water at this season, during the process of applying water to the plants.

Laelia crispata, being an autumn and winter-growing species, every inducement to healthy leaf and bulb-development must now be afforded the plants. They will need all the light and heat obtainable in the Cattleya-house; but as root-action does not occur for some time yet, a limited supply of water will suffice.

Laelia degans, will in most instances be at rest, and will need only as much water as will keep the pseudo-bulbs firm, but the plants should not be subjected to such a severe drying process as is enjoyed by the majority of Cattleyas and Laelias, or the pseudo-bulbs will shrivel beyond recovery.

Cattleyas Triana and Percivaliana.—Whilst in the process of developing the flower-buds in their sheaths, and until the flowers expand, should be afforded a slightly-larger quantity of water. Afterwards, the resting treatment should again be afforded.

FRUITS UNDER GLASS.

By W. STROUWELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

The Pinery.—Where a succession of fruits is required, the temperature of the fruiting-house by night should not fall below 65°, nor by day 75°, by artificial heat, although on bright days it may be allowed to rise to 80°, when fire-heat may be lessened, and air afforded for a few hours—say from 11 A.M. till 2 P.M. The bottom heat may be kept at from 80° to 85°.

The Succession Plants.—In this division a warmth of 60° by night and 65° to 75° by day will suffice, the lower degree on dull days or during sharp frosts. Bottom heat should be 5° to 6° lower than for fruiters. The amount of water required by the plants can only be indicated, as the frequency of the application will depend on the kind of bottom heat afforded, the nature of the soil, the size of the pots, &c. It may be said that the succession plants should be afforded a rest at this season, by lessening the bottom heat as indicated, and curtailing the amount of water at the root consistently with maintaining the plants in a healthy condition. Give an eye to drip, which in some Pine-stoves is apt to render the soil unduly wet if not checked, and directed into little tin troughs, and allow it to trickle away without doing harm. Air should be afforded the successions whenever it can be safely done, more or less in volume according to the weather. If the leaves of Oak, Beech, and Chestnut are used for making the hotbeds, a good store should be collected at this season, throwing them into a long heap or ridge, not less than 5 feet high and 7 feet wide. This heap should be protected from the weather. It is very necessary that the glass of a pit or house in which Pines are grown should be kept bright during the winter.

Young Stock.—The suckers which were taken from the plants late in the autumn and potted, must be afforded conditions of heat and moisture favourable to the formation of roots; and as soon as that has taken place to a satisfactory extent, they and the succession-plants may be allowed a season of rest of about two months in duration, i.e., the lower temperature given above should be observed. In all the divisions "damping-down" should take the place of syringing, excepting the surface of the bed of leaves or bark should become very dry, when a slight spraying between the pots would be beneficial.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain BOLFOED, Westonbirt, Tetbury, Gloucestershire.

Dwarf-growing Iris.—The so-called cushion Irises are beautiful plants for placing on warm, sheltered borders, and in well-drained nooks on a rockery. If some of the bulbs and rhizomes are held over till December, the flowers will appear later in the spring than others planted at an earlier date. A suitable compost is one consisting of good sandy loam, leaf-mould, and sharp grit in about equal proportions. Let each bulb be planted according to its size, 3 to 4 inches below the surface, and afford a protective layer of sifted coal-ashes 2 to 3 inches thick; or pieces of Saxifraga hypnoides may be planted between them to protect them, as well as to form a pleasing carpet wherewith to show off the blooms. Iris atrofusca, I. iberica, I. Loreti, I. Susiana, I. alata, I. histrio, I. histrioides, I. persica, I. juncea, I. reticulata (very hardy), I. r. purpurata, larger blooms, but not so delicate in

colour; I. Vartneri and I. Regeli, will succeed in the open air. Other varieties of this section flower during the winter months, and should have the protection of a cold frame.

The Planting of Deciduous Trees.—Although these may be planted in open weather during the winter, planting at the fall of the leaf is more desirable, the soil being then warmer, and more workable, and the trees will push forth roots sooner than when the operation is carried out at a later period. The mode of planting recommended in a previous calendar for evergreens is applicable to deciduous-trees, at the same time bearing in mind that the carefulness with which the work of lifting and planting is carried out will be well repaid by the progress the trees will make in the first year afterwards. Almost all trees and shrubs properly treated in a nursery have numerous fibrous-roots, and when an extensive planting job is contemplated, the plants should, immediately on arrival be laid-in, the roots being entirely covered with fine soil. Never lay them in a trench in bundles as they come from the nursery, or great risk will be run of the plants in the middle becoming dried. When a tree is planted, let a hole be made larger in diameter than the spread of the roots, and lay the latter out flat at a depth of 6 or 8 inches below the surface; and where the roots are matted together, fine soil should be washed in by water from the spout of a water-can. The weaker branches of a tree should be so arranged as to allow as much light as possible reaching the interior of the crown; and, although the effect of the pruning may not be pleasing at the first, a better-balanced head will be the result. In soils of a light nature, such trees as Sycamore, Ash, Lime, Birch, Planes, Paulonia, and Liriodendron (Tulip-tree) will thrive; and on those consisting of heavy loams of a good depth, Poplars, Maples, Crataegus, Willows, Chestnuts, Cherries, Alders, Magnolias, Elm, Oak, and Walnuts.

Deciduous Weeping Trees.—These are not only beautiful in summer when clothed with leaves, but in the winter their pendulous habit form a pleasing contrast to other trees of an erect habit. I should advise their being planted singly in open spaces by the sides of streams and pools. Exposure to light encourages symmetrical growth; but when planted near water, the natural inclination is outwards towards the water. Among the more graceful species I may name the Birch, the Purple Beech, the White Mulberry, Sophora japonica pendula, and the weeping Cherries—Cerasus Mahaleb, sinensis, rosea, and virginiana. Of the coarser-growing trees there are Ulmus montana, Aspen, Ash, Robinia inermis pendula, and of Salix, the Kilmarnock, S. babylonica, S. americana, S. purpurea, are very suitable for woodland and waterside planting; and as each is budded or grafted on the common stock, no specially-prepared soil is required for them.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Drogheda, Maidenhead.

The Morello Cherry.—These trees being usually planted against walls having a north aspect, advantage should be taken of mild weather to get the pruning and nailing finished as soon as possible, if only for the comfort of the gardeners who have the work to do. Providing most of the surplus growth, and some of the old fruiting-wood were removed after the fruits were gathered, there will be but little pruning required at this season. If the young growths were fastened temporarily to the wall, they should now be unfasted, and where too close together, more of the old fruiting-growths removed, so as to give room. The shoots should be given a space of at least 3 inches, the object of the pruner being to keep the trees well furnished with bearing-wood of one-year old. After the nailing is completed, the trees should be syringed with an insecticide, such as petroleum emulsion, made by dissolving 4 oz. of soft-soap in 3 gallons of rain-water, and adding a wineglass of petroleum, keeping it well stirred while being applied. The soda-and-potash mixture mentioned in last Calendar is also a good one, but it should be used in a rather weaker state for the Cherry, 1 lb. of each ingredient to 12 gallons of water being of sufficient strength.

The Sweet Cherries require very similar treatment to the Morello, but being in all their varieties stronger growers, more space should be allowed

between the shoots. Care should be taken that no nail presses against the bark or rind anywhere, and that all ties and shreds are sufficiently large to allow for an increased diameter of the branch. As these varieties of the Cherry are usually planted on warmer aspects than Morellos, they may be taken during the colder parts of the day, and the north side when it is warmer. These should also be well syringed with one of the above mixtures.

Pruning Apple and Pear-bushes.—Where summer pruning was effectively carried out, little will remain to be done to these bushes, but the earlier that that is completed the better. The chief work now will be the shortening of the leading-shoots that would probably be left entire at the summer pruning. These should be cut back more or less severely according to their strength; if left too long the chances are against their breaking the whole length next season, and the asymmetry of the tree is spoiled through loss of the fruiting-spurs. Strong growths, where extension is desired, may be left 18 inches to 2 feet in length, and cut so that the terminal-bud shall point in the direction the resulting shoot shall take. Weakly growths should be cut back to four eyes. Some kinds of Apples, of which Lady Sudeley is a type, produce their fruit-buds principally on the points of the shoots, and the pruning of such should be light, and root-pruning be practised on them if the growth is at all strong. Where large branches have been allowed to grow up too close together, they should be thinned out now by sawing some of them off almost close to the bole. Sufficient space should be given between the branches to allow direct sunlight to reach the inner parts of the tree when the foliage is full grown. Pears require similar treatment.

Various.—The mild weather has favoured the growth of weeds everywhere, and the beds of Strawberries and the bush quarters may stand in need of a hoeing on a day when the surface is dry, following this immediately by a light raking. If there are arrears of root-pruning, these should now be completed. The weather has been very favourable for planting and transplanting, and any work of this nature not yet completed should be pushed forward quickly.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener, North Mymms Park, Hatfield.

Show and Fancy Pelargoniums.—The plants intended for early spring blooming should at the present time be dwarf, bushy specimens, well established in 5 and 6-inch pots. They should now occupy a position as close to the glass as possible, a shelf being a very suitable place if a small house cannot be devoted to them. A night temperature of about 45° should be maintained, and this, as far as possible, without the aid of fire-heat, which, for the present, need only be applied occasionally during the day to expel damp should this be found to be necessary. No attempt should be made to push the plants into active growth, or the foliage will become drawn and weak, but for the next two months the aim should be by affording free ventilation on every suitable occasion to induce the plants to make slow, sturdy progress. Water must be carefully applied, as an excess of moisture at the root soon causes unhealthiness in the plant. The shoots of the batch required for early flowering should not be pinched, but should be allowed to grow unchecked, as the stopping of the shoots retards the flowering. This, of course, only applies to cut-back plants, as those which were raised from cuttings this summer must be stopped if they are not sufficiently bushy. Sometimes cut-back plants break so freely that disbudding is necessary. When this is the case, the strongest and best placed shoots should then be retained, and the weaker ones removed. Plants which are required to bloom very late may be stopped twice, but the plants should be afforded an extra potting late in the spring, shortly after the second stopping, otherwise the trusses of flower will be small.

Lapagerias.—As soon as these finish flowering, the opportunity should be taken, before the plants commence to make new growth, to thin out the shoots if unduly crowded, and to cleanse the glass and woodwork. When it is necessary to thin the shoots, some of the older growths may be cut clean away from the bottom, and the tips of the shoots which have flowered shortened back to the first wood-bud. While the plants are away from the

trellis they should be well examined, and syringed with an insecticide if the presence of thrips or mealy-bug be detected. In the case of the latter insect, it will be necessary to syringe the plants with strong soap-suds and paraffin, at the rate of a wineglassful of paraffin to three gallons of soap-suds, keeping the mixture thoroughly stirred while using it.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Preparations for Forcing.—Asparagus is probably one of the easiest of vegetables to force, and where large breadths of strong three-year or older roots have been suitably prepared, good heads of Asparagus can be obtained from the middle of December till produce is obtainable from the beds out-of-doors. Although Asparagus may be forced at an earlier date than that mentioned, there is usually an abundance of good vegetables for consumption up till Christmas which render Asparagus unnecessary. The forcing may be carried out on hot-beds made of tree-leaves and manure, or in pits heated by hot-water. When fermenting materials are employed, these should be turned over twice, or more often, as the state of the heap may show, and when it has been uniformly heated, the bed should be formed, bringing it up to within a distance of 12 inches from the glass, making it firm in the process. Over the bed a layer of light rich soil, 4 inches thick, should be spread, and the roots packed close together on this, filling in and covering the crowns with sifted soil. The depth of soil over the roots should not exceed 6 inches. Having finished the planting, put on the lights, which should be made clean and bright, in which state they must be maintained, and start with a temperature of 55° to 60°. Scarcely any ventilation will be required till after the young shoots begin to push through, unless the warmth rises, when air must be afforded in small amount day and night. The flavour of the heads is much improved when air can be admitted. More care is required when Asparagus is forced on hot-beds than when a proper forcing-house provided with top and bottom-heat is available, the right degree of warmth being more easily regulated in the latter. The bottom-heat should not be higher than 80°, and with an even temperature maintained, about twenty days are required to produce good heads fit for the table.

Seakale.—If this vegetable be forced in beds in the open, the first batch may now be covered with forcing pots or boxes. The preparation consists of clearing away the decayed leaves, and raking the beds so as to free them of all rubbish and weeds, then place some fine soil over each crown, put on the pots, &c., and pack a heated mass of tree-leaves and stable-litter around and over the same, making it fairly firm. A good deal of attention must be paid to the heat, for it may during spells of mild weather get too hot, in which case the produce would be weak, if means be not taken to reduce the heat by making holes in the mass, or removing the upper portion. Those crowns intended for forcing in boxes, pots, or in the Mushroom-house, should be taken up and laid-in under a covering of litter, in readiness for use when required.

Rhubarb.—The roots should now be dug up, and some of them put into a warm place to force; or boxes and pots may be employed as in the case of Seakale.

Tarragon and Spearmint should be forced on a gentle bottom heat, planting the roots in wide pots or cutting-boxes. Let the supply of salading, such as Mustard, Cress, Chicory, Onions, be kept up by weekly sowing, &c.

THE APIARY

By EXPERT.

The Honey Harvest of 1899.—This was of a very jerky and uncertain order here this season. There were numerous spurts, but never a good flow. Frequent attacks of illness have prevented me from keeping a correct record of "takings," but the number of supers that have not been called into use make it evident that the quantity gathered is rather below the average. However, the whole of the season's produce is of good quality. We had no second crops of Clover within easy reach this year, and the small crops of

Sainfoin did not yield any honey through unsettled weather, so the season ended rather abruptly in this district; and even young queens are discontented with their maternal duties—the few I had came off at the usual time. I heard of quite a number of swarms in July; these issued from hives kept in districts where the Clover season failed, and while a considerable yield from the hives where the swarms issued was being stored. Regarding spring flowers, the White Thorn, Mustard, and Charlock, were so late that the bloom was on them when the flowers that produce honey of better quality opened in early June. The result of this blending of these honeys was that the early honey as usual with that from the White Thorn and Mustard is granulated in the comb very early after being gathered.

Wasps and Mice.—These pests are not quite so numerous as I expected them to be, a cold spring being favourable for them; but the humble-bees are more numerous than I ever remember having seen them before. There is a nest of hornets a mile from here. I had not, previous to this season, seen a hornet for twenty years. We have had quite a plague of mice for the last two months; I have not known them to be so numerous before, even in mid-winter. Quite early in August the mice were troublesome about the hives, making their nests among the coverings of temporary hives, and eating my Potatoes in the ground. Rats, too, are very troublesome here.

Winter Packing.—I have made it a rule for some years to get all my hives fed and packed for winter by the fourth week of September, with the best results; circumstances prevent me doing this now, but though the bees make the best of things as they find them, I am fully convinced that to get all preparations of winter completed early, helps the bees and reduces the amount of labour for them. When packed early, bees can propolise their coverings down, thus preventing draughts that any amount of packing later will not prevent. Of course, every reader has heard of the great results of early rest and early rising; the old and true saying is particularly applicable to bees minus any extension of wisdom. Good honey still on hand will increase in value. I know only too well how difficult it is to find store room for honey in small houses and cottages. Good run-honey in air-tight vessels will, if just placed in a frost-proof room, take care of itself. On the other hand, sections, and other comb-honey, require care all through. If no cupboard in the warmest room is available, a shelf may be fixed up in the warmest corner, the higher the better, and by doing the job neatly, the shelf may add to the nice appearance of the room. I have kept sections in fairly good condition on such a shelf for two or two-and-a-half years. Naphthaline, besides being useful in the hives as a preventive of foul brood, should be more generally used among the coverings, then we should not hear so much of the ravings of the wax-moth. I use naphthaline liberally when packing away surplus combs, and I like it among my clothing. By the way, I notice that naphthaline is being sold under another name in general shops and stores. We are told truly that the Rose if called by another name would smell just as sweet. Naphthaline, too, under another name will be useful.

CHRYSANTHEMUMS.—We do not anticipate that the Floral Committee or the National Chrysanthemum Society will be sufficiently advanced to place a high value upon certain Chrysanthemums sent us by Messrs. CANNELL & SONS. Nevertheless, there will be many who will prefer these oddities to the flaunting vulgarities of the exhibition-table, and will realise that for decorative purposes in small houses, they are likely to be more effective than the large-flowered varieties.

"Gold Faden," which being translated is Gold Thread, though not the same as our Gold thread. The flower-heads are 4 to 5 inches across; the ray florets yellow, thread-like, tubular; the disc florets almost normal.

Cannell's Favourite is a white seedling from Mrs. Filkin, a very pretty variety with flower-heads 3 to 4 inches across; florets snow-white, strap-shaped, narrow, lacinate at the tips.

White Thread.—Flower-heads 2½ to 3 inches across; florets strap-shaped, but so recurved at the margins as to be thread-like.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, Nov. 29. { National Chrysanthemum Society's Annual Dinner at Holborn Restaurant.

SALES.

MONDAY, Nov. 27, and the following Tuesday, Wednesday, Thursday, and Friday, Dutch Bulbs, at Protheroe & Morris' Rooms. Bulbs, &c., at Mr. Stevens' Rooms, King Street, Covent Garden, at 12.30 p.m.

WEDNESDAY, Nov. 29.—Sale of the Collection of Orchids, formed by S. Courtauld, Esq., deceased, at Bocking Place, Baintree, by order of the Executors, by Protheroe & Morris, at 12.30 p.m. (two days). Great Sale of Japanese Lilies, Continental Plants, &c., at Protheroe & Morris' Rooms. Roses, Shrubs, Plants, Roots, Bulbs, &c., at Mr. Stevens' Rooms.

FRIDAY, Dec. 1.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period November 12 to November 18, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			
NOVEMBER 12 TO NOVEMBER 18.	AT 9 A.M.		DAY.	NIGHT.	AT 1-foot deep.	AT 2-foot deep.		AT 4-foot deep.	LOWEST TEMPERATURE ON GRASS.		
	Dry Bulb.									Wet Bulb.	
	Highest.		Lowest.								
SUN. 12	W.S.W.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.	
MON. 13	S.W.	47.8	43.8	53.1	39.5	...	48.5	51.4	52.9	37.9	
TUE. 14	S.W.	44.9	44.5	54.8	37.0	...	47.5	50.9	52.8	28.4	
WED. 15	S.E.	48.7	46.0	53.8	39.5	...	46.9	50.3	52.7	28.7	
THU. 16	N.E.	38.0	37.8	50.3	34.1	...	46.2	49.8	52.5	26.9	
FRI. 17	S.S.E.	45.7	43.2	49.7	37.9	...	46.9	49.5	52.2	30.9	
SAT. 18	S.E.	42.0	41.3	47.2	36.9	...	46.2	49.3	52.1	27.3	
		36.2	35.7	46.1	30.5	...	45.1	49.1	51.8	22.6	
MEANS...	...	43.3	41.8	50.6	36.5	Tot.	46.8	50.0	52.4	29.0	

Remarks.—The weather has been dull and cold, with a dense, smoky fog on the 15th and 16th.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—41.4.

ACTUAL TEMPERATURES:—

LONDON.—November 22 (6 p.m.): Max. 51°; Min. 47°.

Dull—wind W.N.W., light.

PROVINCES.—November 22 (6 p.m.): Max. 50°, west Ireland; Min. 46°, north-east Scotland.

At various intervals during the past four or five years reports have been published in these columns relating to a series of most interesting experiments conducted by M. LUCIEN DANIEL, who, with other workers on this subject, has shown that the old theories of the science of grafting contained many fallacies. On this occasion a short reference will be made to the successful graft of monocotyledonous plants; an operation which has hitherto been supposed to be an impossibility.

It is well known that in order to ensure the union of the scion and the stock, it is necessary that the living tissue of both parts should be intimately connected. By this means the nutrition of the grafted plant becomes possible through the process of osmosis, and perhaps by continuity of the protoplasm; and the stock which extracts nourishment from the soil through its roots passes it on to the scion. The reproduction of living cells, whereby the intimate union is effected, takes place in the cambium, and in the medullary rays, which, in certain cases, play a secondary part in this connection. The graft of dicotyledonous plants is, consequently, a comparatively easy matter, because their cambium layer is continuous and well defined, in contradistinction to monocotyledons, where the generative zone lies isolated in each fibro-vascular bundle. It is indeed owing to this peculiar anatomical structure, which affords only a slender chance for the agglutination of the dissected parts, that the union of monocotyledonous plants has hitherto been considered impossible.

The experiment now under consideration is the outcome of laborious and thoughtful work, extending over many years, but which has yielded definite results during the past summer. In the complete report which has recently been presented to the French Académie des Sciences,* M. DANIEL states that the graft of the class of plants in question was attempted at a very early period, and he refers to a system adopted by the ancient Greek gardeners, who appear to have considered that they had solved the problem. This method of THEOPHRASTUS was, however, what, in common parlance, would be called a "fraud," inasmuch as it bore no relation whatever to the graft, but consisted merely in placing seed, such as Wheat, within a tuber or root. Germination took place naturally, if there was a sufficient amount of moisture; but there was never a trace of physiological union between the plants. Reference is also made to somewhat vague results reported by YSABEAU as regards grafting the Rice plant in Italy; and to DE CANDOLLE, who, in his *Physiologie Végétale*, published in 1832, gives an account of experiments made with a species of *Dracæna*, which, however, gave no satisfactory results. If, therefore, the labours of M. DANIEL have not been made on virgin soil, he claims that no previous worker in this special field of enquiry has even raised a crop, although he would be the last person to infer that his researches do more than indicate a bountiful harvest.

During the last few years M. DANIEL has on various occasions obtained complete union of the two lips of a comparatively deep, longitudinal incision in the stem of the Lily, Iris, Canna, *Funkia cordata* in the pseudo-bulb of Orchids of the genus *Lælia*, and even in the very young stem of a Cryptogam—*Selaginella arborea*. The healing of the wound in these cases led M. DANIEL to attempt the cleft-grafting of various monocotyledonous plants; but in spite of a clear, though limited, reunion of the parts, the plants did not live beyond a period of six weeks. The system of inarching, or grafting by approach, was also tried, with somewhat more satisfactory—but still unsuccessful—results in the case of different varieties of *Caladium*. He therefore came to the conclusion that neither of the above-mentioned methods of grafting was likely to succeed, on account of the insufficient means of communication of the sap between the stock

and scion. In order, therefore, to increase the surface in contact, he tried the splice-graft, and cut the stem as obliquely as possible, and very nearly at its apex, where the scion from the same plant was replaced and ligatured very firmly. The experiment was tried, firstly, with a *Vanilla*, which is a small genus of climbing Orchids belonging to the order *Arethuseæ*, and the only one which possesses any economic value, the fruit of several species producing the "vanilla" which is largely employed to flavour confectionery. In the second instance, a *Philodendron* was selected, a genus of tropical American plants of the family *Araceæ*, which attach themselves to the trunks of trees, and hence their name.

The operation was made during the month of May last, and the union of the grafts in question is now quite complete, and not only have the internodes of the scion elongated, but new leaves have appeared, and in one case, aerial roots have been developed. The presence of these roots is interesting, and they are regarded as a confirmatory proof of success, inasmuch as the *Philodendron* bears two kinds of roots, viz: those which extract nourishment from the soil, and others which draw moisture from the atmosphere.

The graft in question, where the cut portion of the plant was replaced *in situ*, is a true graft since there has been complete re-union of the parts, and subsequent movement of sap therein, and M. DANIEL classifies it as a variety of the "mixed graft," which is the term applied to the system whereby curious physiological results are obtained when some of the leaves are allowed to remain on the scion and on the stock. This method has already been fully explained in this journal; * but in connection with monocotyledonous plants, which include so many flowers, it will be of interest to repeat in general terms that those phenomena which may be considered to be due to variation in the surrounding conditions, such as size and vigour of the plant, are less marked by the "mixed graft," which however should be employed when it is desired to obtain new varieties possessing certain characteristics, such as the shape of the fruit and the colour of the flowers.

M. DANIEL, therefore, concludes that the results obtained with *Vanilla* and *Philodendron* are an indication that the graft of monocotyledonous plants can no longer be considered impracticable, and that its success merely depends on the extent of the surfaces in contact, on the system of grafting which is employed, and on the nature of the plants.

We shall probably shortly refer at greater length to M. DANIEL's interesting experiments.

NERINE "MISS WILMOTT."—Mr. H. J. ELWES, Coleborne, Andoversford, Gloucestershire, is well qualified to be placed first among the hybridists who are now turning their attention to the improvement of that beautiful class of *Amaryllids*—the *Nerines*, fine groups of which he has been in the habit of staging at the winter shows of the Royal Horticultural Society for some years past; each successive year marking the improvement he has made, and especially in the matter of the flowers being produced at the same time as the leaves, a point which Mr. ELWES takes much pains to secure, and thus to avoid the one reproach of the earlier-flowering species of the *N. Sarniensis* class, which usually are leafless when the flowers are produced. Our illustration (fig. 128), represents one of the finest of the new hybrids in the group

* *Comptes Rendus*, vol. cxxix., p. 654.

* *Gardeners' Chronicle*, 1898, I., p. 84.

exhibited by Mr. ELWES at the Royal Horticultural Society on November 7 last. The flowers of N. "Miss Wilmott" were of a deep, soft scarlet. Others varied from pale pink to scarlet. N. Mrs. Godman being purplish-rose, and N. Mrs. Berkeley light orange-red.

INTERNATIONAL HORTICULTURAL CONGRESS IN PARIS.—An International Horticultural Congress will be held in Paris on May 25 and 26, 1900. The programme and rules can be obtained from the General Secretary of the Organisation Committee,

—nearly seventy years ago—the above-named journal says, that "few plants can, in autumn, compete with Chrysanthemums, whose belated flowers brave the first frosts, and form the last ornaments of our flower-beds."

REV. W. COLENSO.—This gentleman, mentioned in an article in our last issue on "Pittosporums" was not, as was stated, a forest officer, but he was a well known botanist, who, in the intervals of his work as a clergyman, made many valuable contributions to the botany of New Zea-

land among country folk in Austria, Simon's Plum is at once an ornamental and a useful plant. The tree resembles a Peach or an Almond, and the fruit is large, red-coloured, with a pleasant aroma. It is ripe in September. If the plant will ripen its fruits in this country, as it might do in the south, it would form a nice addition to our autumnal fruits.

"ICONES SELECTÆ HORTI THENENSIS."—Under this name the first of a series of descriptions and illustrations of plants that have flowered in the garden of M. VAN DEN BOSSCHE at Tirlémont,

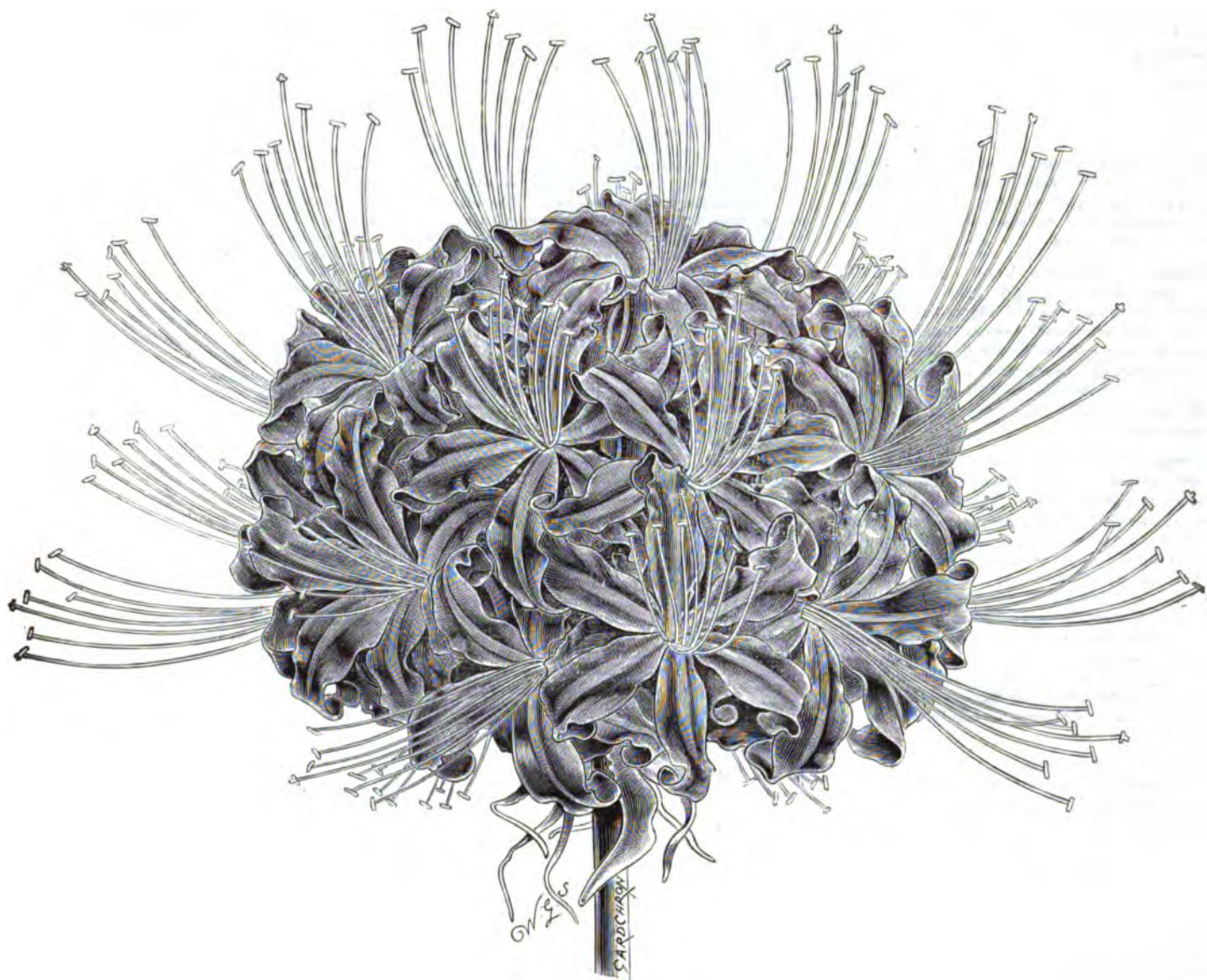


FIG. 128.—NERINE "MISS WILMOTT"; FLOWERS ORANGE-SCARLET. (SEE P. 398.)

84, Rue de Grenelle, Paris, and they will later on be published also in the *Journal de la Société Nationale d'Horticulture de France*.

HOW TO DWARF CHRYSANTHEMUMS.—For some years pots of very dwarf Chrysanthemums have frequently been seen, the little plants having been obtained from making a cutting of the tips of branches already plentifully provided with buds. M. L. HENRY, who, at the Museum (Paris), began to apply this process fifteen years ago, has lately found in the *Journal de l'Académie d'Horticulture* (Le Jardin, p. 294), that in 1833 this way of taking cuttings was known, and even then considered old-fashioned. Even at that time

land, and contributed very largely to our knowledge of the flora of those islands. He acquired, moreover, a full acquaintance with the Maori language, and was the recognised authority on that subject. His death, at an advanced age, was recently announced.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, November 27, 1899, when a paper will be read by Mr. P. E. PILDITCH (Fellow), entitled "Party Walls under the London Building Act, 1894." The chair will be taken at 8 o'clock.

PRUNUS SIMONI.—According to the *Illustrirte Nützlichkeitsblätter*, a useful little publication circu-

in Belgium, has been published (Veuve MONNOM, Brussels). The work is in large 8vo, and the author has secured the assistance of DR. DE WILDEMAN, of the Brussels Botanic Garden, in the preparation of the work, and of J. M. D'APREVAL in the execution of the plates. The work will comprise not only species not previously described or figured, but also others imperfectly recorded at a more or less distant date. The plants illustrated in the present number are:—*Hakea suaveolens*, R. Brown, tab. 1, a species much cultivated in the south of France; *Trymalium Billardieri*, Fenzl., tab. 2, a Rhamnaceous plant; *Muraltia mixta*, D. C., tab. 3, the *Polygala mixta* of *Bot. Mag.*, tab. 1714; *Agathosma villosa*, Willdenow, tab. 4,

the *Diosma hirta* of the *Bot. Reg.*, tab. 369. It seems that the oldest generic name is *Hartogia*, of LINNÆUS, but if that appellation were adopted it would result in the debaptising of all the species, and the creation of an equal number of synonyms. Prof. ENGLER, following SONDER, has therefore very judiciously retained the generally accepted name to which all the literature refers, and Dr. DE WILDEMAN follows suit; and *Oxalis Ortgiesii*, Regel, tab. 5. The annotations are likely to be very serviceable, and the illustrations are not only excellent but useful also, two qualities which by no means always co-exist in so-called botanical plates. We note with pleasure that M. VAN DEN BOESCHE has abundant materials in hand, and he may be assured that he will render great service to science by continuing their publication in the way he has begun.

THE DORPAT STOCK FOR THE ROSE.—The above variety, a cross between *Rosa Canina* and *R. cinnamomea*, is highly thought of as a stock for most varieties of the Rose. The plant grows of a regular strength from root to crown, erect, pliable, with a green, smooth, sappy rind; the thorns are weak, and come in pairs sparsely on the branches, either obliquely over or near each other. *Rosenzeitung* for October, 1899.

MESSRS. HARRISON'S VEGETABLE SHOW.—Messrs. Harrison & Sons, nurserymen, of Leicester, who hold an annual show of vegetables and roots at their Welford Road branch nursery, were enabled, by reason of the liberal prizes which they offer, to obtain a considerable number of competitors in the various classes, the quality of whose exhibits was excellent. The roots of all kinds were of especial good quality.

ROSES.—The National Rose Society has issued a fourth edition of their descriptive catalogue of exhibition and garden Roses. It is, for all practical purposes, an entirely new catalogue. About eighty-eight hybrid perpetuals are enumerated among the kinds suitable for the exhibition-table, together with fourteen hybrid Teas and forty-four Teas and Noisettes. In addition there are lists of so-called "garden" Roses, summer-flowering and other, some of which are quite equal in beauty to the exhibition varieties, and for the most part more interesting. Altogether there are upwards of 370 varieties brought under the notice of the rosarian for some reason or other—surely, an ample selection.

PUBLICATIONS RECEIVED.—*Anne Pratt's Flowering-plants* (F. Warne & Co., Bedford Street, Strand), vol. iii., Nos. 22 and 23.—*Banks and their Customers* (London: Effingham Wilson, Royal Exchange, E.C.) "A practical guide for all who keep banking accounts, from the customers' point of view." This contains some helpful hints for those to whom the management of a banking account is a mystery. Some of the information given is anything but complimentary to the banks, and not encouraging to timid customers.—*Nature Notes*, November.—*Nuovo Giornale Botanico Italiano*, Florence, vol. vi., No. 4, October, 1899.—*Bullettino della Società Botanica Italiana*, Florence, Nos. 7 and 8, September, October, 1899.—*The Agricultural Gazette of New South Wales*, October, 1899. By authority, Sydney, W. A. Gullick, Government Printer.—*Queensland Agricultural Journal*, vol. v., part iv., October, 1899. Brisbane, Edmund Gregory, Government Printer.—*Botanisches Centralblatt*, edited by Dr. Oscar Uhlworm, in Cassel, and Dr. F. G. Kohl, in Marburg.—*Gartenflora*, No. 22, edited by Dr. L. Wittmack; published at the Library zur Beförderung der Gartenbaues inden Preussischen Staaten, N., Invaliden Strasse, No. 41, Berlin; and by Paul Parey, Berlin.—*Botanische Zeitung*, edited by Graf zu Salm-Laubach, Frederick Oltmanns, No. xi., November, i. and ii. parts; Arthur Felix, Leipzig.—*The Case Law of the Workmen's Compensation Act, 1897*. Intended to supplement Part III. of *Accidents to Workmen*. By R. M. Minton-Senhouse. (London: Effingham Wilson, Royal Exchange, E.C.; Sweet & Maxwell, Ltd., Chancery Lane, W.C.)—*The Utility of Sulphate of Ammonia in Agriculture*, by James Muir, M.R.A.C. (Published by the Sulphate of Ammonia Committee, at No. 4, Fenchurch Avenue, London, E.C.) "Sulphate of ammonia is a nitrogenous manure, and must be considered as a source of nitrogen only. . . . Nitrogenous manures cause larger leaf growth, increased chlorophyll formation, slower maturity, and increased crops generally." Such is, in brief, the conclusion arrived at by the author of the Essay before us.—*Abrégé de la Petite Flore de Belgique*, par Alfred Cogniaux. (Bruxelles: Société Belge d'éditions; Ancienne Maison H. Manceaux & Moné, 3, Rue des Minimes.) A valuable handbook; "destiné aux élèves des écoles primaires et moyennes."

Fourth edition, with many illustrations.—*Algunos Casos de Teratología Vegetal, Fasciación, Proliferación y Sinantía*, por Angel Gallardo. (Buenos Aires: Reprinted from the *Anales del Museo Nacional*, vol. vi.)—From the U.S. Department of Agriculture, Division of Soils. Bulletin No. 9. *Soil Moisture*: a record of the amount of water contained in soils during the crop season of 1896. By Milton Whitney and Ralph S. Hosmer; and Bulletin No. 15. *Electrical Instruments for Determining the Moisture, Temperature, and Soluble Salt Contents of Soils*. By Lyman J. Briggs. Also Report No. 60. *Temperature Changes in Fermenting Piles of Cigar-leaf Tobacco*. By Milton Whitney and Thos. H. Means.

HOME CORRESPONDENCE.

THE SONG-THRUSH AND BLACKBIRD.—I was very pleased to read Mr. Harrison Weir's and Mr. Hart's good opinion of the song-thrush, which is one of the best friends the gardener has. I have watched them closely for over twenty years, and they are plentiful here, as are also blackbirds, and but for the latter we need not net any fruits excepting Red Currants, of which the thrush is very partial; but I do not grudge them these fruits. The only other fruit I know them to be fond of, are Yew-tree berries, and I have often seen them among the Strawberries devouring slugs, but leaving the fruit untouched. The blackbird, on the contrary, will have nothing else but fruit while it is to be had, and even when hard pressed for food, I have not known it to take slugs, but it is partial to worms. I do not allow the thrushes to be destroyed, which may account for the large number of them at this place. In severe weather the thrush is one of the first birds to suffer simply for want of animal food. *Fredk. Bedford, Straffan House, Co. Kildare.*

EEL-WORMS.—These pests seem to baffle all remedies that have been brought to destroy them—for what will kill them will also injure any future crops for a time that may be put on to the land. Gas-lime will destroy eel-worms, but it must be used in such quantities that the after-crops suffer. Salt water and ammoniacal gas-water will do the same. When the late Mr. John Monro lived at the Potter's Bar Nursery, he bought a large quantity of soil, in which to grow Cucumbers, &c.; but he found it so full of the eel-worms, that he constructed a temporary furnace, with an iron tank over it, to char the soil, or, at least, to make it hot enough to destroy them. Of course it was an expensive job, but, as the soil had been carted there, it was cheaper to char it than to cart it back again. There is a field about four acres near where I reside, swarming with these pests; and the ground, which will be used as a market-garden, has been dug over, and thousands of these worms picked up (!); but it seems a case of millions, and it would be a very expensive job to burn the whole of the soil. This appears the only way of exterminating them without injuring the ground for future crops. Can any reader of this journal suggest a better and more certain remedy? *Edward Bennett, Ash Vale, Farnborough.* [Deprive them of their food, i.e. the roots of living plants, by ploughing and fallowing the field for a year, after dressing it with quick or gas-lime, keeping it clean by the horse-hoe meanwhile. What our correspondent picked up cannot have been eel-worms, which are of microscopic dimensions. Ed.]

FRUIT-TREES ON GARDEN-WALLS.—In these days of enlightened fruit-culture we see many of the garden walls in the colder parts of the country occupied with varieties of Pears, not to mention Peaches, which seldom produce a fruit worth eating, either raw or cooked. The Pears are, as a rule, small and sometimes deformed, and if not small for the variety, at least they do not approach to anything like the flavour of the variety as grown in a suitable climate. It is only in very favourable districts in Scotland that the ordinary class of Pears is worth growing at all; and as for Peaches, it is remarkable that practical gardeners will try a tree or two, where it is a foregone conclusion that it is impossible to get a passable flavour in the fruits. Of course, gardeners are not always to blame; as some employers may infer, because they have seen or tasted fruit grown in some other place, and they imagine that their own garden fruit should be equally good as that which is grown in a more suitable locality. Many of the garden walls in Scotland and the colder districts of England now occupied by varieties of the Pear, needing more warmth than the climate affords,

could be more profitably planted with trees of certain varieties of the Apple, and of free-setting Plums. If Apples were planted on warm walls, they would be more acceptable than inferior Pears and Peaches. Of course, in cold situations and on north and east aspects, Morello Cherries, Gooseberries, and Red and White Currants succeed to perfection, and continue to hang for a long time after being ripe, if sufficiently protected from birds. But it is not of cold aspects particularly that I write this note, as they are, as a rule, very well cropped, but to draw attention at this season to the enormous waste of time and valuable space on south and west walls which we see in so many gardens in Scotland and the colder districts of England. *R. T. S.*

THE GROWING OF MUSHROOMS AT LEITH.—The *Scotsman* of Friday, November 15, reports as follows:—"The Public Committee of the Leith Town Council had under consideration yesterday afternoon a report by Dr. Mackenzie on three Mushroom-beds in old wine-cellar within the burgh, which he considered detrimental to the health of the community. The committee agreed to recommend the Council to order the owner to have the beds discontinued." This seems a pity. Those of us who know anything of the raising of Mushrooms artificially, are aware that the esculent can be grown almost anywhere without creating the slightest nuisance. [We quite agree with the Town Council in suppressing the growing of Mushrooms in cellars in the basement of houses, especially when the entrance to such places is inside the dwelling. Ed.] It seems a pity the Leith Town Council were not content with ordering the abatement of the nuisance, instead of putting a stop to a profitable home industry. And if Mushrooms may not be grown in cellars, why not also forbid the use of kitchens for growing them, or forbid the use of plants in apartments, window-gardens, or even in town gardens or other spaces within the precincts of the burgh? The Leith Town Council do not seem to be aware that the raw material for Mushrooms should be prepared and sweetened in the open air, or an open shed. [This very act of preparation is a nuisance in confined spaces in towns. Ed.] The spawn is clean and dry, with a faint odour of the Mushroom. Finally, the whole is "cased"—that is, it is firmly covered over with an inch or so of the purest earth or loam, which is virtually impervious to the passage from insanitary vapours from the beds to the cellar, and so to the other parts of the dwelling. Had the Leith Town Council called in experts before suppressing the rising home industry of Mushroom-growing in cellars, they might have learned that the dream of sanguine botanists is, that growers may soon dispense with their nucleus of decomposition, and the Mayor and Corporation each grow their own Mushrooms raised from spores on damp glass under their own tables. *D. T. F.*

PEACHES AND NECTARINES ON WEST WALLS.—Your correspondent, *H. T. M.*, on p. 330, in writing of that valuable Plum, Cox's Golden Drop, speaks somewhat despairingly of the Peach when grown on a west wall, telling us they rarely succeed. At what degree of N. latitude the Peach fails on that aspect I am unable to say, but I know that about London the Peach thrives and ripens its fruits on west and nearly due east aspects. From both of these aspects I have seen and had, in other gardens, regular annual crops of large, highly-flavoured fruits; and the leaves have been large, leathery, and free from insect-pests, more so than those growing on a south aspect. I am, this year, planting several trees on a west wall, of the following varieties: Waterloo, Hale's Early, Early Alfred, Grosse Mignonne, Dymond, Royal George, Bellegarde, Stirling Castle, Violette Hative, Sea Eagle, and Princess of Wales. The border will be thoroughly trenched, and a large quantity of fresh loam, mortar-rubbish, &c., added to the staple. *H. Markham, Wrotham Park Gardens, Barnet.*

THE PEOPLE'S PALACE.—As Treasurer of the People's Palace Horticultural Society, I venture to bring before you our work and necessities. The society has now been established for seven years, and has held, with unvarying success, exhibitions in the spring, summer, and autumn at the People's Palace, Mile End Road, London, E. We have recently established a children's section to interest the children of East London in the cultivation of flowers, by giving prizes for plants grown in their homes, and by lectures and practical demonstrations in the simplest elements of horticulture. The

gardens of members are visited (where such exist), and prizes are given for excellence in this department, in addition to those offered at the shows of the society. The additional expenses oblige the society to appeal for financial help. The subscriptions of the working-men and women members, which are very small, need to be supplemented by help from others, who have at heart the interest of spreading a love of flowers amongst the people of East London. I shall be glad to acknowledge the receipt of all subscriptions sent to me at the Anchor Brewery, Mile End Road. *Arthur F. Charrington, Hon. Treasurer.*

ABNORMAL GROWTH OF FLOWER-SPIKES OF ODONTOGLOSSUM CRISPUM.—It may interest your correspondent "F. E. H.," who enquires in your last issue about *Odontoglossum crispum* producing spikes on the top of the pseudo-bulb, to know that I have at least a dozen plants doing this at the

throughout, as although it may ripen near the stalk, it will be unripe at the apex. Planters would do well to remember that in our erratic climate the summer warmth is not always equal to or anything near that of the last few years. I would as soon think of planting Reine Claude de Bay in the open, except in southern shires, as Golden Drop, and for the same reason. As regards the stalks of Plums gathered for keeping, of what consequence is it, if they are cut through with a pair of scissors or with a knife, except that in the case of Plums which have to be suspended by a thread, the swelling at the base of the stalk prevents the thread slipping off the dried-up stalk. I have kept Coe's Golden Drop for a period of three or four weeks, but never for six months; nor is it possible to keep that variety, or Ickworth, Imperatrice, or the Winesour Plums much longer, unless they are stoved—that is, converted into Prunes as we see them in the shops. *Greengage.*

ZYGOPETALUM GAIRIANUM.

THIS beautiful species was described by the late Professor Reichenbach as *Pescatorea Gairiana* in the *Gardeners' Chronicle*, 1879, i., p. 684, from a plant purchased by the late Mr. Gair of Falkirk in 1876 as *Bollea celestis*.

But little has been heard of the species since until now, when a flower and photo (fig. 129) of a plant received from Consul F. C. Lehmann, and which evidently is the same thing, is kindly sent by Frau Ida Brandt, Brummenhof, Riesbach, Zurich (gr., Mr. Schlecht), from whose interesting collection many pretty and rare species are often shown at the meetings of the Royal Horticultural Society.

The flower is violet-coloured, the outer halves of the sepals and petals being as described by Professor Reichenbach—deep black-purple! The lip, with its fifteen to seventeen keels, also exactly answers the description, the ground-colour being yellowish, the more conspicuous ridges and protuberances being reddish-rose; the column is violet-coloured; the area at the base, yellowish, with a few purple spots.

It is a very striking flower, and very distinct from any others. *J. O'B.*

SOCIETIES.

ROYAL HORTICULTURAL

NOVEMBER 21.—The usual fortnightly meeting of the Committee of this society was held on Tuesday last, in the Drill Hall, James Street, Westminster. The weather was not favourable, the light being very poor owing to the presence of fog. There was a very satisfactory display of exhibits, several of the collections were large, though the number of exhibitors was probably fewer than usual. The display of Orchids was better than the date of the season would have led one to expect, and this Committee recommended four Awards of Merit to the following:—*Cattleya vestalis*, *Cypripedium* × *Milo*, *Cattleya* × *Mrs. J. W. Whiteley*, and *Odontoglossum Loochistense* "Canary Bird."

THE FLORAL COMMITTEE had before it some very bright collections of autumn and winter-flowering plants and of cut flowers. The winter-flowering Begonias of the *B. socotrana* strain, from Messrs. JAS. VEITCH & SONS, attracted much attention, and demonstrated the value of the plants at this period. Captain HOLFORD made a display of zonal Pelargoniums in pots, that were so abundantly flowered as to furnish an exceedingly gay and bright picture. Chrysanthemums which have constituted a feature at several preceding meetings were again exhibited in considerable quantity, and it is noteworthy that the three best collections of blooms were shown from private establishments. Mr. LEE's exhibit from the garden of F. A. BEVAN, Esq., that so well illustrated how to use the large flowers to secure the best decorative effect, was deservedly awarded a Gold Medal.

Cyclamens were shown by Messrs. HUGH LOW & CO., Clapton; Poinsettias by T. CAIRNS & SON, Tunbridge Wells; and Ferns by Messrs. HILL & SONS. Awards of Merit were recommended by the Floral Committee to *Begonia Sylva*, and *Cordylina The Queen*, from Messrs. JAS. VEITCH & SONS; *Pelargonium Lillian* from Capt. HOLFORD, and *Chrysanthemum Mrs. Alfred Tate* from F. A. BEVAN, Esq.

The Fruit and Vegetable Committee recommended Awards of Merit to Apple Bassaele Pippin, from Mr. J. BASHAM; and Stewing Pear Double de Gournay, from Mr. FRANK LLOYD. Mr. BASHAM, who delivered a lecture upon fruit cultivation in South Wales, showed a collection of about 300 dishes of Apples from Monmouthshire. Messrs. JOHN LAING & SONS also had a collection of fruits.

Floral Committee.

Present: W. Marshall, Esq. (in the Chair); and Messrs. CHAS. O. SHEA, CHAS. T. DRURY, H. B. MAY, W. HOWE, R. DEAN, JAS. HUDSON, JNO. JENNINGS, J. P. McLEOD, THOS. POOT, C. R. FIELDER, J. FRASER, J. D. PAWLE, CHAS. E. PEARSON, E. J. JENKINS, D. B. CRANE, HARRY TURNER, ED. MAWLEY, CHAS. JEFFRIES, and E. T. COOK.

Winter-flowering Begonias were a fine feature from Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, who had a collection of 800 plants in bloom, that filled more than one side of a large table running lengthways along the hall. The six varieties shown were all belonging to a strain that has resulted from crossing *B. socotrana* with varieties of the tuberous-rooted section. Mrs. HEAL, the best of the single-flowered varieties, was illustrated in *Gardeners' Chronicle*, Nov. 16, 1895, p. 555; Myra is also a good single variety with large flowers, and especially suitable for cultivating in baskets. John Heal, another single one, is better known; the flowers are small, very abundant, and the habit of the plants dwarfier and more



FIG. 129.—ZYGOPETALUM GAIRIANUM.

(Shown by Frau Ida Brandt at the Royal Horticultural Society's Meeting, November 21, 1899.)

present time. In every case it is obviously the result of extra vigour in the plant, as they are produced on very large pseudo-bulbs, and in addition to a normal spike at the side; so that it is not always due to injury or a check to the plant. One bulb is producing no less than four spikes at the top of the bulb, besides a side spike. I have another plant of *Odontoglossum crispum* bearing a spike with six side branches, and an aggregate of thirty-seven buds. *R. W. Rickards, Usk.*

GOLDEN DROP PLUM.—Mr. Fish's statements (p. 380) concerning Coe's Golden Drop Plum are in some cases so remarkable that I, and doubtless others, would be glad if Mr. Fish would name some gardens where, for example, the variety is grown on a north or northerly aspect, and as a bush or other shape in the open quarter. My own experience has taught me that if you would have Coe's Golden Drop Plum in the finest condition, it must be afforded the warmth of a south, east, or west wall, according to the latitude of the place, and even on west and east walls in the colder parts of the country it takes a long time to ripen

WEEDS IN PONDS.—I think the weed to which Mr. Warren refers in his letter, which appeared in the *Gard. Chron.*, p. 381, is the same as that which gives some trouble in my small pond, but which has some compensating value. I find that, though unsightly unless kept in bounds, it serves the useful purpose of keeping the water pure, and in a suitable condition for the gold-fish in the pond. The weed is most troublesome in hot weather, when it grows rapidly and rises to the surface almost daily. I remove a part of what rises to the surface frequently, but do not think of taking it all away, or the water, which has no outlet, would not remain clear. When the little pond has to be emptied, it is apt to become a trifle stagnant before this pond-weed appears, and the gold-fish are placed elsewhere until the water becomes pure again. I think Mr. Warren will do well to confine himself to removing a portion of the weed only. *S. Arnott, Carsethorn, by Dumfries, N.B.* [The weed is a *Conferva*; and we do not think Mr. Warren will be able to remove more than a portion. *ED.*]

compact. Of semi-double varieties, Winter Cheer is a splendid winter-flowering plant, and the brightest of them all. Ensign is quite of a different shade of carmine, lighter, but very valuable. A new one named Sylvia is described under "Awards" (Gold Medal).

Messrs. J. HILL & SONS, Barrowfield Nurseries, Lower Edmonton, staged a group of Ferns, in which were fine examples of *Adiantum decursum magnificum*, A. Faulkneri, a most light and elegant variety, suggestive of A. gracillimum; A. elegantissimum, A. Williamsii; also several choice forms of *Gymnogramma*, including G. schizophylla gloriosa, G. Wettenthaliana, a silver-coloured form; G. calomelanos, G. Veitohi, &c. *Brainea insignis* was represented by a nice specimen, also *Davallia parvula*, *Lomaria gibba*, *Adiantum radiatum*, &c. A specimen in a basket of *Agiomorpha Meyeriana*, with fertile pinnae at the end of the fronds, was most interesting (Silver Flora Medal).

A group of *Ocylamens* in pots came from Messrs. HUGH LOW & CO., Clapton, and Bush Hill Park Nurseries, Enfield. Several varieties with crested flowers were included. Bush Hill Pioneer, some with white and others with red flowers, more particularly showed the crest, and the type was figured in these pages Jan. 30, 1897, p. 70. The ordinary florists' varieties were exhibited in various colours, and a variety with flowers having ten petals was named Low's New Double (Silver Banksian Medal).

Zonal *Pelargoniums* in winter are always more appreciated than at any other season. A magnificent exhibit of plants in pots was made by Captain HOLFORD, Westonsbirt, Tetbury, gr. Mr. A. Chapman. The plants were abundantly flowered, and gave a gay effect. Of varieties, the following scarlets were noticed:—Athlete, Hall Caine, Jno. Milton, Eleanor, and Millar's Favourite; the last named variety having paler, almost white, centre. *Crimsons*—Paul Campbell, and Mrs. E. Rowson. *Pinks*—Lady Chesterfield, Chaucer, Ian MacLaren, Lady Newton, Mrs. Simpson, and Golden Mrs. Lunsie. The following were good white, or nearly white varieties:—Dr. Nansen, H. de Percival, Madame Rozaine, and Agnes (Silver-gilt Flora Medal).

An excellent group of *Polinsettias* was shown by Messrs. THOS. CURRIE & SONS, Tunbridge Wells. The plants were about 3 feet high, clothed with splendid foliage to the base. There were forty-eight plants, and the developed bracts were large and brilliantly coloured (Silver Flora Medal).

Mr. J. T. BARNETT-POLE, Homewood, Cheshunt, showed a spike containing six flowers of *Hippeastrum*, Mrs. Garfield. The flowers had rather long slender tubes and expanding segments, colour white, very prettily veined with red. Also some very fine specimens of *Pinguicula caudata* in flower, for which the committee's Cultural Commendation was awarded.

A magnificent inflorescence of *Fatsia japonica* was brought by the superintendent, Mr. WRIGHT, from the society's gardens at Chiswick.

Messrs. F. SANDER & CO., St. Albans, again exhibited plants of *Dracena Godseffiana*, D. Sanderiana, and of the two elegant *Palms*, *Kentia Sanderiana* and *Linosyadix Patriciana*. The last-named species carrying a lately-developed leaf, red-coloured, had a very pretty effect.

Fine branches of the exceedingly pretty and useful winter-flowering shrub *Arbutus Unedo* Croomi, in full flower, were shown by Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, Chelsea.

Beautiful plumes of *Gynerium argenteum* variety, Louis Carrière, were shown by Messrs. GEO. BUNYARD & CO., Maldstone. It is a pinkish-coloured variety.

CHRYSANTHEMUMS.

The premier award of a Gold Medal was awarded to an excellent exhibit of cut *Chrysanthemums* shown by Mr. W. H. LEES, gr. to F. A. BEVAN, Esq., Trent Park, Barnet. Mr. Lees has exhibited *Chrysanthemums* in show boxes on very many occasions with credit to himself, and on Tuesday he showed that he thoroughly understands by what system, the large blooms he and other cultivators obtain, can be best displayed. His exhibit would have compared favourably with those of Mr. Davis and Mr. Jones at the Royal Aquarium a fortnight earlier, and was in much the same style. Tall, trumpet-shaped vases, with a few huge blooms of one variety only in each, have a splendid effect, and the exhibition *Chrysanthemum* always appears more or less of a monstrosity except when so arranged. But if the vase be not crowded with blooms, and these be disposed with taste, they afford an effect that is charming, as bold, and in the decoration of a large structure become indispensable at this season. Mr. LEES's blooms were magnificent, and some of the best were Oceana, M. Chénon de Leché, Reine d'Angleterre, Chas. Davis, Mrs. Mease, Madame Carnot, Mutual Friend, E. Molyneux, Emily Towers, H. J. Jones (a magnificent crimson Japanese, that appears to be best from a late bud), H. Hooper Pearson; and of incurveds, Queen of England and Empress of India. There were fancy baskets tastefully arranged with Pompons, singles and other lighter flowers, and autumn-tinted foliage, Ferns, and such suitable relief—altogether the exhibit was a most attractive one.

Mr. W. NEVILLE, gr. to F. W. FLIGHT, Esq., Cornstiles, Twyford, showed a collection of *Chrysanthemums*, including forty-eight incurveds, and thirty-six Japanese blooms of exhibition size (Silver-gilt Banksian Medal).

An exceedingly interesting exhibit was made by Mr. E. BECKETT, gr. to Lord ALDENHAM, Aldenham House, Elstree. He showed none but Pompons and Anemone Pompons. These thirty-six vases each contained a few blooms of a variety, all of which were very pretty. Such exhibits as this are very welcome at a time when the large Japanese varieties threaten to oust most of the other sections from the exhibitions and from gardens. Of the Pompons we noticed Marabout, Mdile.

Martha, and Snowdrop, all white; Golden Mdile. Martha Dolly, William Westlake, and Nellie Rainford, yellow; and the following coloured ones: President, Hélène, Sunset, Cendrillon, Chas. Dickens, Scapion, Eleanor, and Black Douglas; of the Anemone Pompons there were Emily Rowbottom, Marguerite de Col, Mr. Astle (yellow), Miss Nightingale, Beesie Flight, Montel, Marie Stuart, and Antonius (Silver Flora Medal).

Another collection of *Chrysanthemum* blooms but with no names attached, came from Mr. W. J. GODFRAY, Exmouth Nurseries, Devon, who had about sixty good Japanese blooms, and a number of bunches of decorative sorts (Silver Banksian Medal).

Mr. J. H. WITTY, Nunhead Cemetery, London, staged a small group of *Chrysanthemum* "What Ho!" a curious variety, figured recently in these pages.

Messrs. J. PEAR & SONS, Roupell Park Nurseries, Norwood Road, London, S.E., exhibited a group of *Chrysanthemums* in pots, arranged in the usual style of a half-circle against the wall (Silver Banksian Medal).

Awards.

Begonia Sylvia.—A winter-flowering variety from crosses between the B. socotrana, and a tuberous-rooted variety. The flowers are rosy-carmine, semi-double, opening quite flat, and measuring more than 3 inches across. Like the rest of these varieties, it is an abundant bloomer. From Messrs. J. VEITCH & SONS (Award of Merit).

Chrysanthemum Mrs. Alfred Tate.—A flat-petalled Japanese variety, being a sport from Etiole de Lyon. Florets rather short, but numerous; colour reddish-orange. From Mr. LEES, gr. to Mr. F. A. BEVAN, Trent Park, Barnet (Award of Merit).

Cordylisne (Dracena) The Queen.—A narrow-leaved, ornamental foliage plant; the widest part of leaf being about ½ in. wide. The leaves gracefully arch upwards and downwards, and in a young state are green in centre, with pale red margins. Later, the green becomes deep bronzy-green, and the margins more narrowly deep red. From Messrs. JAS. VEITCH & SONS, Ltd. (Award of Merit).

Pelargonium Lilian.—A zonal variety, with moderately-sized flowers of clear pink colour. From Captain HOLFORD, Westonsbirt (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. JAS. O'BRIEN (Hon. Sec.), J. Gurney-Fowler, De B. Crawshaw, Chas. Winn, J. Douglas, J. Jacques, E. Hill, J. Colman, F. J. Thorne, W. H. Young, H. J. Chapman, H. Little, F. Sander, T. W. Bond, E. Ashworth, A. H. Smees, and T. B. Haywood.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, staged a very remarkable group of plants, in which their hybrids of L. Perrini were a strong feature, and for which the uncommon honour of a Silver-gilt Flora Medal was accorded. Six plants of *Laelio-Cattleya* × *Decia* (L. Perrini × C. aurea) displayed a good show of their large rosy-lilac flowers; two L.-C. Lady Rothschild (L. Perrini × C. Warscewiczii), bore fine flowers, similar in shape to L.-C. × *Decia*, but larger and more delicately tinted; two L.-C. × *Statteriana* (L. Perrini × C. labiata) were pretty varieties; and plants of L.-C. × *Semirama* and varieties (L. Perrini × C. Gaskelliana) and *Laelia* × *juvenilis* (L. Perrini × *pumila*), completed a set which well illustrated the good results of judicious crossing in securing plants with showy flowers which appear in the winter, and for that reason very desirable. Of equal utility at that season are the varieties of *Cattleya* *Bowringiana* crosses, well shown in the group by the pretty C. × *Ariel* (*Bowringiana* × *Gaskelliana*), with showy purple flowers; C. × *Portia* (*Bowringiana* × *labiata*), and C. × *Mantini* (*Bowringiana* × *aurea*). Other fine hybrids were *Laelio-Cattleya* × *Atlantica* (C. Warscewiczii × L.-C. × *elegans*); the richly-coloured L.-C. × *Dominiana* *Langleyensis*, and *Epidendrum* × *Endresio-Wallisi*. One end of the group consisted of rare *Cypripediums*, the fine yellow-flowered C. insignis Sanders being represented by eight good plants. There were also present C. × *marmorophyllum*, C. × *Prospero*, C. × *Aetneus*, C. × *Niobe*, C. × *Tityus*, C. × *Euryades*, C. × *Enone*, some varieties of C. × *Arthurianum*, and the quaint-looking, distinct C. × *Enid*.

Captain HOLFORD, Westonsbirt Tetbury (gr. Mr. A. Chapman) was awarded a Silver Flora Medal for a fine group of grandly-grown *Cypripediums*, in which the forms of C. insignis were well shown; amongst them the noble C. i. Harefield Hall variety, the largest known. The yellow varieties included C. i. Sanders, C. i. Dorothy, C. i. Ballie, C. i. Laura Kimball, and C. i. citrinum, all beautiful and distinct. The other forms were represented by C. i. biceps, C. i. Dormanii, C. i. punctatum violaceum, &c.; and among others noted were C. × *Ashburtoniae*, C. Charlesworthii magnificum, C. × *Niobe* magnificum, C. × *Tityus*, C. × *Arthurianum*, C. × *Buchaniana*, C. × *Barteli*, C. × *cananthum* superbum, C. × *Pitcherianum*, "Williams" var.; C. × *Morganiae* Burfordense, C. × *Leeanum* giganteum, and other varieties.

J. BRADSHAW, Esq., The Grange, Southgate (gr. Mr. Whiffen), was awarded a Silver Banksian Medal for a pretty group made up of fine varieties of *Cattleya labiata*, of which C. i. Mrs. John Bradshaw, a grand white, with slight pink tint on lip; and C. i. Gem, a richly tinted dark form, were the best. With them were three fine plants of *Cattleya* × *Mantini*, a well-flowered *Cattleya maxima*, C. × *Mrs. Astor* (C. Gaskelliana × L. xanthina), pale yellow, with dark rose front to the lip; *Cymbidium Tracyanum*, *Laelia autumnalis* alba, &c.

W. A. BILNEY, Esq., Fir, Grange, Weybridge, showed a

collection of cut spikes of good forms of *Cattleya labiata*; a fine spike of *Vanda Sanderiana*, and one of a good variety of *Vanda coccinea*.

Mr. ED. KROMER, Rosalms Nursery, West Croydon, also showed a good collection of *Cattleya labiata*, including plants of two remarkable forms, viz. C. i. Kaiser Wilhelm II., a very dark flower of the C. i. Peteriana class. The petals of this flower were of a claret-red hue with a lighter band running through the middle, the greater proportion of the area of the petals was of a claret-red hue, and possessed broad, irregular rose-coloured margin; lip crimson-purple, with orange markings at the base. The other was C. i. "Brasil," with a very distinct ruby-red lip, having white disc.

Messrs. HUGH LOW & CO., Enfield, staged a group, in the centre of which was a plant of the *Cypripedium* insignis Laura Kimball. The remainder of the group consisted of *Laelio-Cattleya* × *Nysa*, L.-C. × *Decia*, L.-C. × *Exoniensis*, *Cypripedium* × *Milo*, *Oncidium varicosum*, with four strong spikes; *O. tigrinum*, and a plant of *Cynoches chlorochilon*, with three female flowers.

R. ASHWORTH, Esq., Ashlands, Newchurch (gr. Mr. Pidsley), showed *Cattleya labiata* White Empress, a noble variety with large, pure white flowers, having a violet-purple blotch on the lip, and very closely resembling that shown at the last meeting as C. i. Gilmourii; also *Oncidium Forbesii*, and a dark mahogany-brown form of it named Ashlands' variety.

HENRY LITTLE, Esq., Barons Halt, Twickenham, showed *Cattleya maxima*, Little's var., a fine bluish-white flower, with a remarkable purple reticulation in the lip.

W. THOMPSON, Esq., Walton Grange, Stone (gr. Mr. Stevens), showed *Odontoglossum crispum* Meteor, a large and finely-shaped bluish-white flower, with a singular rose-coloured marking.

Messrs. PAUL & SONS, The Old Nurseries, Cheshunt, showed a number of baskets of well-grown varieties of *Cypripedium* insignis, C. Spicerianum, and two baskets of *Madevallia tovarensis*, covered with white flowers.

Frau IDA BRANDT, Riesenbach, Zurich (gr. Mr. Schlecht), sent flowers of *Zygopetalum Galrianum*, dark blue, tipped with blackish-purple, see fig. 129, p. 401; and a peculiar form of *Z. Dayanum* splendens.

Awards of Merit.

Cattleya × *vestalis* (*Dowiana aurea* ♂, *maxima* ♀), from Messrs. JAS. VEITCH & SONS. Flowers in outline resembling C. maxima, but larger in all the parts, and especially in the broad, rounded, crimped labellum. Flowers, bluish-white or pale-pink; the labellum having a beautiful purplish-rose veining merging towards the base into orange-coloured.

Cattleya × *Mrs. J. W. Whiteley* (*Bowringiana* × *Hardyana Massiana*), from Sir JAMES MILLER, Bart., Manderston, Dun, N.B. (gr. Mr. J. Hamilton). A pretty hybrid with a general resemblance to C. × *Mantini*. Flowers, bright-rose; front of lip, bright rose-crimson, with a purple band between the front portion and the yellow disc.

Cypripedium × *Milo*, *Westonsbirt* var. from Captain HOLFORD, Westonsbirt, Tetbury (gr. Mr. A. Chapman). A grand form of the type which was obtained between C. insignis Chantini and C. × *cananthum* superbum. The glossy flowers had a rich, bronzy-purple shade, the white dorsal sepal flaked with rose and purple.

Odontoglossum × *Loochristianum*, "Canary Bird" (*crispum* × *triumphans*), from W. THOMPSON, Esq., Walton Grange (gr. Mr. W. Stevens). An elegant hybrid, with some resemblance to a light-coloured O. × *excellens*. Flowers with the sepals and petals canary-yellow, spotted with brown. Lip ovate, crimped, white, with brown markings and yellow crest.

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. W. Wilks, John Basham, W. Foupert, Jas. Cheal, M. Gleason, A. F. Barron, A. H. Pearson, Alex. Dean, S. Mortimer, J. W. Bates, C. Herrin, Geo. Wythes, S. Reynolds, F. Q. Lane, James Smith, Robt. Fife, Geo. Bunyard, and Jas. H. Veitch.

Messrs. JOHN LAINO & SONS, Forest Hill Nurseries, London, S.E., showed a collection of excellent Apples, including about eighty dishes, besides two pretty stands upon which fruits were also displayed.

Messrs. HARRISON & SONS, Leicester, were awarded a Silver Banksian Medal for a collection of vegetables. In this exhibit was noticed excellent Leicester Hero and Lyon Leeks, Globe Onions; Windsor Castle, Motor, and Up-to-Date Potatoes, Intermediate and Early Market Carrots, &c.

Mr. Geo. Wythes, gr. to the Duke of NORTHUMBERLAND, Syon House Gardens, Brentford, showed roots of a red Beet, described as Barkham's Dwarf.

Very fine fruits of the Persimmon (*Diospyros Kaki*, figured in *Gardeners' Chronicle*, Feb. 7, 1891, p. 171), grown on a south wall in the open, were shown by Mr. T. Edington, gr. to Earl DUCIE, Tortworth Court, Faldeld.

There were several Apples submitted to the Committee, but excepting the variety described in "Awards," these were passed.

Mr. BASHAM, Fair Oak Nurseries, Bassaleg, Newport, Monmouthshire, showed a splendid collection of Apples; such as, perhaps, few growers have ever put up at any show. We noted many of the present popular varieties, as Sandringham, Warner's King, Bismarck, Wellington, Anne Elizabeth, Catehead Codlin, Wealthy, Frogmore Prolific, Lord Grosvenor, Blenheim Orange Pippin, The Queen, and Hornsea's Pearmain.

He showed 100 dishes of distinct varieties from his own grounds, and an equal number collected from Monmouthshire gardens, which, taken as a whole, were the finer produce.

We noted numerous varieties, local and little known or

grown elsewhere, in Mr. BASHAM's fruit, which might, we think, be discarded by the trade without loss to growers. Much the better part of Mr. BASHAM's fruit consisted of the finer varieties, these being clear in the skin and high of colour generally. The whole of the fruit was uncommonly free from blemishes caused by fungus, which goes to show that the beneficial effects of anti-fungus dressings are well understood by the exhibitors, and that in all other respects the cultivation of Apples is well understood.

Mr. Basham stated in the lecture which he gave at three o'clock that the manure made use of in his orchards was from the stable and farmyard. An award of a Silver-gilt Knightian Medal was made.

AWARDS.

Apple Bassaleg Pippin.—Described as a dessert variety, deep and round in form, yellow striped with red, eye closed and shallow, stalk short and thick, very deeply inserted. Flesh juicy and crisp. The fruits exhibited were either consumed by the Committee, or removed immediately subsequent to that Committee rising. This does not afford to representatives of the Press the opportunity that should be given them to inspect new fruits certificated by the Committee. From Mr. W. J. BASHAM, Bassaleg, near Newport, Mon. (Award of Merit).

Pear Double de Guerra.—A culinary variety, with fruits somewhat like mammoth specimens of *Beurré Hardy*. From FRANK LLOYD, Esq., Coombe House, Croydon (Award of Merit).

Lecture.

FRUIT-GROWING IN SOUTH WALES.

In the afternoon a lecture describing some interesting features of fruit-cultivation in South Wales and Monmouthshire, but more particularly the latter county, was delivered by Mr. J. BASHAM, Bassaleg, near Newport, Mon. Mr. Basham is a practical fruit-grower, and latterly we have seen excellent collections of hardy fruits at the Crystal Palace and at the Drill Hall from his nurseries and market-garden. These, and the Gold Medal collection from the Hendre Gardens, Monmouth, the residence of Lord LLANGATTOCK, have proved that parts of Monmouth, at any rate, and especially the fertile valley of the Uak, are quite capable under skilful cultivation of producing fruits of first-class quality. But of the 228,608 acres under orchard cultivation in Great Britain (exclusive of small fruits) there are but 6515 acres so planted in the whole district of South Wales and Monmouthshire. There has, however, been an increase in Monmouthshire during the past year of 28 acres.

Mr. Basham in his paper described the principal orchards in the county, and had evidently been at considerable trouble to acquire the details, that, when published in the Royal Horticultural Society's *Journal*, should prove to be very interesting.

ISLE OF WIGHT.

NOVEMBER 7, 8.—The Undercliff Chrysanthemum Society held their fourth annual exhibition, at Ventnor, on the above dates.

The exhibits were not so numerous as on previous occasions, but the quality of exhibits exceeded expectations.

The principal prize-winners were—Mr. W. W. Sheath, gr. to Miss MITCHELL, Ventnor; Mr. F. Attrill, gr. to Miss CASE, Ventnor; Mr. W. Russell, gr. to Mr. COMES, Bonchurch; Mr. W. Gee, gr. to Mr. C. H. CLOOTS, Ventnor; Mr. S. Primmall, gr. to Hon. Mrs. OCHIL, Ryde; Mr. F. Woods, gr. to Mr. C. MORTIMER, Stepphill Castle; Mr. A. Richards, gr. to Mr. JESSOP, Bonchurch; and Messrs. H. DROVER & SON, W. KINGSWELL, M. SIBSBURY, R. JOLLIFFE, D. DAY, and S. SAMUEL.

The show was a great success, and reflected credit upon the energy of the honorary secretary (Mr. Wavell Knight) and a hard-working Committee.

DEVIZES CHRYSANTHEMUM SHOW.

NOVEMBER 14.—This show, which is always an attractive feature in the town, is associated with the Devizes Benevolent Society, one-half of the Corn Exchange being devoted to Chrysanthemums, and the other half to a bazaar, the proceeds of which are applied to benevolent purposes. Mr. THOMAS KING, gr., Devizes Castle, carries out the arrangements in an admirable manner, and, given a fine day, the results are always very satisfactory.

There were but eight competitive classes in all, and the best exhibits came from Mr. H. Clack, gr. to C. E. COLSTON, Esq., Roundway Park, Devizes, who grows good plants, and arranges them with skill; Mr. T. Rumble, gr. to E. C. SCHOMBURG, Esq., Cliffe Hall, Market Lavington, was placed 2nd.

One of the leading classes for cut blooms was that for twenty-four incurved varieties, in which Mr. W. Higgs, gr. to J. B. HANKEV, Esq., Fetcham Park, Leatherhead, was 1st with well-developed examples, among others C. H. CURTIS, Haswell Glory (a very useful variety with a future before it), Princess of Wales, Topaze Orientale, &c.; and Mr. F. G. FOSTER, nurseryman, Havant, was 2nd.

The 1st prize for twenty-four Japanese was a handsome Silver Cup, given by the ex-Mayor, and this was won by Mr. F. VALLIS, gr., Bromham Fruit Farm, Chippenham, with a superb lot of blooms, chief among them Mrs. Mease, Le Grand Dragon, Mrs. Barkley, Mrs. Combes, Mutual Friend, Phœbus, Madame Carnot, Edwin Molyneux, Chénod de Leché &c. Mr. C. J. SALTER was 2nd with similar varieties. Two

extra prizes were awarded, in addition to a 3rd, so good was the competition.

With twelve blooms of incurved Japanese, Messrs. VALLIS and SALTER were severally 1st and 2nd.

With twelve blooms of the old incurved type, Mr. SALTER came 1st; and Mr. W. ROBINSON, gr. to Lord LUDLOW, Westbury, was 2nd.

With twelve blooms of Japanese, in six varieties, open to exhibitors residing in Wiltshire, Mr. VALLIS took the 1st prize, Mr. ROBINSON coming 2nd.

Mr. C. J. SALTER, who is in the front rank of growers of Anemone-flowered Chrysanthemums, was 1st with twelve good blooms; and Mr. ROBINSON 2nd.

BASKETS of hardy annual flowers, with or without foliage, were, as usual, very numerous, and the display generally was in excellent taste. Ladies competed in this class. Miss BELL, Melksham, was 1st; and Miss BOOKER, Devizes, 2nd.

A Challenge Bowl, held for a year by the exhibitor gaining the greatest number of points, was awarded to Mr. C. J. SALTER.

BECCLES CHRYSANTHEMUM AND FLORICULTURAL.

NOVEMBER 14, 15.—The tenth annual show of the Beccles Chrysanthemum and Floricultural Society was held in the Town Hall on the above dates. The exhibition was throughout an excellent one, and the competition in most of the classes very close.

For plants in pots, E. MASTERS, Esq., secured premier honours in the classes for Japanese, incurved, reflexed, and Pompons. This is the tenth consecutive year in which Mr. Masters has taken first honours in the above classes. A. WOODS, Esq., took the 2nd prizes in the same classes. Mr. MASTERS was also awarded the 1st prize for a single plant—a fine Vividant Morel.

The cut-blooms in the open classes were a choice lot. For twenty-four Japanese, Sir R. BEAUCHAMP, Langley Park (gr. Mr. Jeffreys), took the 1st prize; H. SMITH, Esq., Ellingham Hall, a close 2nd; Miss FOWLER, Lowestoft, 3rd.

The best twelve Japanese blooms were shown by Colonel EASTON, Holton Hall; and E. MASTERS, Esq., was 2nd. Mr. J. C. SHARPIN, an enthusiastic local amateur, took the 1st prize for half-a-dozen fine blooms.

The best twelve incurved varieties came from Miss FOWLER; and Mr. SHARPIN had the 2nd best.

Prizes were also offered for groups of plants in spaces 6 feet by 4½ feet, which brought together three exhibitors, but that from Sir R. BEAUCHAMP was the choicest and most tastefully arranged, and deservedly gained the 1st prize.

Fruit was sparingly shown. The best came from Sir R. BEAUCHAMP, who likewise staged the best collections of vegetables and saladings.

Mr. BATTERS, Gillingham Hall Gardens, staged (not for competition) a most meritorious collection of garden produce which was an attractive feature of the show. H. F.

WINCHESTER CHRYSANTHEMUM.

NOVEMBER 14, 15.—The annual show, which was held in the Guildhall, was a great success. Cut blooms were numerous, groups of Chrysanthemums splendid, and specimen plants a feature. The management here is all that could be desired.

For the best group of Chrysanthemums, Mr. G. H. STREET, gr. to the Rev. Dr. FEARON, The College, Winchester, was most successful, with plants ranging from 2 feet to 4 feet in height, well clothed with foliage and carrying fine blooms; Mr. E. NEWMAN, gr. to Captain GAUSSEN, Twyford, Winchester, being 2nd.

Plants suitable for conservatory decoration, in 9-inch pots were excellent. Mr. G. ADAMS, gr. to Colonel F. A. DICKINS, Edge Hill, Winchester, won the premier award with dwarf, well-flowered examples.

For six plants (white-flowered varieties), there was a brisk competition. Mr. G. COUSINS, gr. to E. H. BUCKLAND, Esq., Kingamead, Winchester, secured the leading award.

In a similar class, devoted to yellow-flowered varieties, Mr. COUSINS was again successful.

CUT BLOOMS

were numerous and good. The principal class was that for forty-eight specimens, half to be incurved, and the remainder Japanese varieties. Mr. NEVILLE, gr. to F. W. FLIENT, Esq., Twyford, Winchester, was an easy winner, with full-sized examples of popular varieties in both sections; Mr. J. AGATE, Havant, 2nd.

For twenty-four Japanese blooms, six competed. Mr. J. WASELEY, gr. to J. B. TAYLOR, Esq., Sherfield Manor, Basingstoke, staged a grand lot of blooms, and easily secured the leading award.

Twelve Japanese (local) were best staged by Mr. DAWES, gr. to Mrs. OULVIZ, Roscroft, Hambledon, being full, heavy, bright blooms.

White and yellow-flowered varieties were shown by Mr. WASELEY in four sorts, three of each in really good condition.

Mr. NEVILLE had the best twelve incurved, and a similar number of this section in four varieties.

Miscellaneous plants arranged for effect were a distinct feature of the show. Mr. E. LONG, gr. to F. C. BIRCH, Esq., Christchurch Road, Winchester, won the premier award with a commendable exhibit.

Fruit and vegetables were of high quality.

CHESTER PAXTON.

NOVEMBER 14, 15.—The annual Fruit and Chrysanthemum Show of the Chester Paxton Society was held on the above dates in the large Assembly Room and vestibule of the Town Hall, when one of the most attractive exhibitions ever seen in Chester was opened to the public by the Mayor of the city, Colonel H. T. BROWN.

The most attractive exhibits were the groups of Chrysanthemums, the average quality of which was superior. The chief honours fell to Mrs. HUDSON, Bacche Hall (gr. Mr. E. Stubbs), who also carried off the much-coveted prize last year; EDWD. DIXON, Esq., Littleton Hall (gr. Mr. John Dutton); Mrs. McLAREN, Curzon Park (gr. Mr. S. Garner); and Mrs. ARTHUR PORTER, Hoole Hall (gr. Mr. John Taylor), in the order given.

In the cut bloom classes some excellent exhibits were made of Japanese and incurved varieties, and the entries for the single varieties showed a considerable increase over any previous exhibition. A very fine stand of naturally-grown cut blooms exhibited by Mrs. TOWNSEND INCE, Christleton Hall (gr. Mr. Thomas Weaver), easily carried off 1st honours.

FRUIT, &c.

In the nurserymen's class for the best fifty dishes of Apples, Mr. JOHN WARKIN, Hereford, and Messrs. FEWTERES BROTHERS, Hereford, were awarded 1st and 2nd honours respectively.

In the gardeners' class for kitchen Apples, the chief honours fell to Lord COMBERMERE, of Combermere Abbey (gr. Mr. E. Severn). Mrs. POCHIN, Bodnant Hall (gr. Mr. J. Sanderson); the Rev. L. GARNETT, Christleton Rectory; and H. LYLE SMYTH, Esq., Barrowmore Hall (gr. Mr. E. Morris).

In the classes for Pears, although the entries were not so numerous as usual, the quality was very high, and here the principal prizes were won by Rev. L. GARNETT, Christleton; Miss HUMBERTON, Newton Hall (gr. Mr. Wakefield); EDWD. DIXON, Esq., Littleton (gr. Mr. Dutton); and Lord COMBERMERE (gr. Mr. E. Severn).

Honorary exhibits included a most attractive one from Mr. N. F. BARNES, gr. to His Grace the DUKE OF WESTMINSTER, Eaton (Gold Medal).

MESSRS. DICKSONS, LTD., staged an exhibit of fruit and flowers; as also did Messrs. MCHATTIE & CO., and Mr. J. W. DUTTON, all nurserymen of Chester.

READING CHRYSANTHEMUM.

NOVEMBER 15.—This was held on the present occasion in the two Town Halls, the old and the new; it means a division of the exhibits, but that is unavoidable. The large hall, when empty, looks a very spacious one, but a few exhibits, with provision for locomotion, soon fill it, so that when the show was opened to the public it was difficult to catch a sight of the exhibits, so large was the company.

In the large hall were the circular groups of Chrysanthemums, and the large and handsome Silver Challenge Cup was won by Mr. H. PERKINS, gr. to the Hon. W. F. D. SMITH, M.P., Greenlands, Henley-on-Thames, high quality characterising the blooms, and skill the arrangement; Mr. GALT, gr. to C. E. KEYSER, Esq., Aldermaston Court, was a very good 2nd.

In the small hall were other groups; those of plants not disbudded were very effective. Mr. BOOKER, gr. to W. B. MONCK, Esq., Coley Park, was 1st, run very close by Mr. WOOLFORD, gr. to A. PALMER, Esq., East Thorpe. Groups were also shown in another division, and there were classes for trained plants, which were generally in bush form. Other plants were asked for in several classes, and they served the purpose of varying the show. One class was for a table of zonal Pelargoniums, in which two competed, the 1st prize going to Mr. Chamberlain, gr. to F. M. LONGERGAN, Esq., Cressingham Park; the 2nd to Mr. WOOLFORD; the latter had rather the finer trusses, but the former had worked out the most effective arrangement.

Orchids were shown in good character, Mr. H. PERKINS taking the 1st prize.

Very finely-grown specimens of Poinsettias were shown by Mr. WOOLFORD, who also had some excellent Bouvardias, and a very fine lot of Cyclamen latifolium.

Palms were shown in pairs, and Richardias in threes.

The Cut Flower Classes for Chrysanthemums had the greatest interest. The best twenty-four Japanese came from Mr. COLLEGE, gr. to T. CARBUTHERS, Esq., Reigate, who had fine examples of *Secrétaire Fierens*, *Le Grand Dragon*, *N.O.S. Jubilee*, *Graphic*, *Lady Hanham*, *Lord Ludlow*, *Phœbus*, *Mrs. Barkley*, *Mrs. Mease*, *Chénod de Leché*, &c.; Mr. FOSTER, gr. to L. PHILLIPS, Esq., Winchfield, was a close 2nd.

With twelve incurved, Mr. G. LANE, gr. to Miss RIDGE, Englefield Green, was 1st, having finely-developed blooms of *Duchess of Fife*, *Miss V. Tomlin*, *Mrs. H. J. Jones*, *Chrysanthemiste Bruant*, *Topaze Orientale*, *Empress of India*, *Ma Perfection*, *C. H. Curtis*, &c.; Mr. PRICE, gr. to T. F. BULLERY, Esq., Fairford, was a good 2nd.

Mr. GALT came in 1st with twelve Japanese, having, in fine character, some of the leading varieties; Mr. PERRY, gr. to L. SCHOTT, Esq., Penny Hill Park, was a good 2nd.

A class for six vases of blooms, three of each variety, brought several exhibits, Mr. WOOLFORD taking the 1st prize with admirable blooms, well arranged; Mr. PERRY was 2nd.

Single varieties in twelve bunches, five sprays of each being generally shown, made a charming feature, the 1st prize going to Mr. WILSON, gr. to Mr. BLAND GARLAND.

In the class for six Japanese, one variety, Mr. PERRY was

1st with very fine blooms of Madame Carnot; Mr. COLLEGE came 2nd with Miss Nellie Pockett.

The best six incurred were very fine blooms of Duchess of Fife from Mr. GALT; Mr. PERRY coming 2nd, with C. H. Curtis.

The best vase of *Chrysanthemums*, one variety, were those of Madame Carnot, from Mr. WOOLFORD. Groups of cut *Chrysanthemums*, arranged on a table space of given size, was a pleasing feature also. *Epergnes* of *Chrysanthemums* were also shown; and there were baskets of autumn foliage.

FRUIT.

There were several classes for fruit. Mr. Cole, gr. to Sir CHARLES RUSSELL, Bt., Swallowfield Park, was 1st with two bunches of Alicante Grapes, medium-sized, and highly coloured; Mr. PRICE came 2nd.

Mr. WOOLFORD had the two best bunches of Lady Downes, well finished; Mr. LAKE was 2nd.

With any other black, Mr. COLE took the 1st prize, having well-coloured Gros Maroc; Mr. PRICE came 2nd with Mrs. Pince—good bunches, but not well finished.

Mr. COLE had the two best bunches of White Muscats, the bunches large, well coloured, and extra-good; Mr. BASIL gr. to D. H. EVANS, Esq., was 2nd.

With any other white, Mr. COLE came in 1st with Foster's Seedling; Mr. LAKE taking the 2nd prize with large bunches of Mrs. Pearson, lacking finish.

Apples were numerous and in fine character. Mr. R. WEBB, Becham, had the best twelve dishes, six culinary and six dessert; Mr. EXLER, gr. to J. SIMONDS, Reading, was 2nd.

Mr. CHAMBERLAIN had the best six dishes of dessert Apples; and they were extra fine, especially Ribston, Cox's Orange, and Gasconne's Scarlet; Mr. E. DOWDING, Stoke Row, Henley, was 2nd.

Mr. R. WEBB had the best dish of Cox's Orange Pippin.

Mr. CHAMBERLAIN was 1st for six dishes of culinary Apples; Mr. WADE PALMER was 2nd.

Mr. WOOLFORD had the best dish of Blenheim Orange.

Pears were also well shown. Mr. CHAMBERLAIN had the best eight dishes, and Mr. WOOLFORD the best four dishes; and there were single dishes also in the classes for Cucumbers, Mushrooms, and Tomatoes.

A large stand of floral decorations in various designs, was furnished by Mrs. PHIPPS, of Reading, which was highly commended.

HULL CHRYSANTHEMUM.

NOVEMBER 15, 16.—The annual show was held in the Artillery Barracks, and if not quite so large as in some previous years, was nevertheless a success. Nowhere is there better management than here. Messrs. Harland and Dixon, the honorary secretaries, control the details perfectly.

CUT BLOOMS

were numerous and good. For twenty-four Japanese, Mr. C. Crooks, gr. to the Dowager Lady HINDLIP, Hedsor House, Droitwich, won 1st prize with a grand collection, in which the following were especially noteworthy:—Mona Pankoucke, Mrs. W. Mease, Oceana, Elthorne Beauty, G. J. Warren, and Duke of York. Mr. Williams, gr. to the Earl of FEVERSHAM, was 2nd.

For a similar number of incurved varieties, Mr. Crooks was again successful with large blooms, which were well staged; Mr. W. Mease, gr. to A. TATE, Esq., Downside, Leatherhead, Surrey, 2nd.

For six Japanese blooms of any one variety, Mr. R. Walker gr. to Col. STRACEY-CLITHEROW, Hotham Hall, Brough, won with Chenon de Leché in faultless style.

Anemone-flowered varieties were grandly represented. For twelve, Mr. F. MASON, gr. to ALEXANDER SMITH, Esq., Woodleigh, Hessele, won 1st prize.

Pompons were best shown by Mr. A. Drewery, gr. to Mrs. F. B. MOORE, Harland Rise, Cottingham. Single-flowered varieties, by Mr. V. Waterhouse, gr. to W. T. OWBRIDGE, Esq.

For eighteen incurved (local), Mr. J. Down, gr. to H. G. CONSTABLE, Wassand, Hull, was 1st.

In the class for Japanese, Mr. H. Thompson, gr. to C. J. RINGROSS, Esq., Cottingham Grange, Hull, was the most successful, with a set of heavy blooms.

GROUPS OF CHRYSANTHEMUMS

arranged with foliage plants were less numerous than in preceding years. Mr. G. Wilson, gr. to Sir JAMES RECKITT, Swanland Manor, Brough, was the most successful, with a light arrangement of heavy blooms, Palms, Crotons, and other suitable plants, lightly dispersed; Mr. H. P. DARLING, Holderness Road Nursery, Hull, 2nd.

Specimen plants were, as usual, numerous and good.

A special feature is here made with table decorations in a properly lamp-lighting room. For a dessert-table, 8 feet long by 4 feet, properly laid for six persons, there was a fine display. Miss FANNY KIRK, Otswick Hall, Benstwick, won the premier award with an almost faultless arrangement.

ROYAL BOTANICAL OF MANCHESTER.

NOVEMBER 16.—The annual Chrysanthemum Show of the Royal Botanical and Horticultural Society of Manchester was held on the 16th inst.

In the class for groups of Chrysanthemums in pots, arranged with foliage-plants for effect, in a space of 80 square feet,

there were only two exhibits—1st, J. WALTON, Esq., Newton Heath; 2nd, A. BUCKLEY, Esq.

Plants in pots were very fine indeed, well grown, and, beautifully flowered. Nine large-flowered varieties were best shown by G. H. GADDUM, Esq., Didsbury; 2nd, T. HARKER, Esq., Withington.

For six Pompons in pots, J. BROWN, Esq., Heaton Mersey, was 1st; 2nd, J. WALTON, Esq. And for six Japanese varieties—G. H. GADDUM, Esq. was 1st; and T. HARKER, Esq., 2nd.

There were classes also for Primulas, Roman Hyacinths, plants suitable for the adornment of the dinner-table, Cyclamens, &c.

OUT BLOOMS.

The principal class in this section was that for the Derby Challenge Cup, given by the Earl of DERBY, the President of the Society, for forty-eight blooms, twenty-four Japanese, and twenty-four incurved, distinct varieties. This was well won by Mr. LEE, gr. to F. A. BEVAN, Esq., Trent Park, Barnet; 2nd, Mr. H. West, gr. to E. BEHRENS, Esq., Bettisfield Park.

For twenty-four incurved, not fewer than twelve varieties, Mr. H. West was 1st; and Mr. HEATON, gr. to R. P. HOUSTON, Esq., M.P., Algburth, 2nd.

T. BROCKLEHURST, Esq., Liverpool, won a class for twelve blooms, distinct; and F. G. FOSTER, Esq., Havant, Hants, was 2nd.

That for thirty-six Japanese, not fewer than eighteen varieties, fell to Mr. HEATON; Mr. LEE being 2nd.

For eighteen Japanese, not fewer than nine varieties—1st, F. C. WATERHOUSE, Esq., who was also winner of 1st prize for twelve Japanese distinct varieties.

The best collection of thirty-six miscellaneous cut blooms was shown by Mr. McKellar, gr. to J. WATTS, Esq., Cheshire.

Baskets of cut blooms of Chrysanthemums, suitable for drawing-room, with Fern and foliage, were shown, and the best was staged from Mr. W. ELKIN, Fendleton.

Mr. J. KIRK, Heaton Chapel, had the best hand-bouquets.

The 1st prize for a miscellaneous collection of cut flowers was won by J. BROWN; and for the best collection of cut Orchid blooms, by T. STATTER, Esq., Whitefield.

MISCELLANEOUS EXHIBITS

were well shown in the shape of Orchids from T. STATTER, Esq., of Stand Hall, and R. ASHWORTH, Esq., of Wilmslow; who had a fine plant of Vanda coerulea in bloom; Mr. DOE, gr. to Earl DERBY, Knowsley, had a fine collection of Apples and Pears.

The trade were well represented by Messrs. COWEN & Co. Garston; and Messrs. CHARLESWORTH & Co., Bradford; both of which firms had fine banks of Orchids. Silver Medals were awarded in each case. Messrs. DICKSON, BROWN, & TAIT, and Messrs. DICKSON & ROBINSON, also Messrs. CLIBB & SONS, Altrincham, were awarded Silver Medals for exhibits of miscellaneous flowering plants. Messrs. HUGH LOW & Co., Clapton, London, had a pretty exhibit of Orchids.

Messrs. SUTTON & SONS, Reading, were awarded the only Gold Medal for a very fine display of Cyclamens and other plants, and a fine exhibit of Potatoes, Onions, &c. J. W.

SCOTTISH HORTICULTURAL ASSOCIATION.

NOVEMBER 16, 17, 18.—As briefly announced in the telegraphic dispatch in our last issue, the great Scottish exhibition, held as usual in the Waverley Market, opened under the most favourable auspices as to weather, number of exhibitors, and entries. The weather continued fine during the three days of the show being open, and the crowds of visitors remained loyal to the end, surplus receipts going to the Lord Provost's Fund for the relief of families stricken through the war. The exhibition as a whole was quite as good as any that have been held, the several sections being all well filled.

CUT FLOWERS.

Chrysanthemum blooms were remarkable, not so much on account of the numbers exhibited—though these were enormous—as for the high quality in most of the classes, and their evenness as a whole. The greatest interest naturally centred in the great class of thirty-six vases of Japanese, three blooms in each vase, and thirty-six distinct sorts. A strong contingent was expected from England, including the champion at the late show in the Aquarium, Mr. McHATTIE, and though it was thought Scottish flowers would be late, and perhaps deficient, the success of last year's winner in Ireland augured well for northern blooms. Their success, as a fact, was even greater than could have been anticipated, for though three of the prizes went over the border, the piece of Plate presented by the City of Edinburgh, value £20, with £15 in money added, and the £30 as 2nd prize, were both retained in Scotland. The 3rd, secured by Mr. McHATTIE, being almost as good as a Scotch victory when tested by the saying, "It's no lost that a freen gets." It was early apparent that the coveted 1st prize was not to be easily won, the even quality of the blooms staged by Mr. LUNT, gr. to Keir House, and by Mr. BRISANT, gr. to Castle Huntly, indicating a sharp struggle for supremacy. All the blooms were remarkably fresh and in perfect condition, as well as reaching maximum dimensions; the Castle Huntly blooms being, if anything, weightier than those from Stirling, which, however, were set up in slightly better form. The judges finally thought the latter were two points ahead of the

former; and the City of Edinburgh prize, for the second year in succession, goes to Keir. Mr. LUNT's blooms comprised extra fine examples of Mary Molyneux, Lady Ridgway, Oceana, Louise, Mrs. Mease, Mr. C. H. Payne, M. Chenon de Leché, Simplicity, and Australie; and slightly less good, Phœbus, Henry Weeks, Madame A. Rousseau, J. Bidscope, Mdle. M. A. de Galbert, Robert Powell, Geo. Palmer, Pride of Exmouth, Madame Carnot, Pride of Madford, and Mrs. H. Weeks. In Mr. BRISANT's lot were included grand examples of Mr. Bailey, M. Chenon de Leché, Wonderful, Scottish Chief, Mrs. Weeks, and Emily Towers. Mr. McHATTIE, Strathfieldsaye, as already noted, was a good 3rd; Mr. CHANDER, Ooton House, Rugby, was 4th; and Mr. HAGGARD, Moor Park, Ludlow, 5th; two competitors being left out. The entries indicated the exhibition in this class alone, of 973 blooms; but two of the entrants failing to stage, gave the actual number as 756.

The next class of importance was that for thirty-six Japanese, distinct, shown on boards, the prizes offered being £15, £10, £5, and £3.—No less than ten competitors entered the list, and Mr. LUNT, after another close tussle, emerged again the victor; the 2nd prize going to Mr. D. NICOLL, gr., Rosale, Forquandenny, last year's runner-up in the City of Edinburgh Class. Mr. McHATTIE came out 3rd, and Mr. BRISANT 4th.

The varieties in the winning stand were Australie, R. Hooper Pearson, Madeleine Davis, Lady Ridgway, G. C. Swabe, Edith Tabor, Simplicity, Mrs. M. Grant, Lady Hanham, Pride of Madford, Emily Towers, Martha Hodgson, Phœbus, Fierens, Madame P. Rivoli, M. Hoete (extra), Mutual Friend, Mrs. Darkley, Rose Wynne, M. Chenon de Leché, J. Bidscope, Eva Knowles, Oceana, Pride of Exmouth, Le Grand Dragon, Mary Molyneux, Mrs. G. Carpenter, Royal Standard, Miss J. W. Barks, H. Rivers Langton, Edith Daahwood, and Lional Humphreys. All the blooms were in the pink of condition, and in the right stage of development.

Next comes the Scottish Challenge Cup Class, in which the competition is confined to the production of Scottish gardens. The prizes are a Cup, to be held for a year by the winner, with £10; 2nd, £7; 3rd, £5; 4th, £3. These are offered for three vases of Japanese, in twelve varieties, three blooms of each. Mr. NICOLL secured the Cup, with a fine even lot; Mr. KIRK, gr., Norwood, Alloa, 2nd; Mr. BRISANT 3rd; and Mr. YOUNG, gr., Stobo Castle, Peebles, 4th.

For four vases Japanese, six blooms in each, Mr. MURRAY, Blackford House, was 1st with fine flowers; Mr. KIDD, gr., Carbery, Musselburgh, 2nd; Mr. MCILWAIN, gr., Falkland, Fife, 3rd; and Mr. CLARK, gr., Bannertield, Melkirk, 4th.

Twelve distinct Japanese.—1st, Mr. CUMMINS, gr., Grantully Castle; 2nd, Mr. LUNT; 3rd, Mr. HAGGARD.

Twelve Japanese, four varieties, three of each.—1st, Mr. LUNT; 2nd, Mr. CUMMINS; 3rd, Mr. HAGGARD.

Six Japanese, distinct.—1st, Mr. LUNT; 2nd, Mr. MOIR, Rosehaugh, Aroch; 3rd, Mr. HENDERSON, Ellersay, Windermere, Cumberland.

Six Japanese, any one variety.—1st, Mr. SHEARER, Summer Hall, Alloa.

One vase of twelve Japanese blooms.—1st, Mr. NORMAN, gr., Alloa House, Alloa; 2nd, J. BOUCHER, gr.

Vase of six Japanese blooms, any variety.—1st, Mr. MOIR, gr.; 2nd, Mr. MOOD, St. Boswells; 3rd, Mr. WHANNELL, Gilmerton.

There were also several classes for single vases of six blooms of special varieties. These contained some of the weakest blooms shown, though in some instances superb examples were also set up. Of the latter, mention may specially be made of Charles Davis, Lady Hanham, M. Chenon de Leché, all fine.

Only five classes were devoted to the incurved section, and about £20 altogether in prizes. For twenty-four blooms distinct, £5, £4, £3, five exhibitors staged, the 1st position being secured by Mr. GOODACRE, gr., Alvastron Castle, with finely-finished, full flowers, including the following sorts: E. Cannell, Lady Isabel, M. Desblanc, Duchess of Fife, Dorothy Feist, C. H. Curtis, Countess of Warwick, Mrs. R. J. Jones, Madame Ferlat, George Haigh, Lady Kingston, R. Petfield, James Agate, Queen of England, Hanwell Glory, Mrs. Colman, Lord Alcester, Violet Tomlin, A. Salter, C. B. Wital, and Golden Empress; Mr. CHANDER was a close 2nd, in this stand blooms of C. H. Curtis, Topaze Orientale, and a seedling being conspicuous; Mr. McHATTIE, 3rd.

BOUQUETS, &c.

Some nice bouquets consisting solely of Chrysanthemum flowers were shown. The 1st prize bouquet having been arranged by Miss TODD, Musselburgh. The same exhibitor secured also 1st prize with a pretty arrangement, for a basket of coloured foliage and berries, as well as for a basket of Orchid blooms, which was arranged with great taste.

POT PLANTS.

In nothing has there been so noticeably great an improvement as in the section devoted to pot plants, which every year exhibits marked advance; the present being no exception to the rule; and the prizes offered in the various classes for Chrysanthemums were competed for with examples of large size, and bearing the stamp of high cultivation. The chief prize was for six distinct varieties, excluding singles and Pompons. To Mr. CAVANAUGH, gr., St. Edwards, Murrayfield, was awarded the 1st place, his plants being very large, La Triomphante and Mr. W. Holmes particularly good; Mr. PULMAN, gr., Hollywood, Colinton, was 2nd with smaller specimens, bearing larger and fresher foliage, and blooms of better quality than the first mentioned; Mr. WALDIE, Dollarbeg, Dollar, was 3rd.

For four varieties Mr. CAVANAUGH was again 1st with plants

of equal merit with those shown in the former class; Mr. THOMSON, Prestonfield, 2nd. And for two varieties, Mr. CAVANAUGH the third time secured 1st place. Mr. HAWWELL, Tranet, obtaining the like for one specimen.

A series of prizes was also offered for single specimens in various colours, and also a few confined to amateurs.

In addition to the above, a number of classes were set apart for other seasonable flowers, among which the more remarkable included that for six pots of Roman Hyacinths, the whole of the examples staged being remarkably good; Mr. SHEARER was 1st for these; Mr. MCINTYRE, The Glen, Innerleithen, 2nd; and Mr. McMILLAN, 3rd. Begonia Gloire de Lorraine was also shown in good form, the six plants with which Mr. CHAPLIN, Dalkeith Road, carried away the 1st prize being in every respect models of high cultivation. The same grower secured 1st also for three of the same flower trained to a trellis. In this section was included a group of Chrysanthemums, foliage and other flowering-plants, arranged in semi-circular form, and for which substantial money-prizes were offered. Four groups were arranged, and they partially occupied the west-end of the market, Chrysanthemums largely predominating over all the other plants. The groups were all somewhat flat, though not ineffective, and to that furnished by Mr. JAMES WOOD was awarded the 1st prize. A number of small plants of *Salvia splendens* distinguished it from the others. Mr. JARDIN, gr., Ravelston, Blackhall, with a group remarkable for its dwarf Chrysanthemums, and the meritorious blooms these carried, was 2nd; and Mr. WOOD, Canaan Lane, was 3rd. A quantity of Palms and other decorative stove and greenhouse plants were also largely shown.

FRUIT.

Though the prizes offered for fruit were meagre, when compared with the handsome ones accorded to cut blooms, no deterrent effect followed so far as the quantity shown was concerned, quite a large number of exhibitors staging in the several classes devoted to Grapes and to Apples.

For four bunches of the first-named distinct varieties there was a strong competition, Messrs. BUCHANAN, of Kippen, securing 1st place with good examples of Black Alicante, Gros Colman, Cooper's Black, and Muscat of Alexandria. Mr. LESLIE, gr., Pitcaulden, 2nd, with Lady Hutt, fine; and Muscat of Alexandria, large in bunch, but hardly sufficiently finished. The last-named was 1st for two bunches, staging fine Alicantes and Muscats, and Messrs. BUCHANAN 2nd; who also secured 1st in the Muscat of Alexandria class with small clusters.

Messrs. MURRAY & SONS, Polmont, showed the finest Black Alicantes in a large class, and were also 1st with Cooper's Black in the "any other variety" class. Mr. WRIGHT, gr., Taymouth Castle, staged the best Gros Colman, Grand Grapes; the 2nd prize lot, from Mr. BEISANT, was almost equally fine; and Mr. PATERSON, Benochry House, Kirkcaldy, a close 3rd.

In a very well-filled class Mr. MCNEILD, gr., Peebles, secured 1st for Lady Downes; Mr. MCLEAN, gr., Greenfield, Alloa, 2nd, with finer-looking examples; and Mr. MCPHERSON, Donlola House, 3rd.

For two Pine-apples, Mr. MURRAY, gr., Gullezen Castle, Ayrshire, with fine smooth Cayennes, secured 1st place; Mr. MCINTYRE being 2nd.

There were two collections of fruit, Mr. KIDD, Carberry, being accorded 1st for fine Pears and Grapes, bulking largely in the collection; and Mr. MCINTYRE 2nd.

Apples, though numerous, were generally small in size, Mr. DAY, Galloway House, securing the chief prizes in the gardeners' section. The same exhibitor had 1st also for six varieties Scottish Pears; Mr. MCKINLAY, gr., Wreath Park, in the open class for six varieties, being 1st.

In a class set apart for market gardeners, six pecks of Apples, distinct, the finest examples came from Mr. PATERSON, Lochend, Dunbar, who contributed the 1st prize lot, and set up nice samples of Tower of Glamis, Warner's King, Cox's Pomona, Blenheim Orange Pippin, Prince Albert, and Kentish Fillbasket; Mr. COSSAR, Eskgrove, Inveresk, was 2nd, with slightly larger fruits; and Mr. MCCUTCHEON, Doonside, Ayr, 3rd, with beautifully-coloured samples.

VEGETABLES.

Large quantities of vegetables, of sorts suitable to the season, occupied the tables allotted to their exhibition. In quality they were generally good, but as a rule not so bulky as in some past years. The chief prize was offered for a collection of ten sorts, nine staging in the class, and judging by the difficulty experienced by the adjudicators in allocating the tickets, the general quality of the dishes must have been very even. Finally, Mr. CAMERON, gr., Birkbeck, Dundee, was placed 1st; 2nd, Mr. WARDIE, gr., Dollarbeg, Dollar; Mr. STUART, Thirlstone Castle, Lauder, 3rd.

Only three collections, consisting each of six sorts of vegetables, were shown, the prizes going in the order named, respectively to Mr. AULDJO, gr., Monzie Castle, Crieff; Mr. CAMERON, and Mr. LOGAN, Coldstream.

The chief items in the classes devoted to single dishes were Tomatoes, Cucumbers, Leeks, Celery, and Cauliflowers, all of which were well shown.

MISCELLANEOUS.

The most striking object in the whole of the exhibition was, undoubtedly, the arrangement contributed by Mr. JONES, Lewisham. It consisted of a lightly-mounded mass of Maidenhair and other Ferns, with groups of Begonia Gloire de Lorraine, arranged on a low, broad platform. Rising from this groundwork, were numerous tall, trumpet-shaped glasses and handsome vases filled with large Chrysanthemum blooms, mostly one kind in each vase. Sprays of Beech and

other trees in autumn tints, and browned fronds of *Pteris aquilina* were lavishly employed among the flowers, the whole furnishing an object-lesson in floral arrangement of great value. Unfortunately, the position allotted to Mr. JONES was one of the worst, as regards light, in the whole building.

Another pleasing arrangement in flowers was contributed by Mr. NORMAN DAVIS, Framfield, Sussex, in which high-class blooms of Japanese, such as Western King, Madame Carnot, Mutual Friend, G. J. Warren, and Mrs. Rozain were conspicuous for fine quality. Some vases furnished with blooms on long stems, and of exhibition quality, added greatly to the general effect. King of Plumes and Framfield Beauty, decorative varieties, attracted much notice, as did also Daisy Birch among single-flowered varieties. A small selection, drawn from various sections of Chrysanthemums, was also forwarded by Mr. WELLS, Redhill, Surrey; and Messrs. DONNIS & CO., Rothsay, sent for exhibition some of the earliest-expanded blooms from their nurseries. Scotch nurserymen were also represented by Mr. WHITEHEAD, Selkirk, who contributed a table of cut blooms.

Groups of Conifers in pots were arranged by Mr. DOWNIE, Beechwood; and by Messrs. LAIRD & SONS, Pinkhill.

Mr. FORBES, Buccleuch Nurseries, Hawick, exhibited a few plants of Begonia Caledonia, the white sport from Gloire de Lorraine, and to it a Certificate was awarded. Messrs. LAING & MATHER, Kelso, had a group of the last-named, along with examples of Carnation plants as cultivated for sale.

BRADFORD CHRYSANTHEMUM.

NOVEMBER 17, 18. The thirteenth annual show of this Society, held in St. George's Hall, proved a great success. The entries were far in excess of any previous show, and completely filled the large area of the St. George's Hall. Groups of Chrysanthemums were a special feature, there being eight staged for competition.

The "Cup" classes were keenly competed, and in the first class the prize of a 10-guinea Challenge Cup and £5 tempted fourteen exhibitors; Messrs. G. FAIRBAIRN & SON, Croft Nursery, Batcherby, Carlisle, proved the winner; and Mr. J. H. Goodacre, gr. to the Earl of HARRINGTON, Elvaston, 2nd. The 2nd prize stand contained some informal flowers of Madame Carnot and Mrs. Mease, and the decision of the judges was severely criticised. Messrs. FAIRBAIRN had some superb flowers in their winning stand, and included Julia Scaromanga, which received the award for the premier bloom in the show.

In the incurved classes, Mr. G. BURDEN, Birkenhead, carried off the premier honours with a fine lot of well-finished flowers.

The local Cup classes created a spirited competition, and the Lord Ma-ham Challenge Trophy fell to Mr. J. BROOKE, Heaton, for a grandly staged lot of blooms.

The Cup presented by the City Members of Parliament for eighteen Japanese blooms was keenly contested, and Messrs. H. CLARK & SON eventually emerged as the successful exhibitors. Local classes were well filled, and the most successful exhibitors were Messrs. MIDOBY, JOHN THORNTON, W. MOORBY, T. BIRD, J. MOORBY, J. WHITTINGHAM, and W. BUTTERS.

Some very fine Roman Hyacinths were staged by Mr. BUTTERS. Primulas, Cyclamens, and table plants were also very good, especially those exhibited by Mr. L. SHEARMAN.

The classes for Grapes were most interesting, and two bunches of Mrs. Pince and Muscat of Alexandria, staged by Mr. MIDOBY were excellent.

A delightful feature of the show was class 8, for twenty-four Japanese varieties shown in vases, three blooms of each variety, for a special prize presented by A. Musgrave, Esq., Messrs. FAIRBAIRN & SON, Carlisle, were successful among eight competitors.—Communicated.

CHELTENHAM ROOT, GRAIN, FRUIT, AND FLOWER.

NOVEMBER 16, 17.—Cheltenham on such an occasion as this brings together the farmer and the gardener, and affords an opportunity for them to put their productions into comparison. The farm produce, roots, grain, butter, &c., were all very good, and so were the Chrysanthemums, vegetables, and fruit.

Splendid groups of Chrysanthemums were ranged in semi-circles round the sides of the hall of the Assembly Rooms; that from Mr. Lusty, gr. to Col. ROGERS, again won the handsome Silver Cup offered; the blooms were very fine, and the grouping excellent. Mr. G. MARSH, gr. to T. P. W. BUTT, Esq., Arle Court, was a good 2nd.

Plants were shown in several classes. The Japanese varieties were, in most instances, very well bloomed, but foliage appears to be too often sacrificed to flowers. This was particularly the case with the incurved types. There were notable exceptions to this rule. It was said the plants were better than had been seen at Cheltenham for years past. Mr. BATES, gr. to W. M. BAKER, Esq.; F. RAE, gr. to Mr. SOUTHWOOD, Mr. LUSTY, and F. TAYLOR were the principal prize winners. The Baron DE FERRIERES' special prize for the best specimen Chrysanthemum in the show was won by Mr. B. MOORMAN, with a very fine example of Madame Carnot.

In the cut flower classes the competition was very keen. Mr. MARSH's 1st prize collection of twenty-four incurveds contained fine examples of Duchess of Fife, Miss D. and Miss Violet Foster, Lady Isabel (which, when refined makes a fine backrow flower), Edile. L. Faure, Hanwell

Glory, W. Carpenter, Ialine (which lacks refinement), King of Yellows, Miss Annie Hills, C. H. Curtis, &c. Mr. J. APPLIN, gr. to W. MEATH BAKER, Esq., was a close 2nd.

Mr. F. DAVIES was 1st with twelve blooms, also well-developed examples. There were several entries in the class for six incurveds: Mr. J. MULLEN was 1st with some excellent blooms.

The Japanese varieties made a fine display, the 1st prize for thirty-six blooms going to Mr. G. W. MARSH, gr. to T. P. W. BUTT, Esq., Arle Court. A few of his leading blooms were Mrs. H. Weeks, Lady Hanham, J. Chamberlain, Werther, Western King, G. J. Warren, Mrs. W. Mease, John Pockett, and Madame Carnot; Mr. LUSTY was a close 2nd, having some very fine examples.

In the class for eighteen incurved Japanese, Mr. LUSTY was 1st; chief among them were F. A. Bevan, Swanley Giant, R. Powell, Graphic, T. Carrington, Lady Ridgway, Mrs. Seward, &c.; a good even stand. Mr. MAY, gr. to H. O. LORD, Esq., was 2nd.

With eighteen Japanese, Mr. LUSTY was also 1st with some finely-developed blooms; and Mr. JAS. HORTLICK, 2nd.

There was a close competition in the class for twelve blooms also, and Mr. MAY was 1st with a good even dozen; Mr. Geo. BARROW, gr. to Dr. FERGUSON, was 2nd.

In the class for six blooms there was also a good competition. Mr. LUSTY also took the 1st prize with six vases of Chrysanthemums, Japanese, three blooms of each. Bouquets of Chrysanthemums, sprays, button-holes, &c., were also shown, and plants of Cyclamen, Mignonette, and Primulas.

Fruit made an excellent feature, many of the dessert Apples were of very fine quality.

There were classes for black and white Grapes, and also for vegetables. Messrs. BUTTON & SONS' special prizes brought a brisk competition. R. D.

ANCIENT SOCIETY OF YORK FLORISTS.

NOVEMBER 15, 16, 17.—The twentieth annual Chrysanthemum and Fruit Exhibition that is held under the auspices of the "York Florists" took place on the above dates.

The six entries for the larger groups of 120 square feet showed an increased competition, doubtless brought about by the valuable Cup offered by the Lord Mayor and the Sheriff for the past year (Ald. BRODER and Mr. J. J. HUNT), with 8 guineas added by the society, and a Cup (with 7 guineas added), given by Ald. PURCELL, for 2nd prize, whilst the 4th prize was given by Mr. J. E. SIMPSON, Mr. E. ALLEN, and Mr. G. F. W. OMAN.

The 1st honour fell to Mrs. WHITAKER, of Cliffe House, Heale (gr. G. Jarvis).

The other prize groups in the class were also admirable, whilst the smaller groups (100 square feet) attracted attention by reason of the cultural excellence rather than, as in the former case, of the effect produced.

The Citizens' Challenge Prize for thirty-six specimens, half incurved and half Japanese, was the great attraction for competitors in the cut-flower classes, in which a number of other special awards were offered. The ladies class was again very attractive; and contiguous to the interesting tables comprised in it were several exhibits of drawing-room mirrors decorated, which formed a new feature of the show, and a very pleasing one too.

The fruits and vegetables were a grand lot, the Grapes, as usual, being very tempting.

Speaking generally, the exhibitors exceeded 100, which was a dozen or so in advance of the last show. Prize-money also exceeded that of last year.

The orchestra was tastefully adorned with Palms and shrubs by Mr. J. KEV, and presented a picturesque appearance. Ornamental shrubs and plants were placed in front, and at each side Mr. C. PEPPER had prettily arranged diminutive fairy electric lamps.

The receipts at the door were £325 6s. 3d., and £11 15s. 9d. in excess of any previous record. 732 members have this year paid subscriptions of 5s. and upwards. Total £184 17s. 6d., and £10 5s. 6d. in excess of the highest record.

There was a dense fog in the evening of Friday, and cabs and omnibuses, &c., were unable to run.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 22.—A meeting of the Floral Committee was held on Wednesday last, at the Royal Aquarium, Westminster. A First-class Certificate was awarded to the following variety:—

Madame Von Andri.—A pale primrose-coloured sport from the popular Japanese variety, Mutual Friend. From Mr. LEES, gr. to F. A. BEVAN, Esq., Trent Park, Barnet.

The variety Miss Nellie S. Threlfall, a white incurved, with slight suspicion of lemon tint, shown by Mr. G. FOSTER, Glendaragh Gardens, Teignmouth, was Commended.

A Vote of Thanks was passed to Mr. WITTY, Superintendent of Nunhead Cemetery, who showed a group of plants of the variety "What Ho!"

The very fine blooms of the incurved Ialine were shown by Mr. W. HIGGS, Fetcham Park, Leatherhead, and just failed in obtaining a Certificate.

Pretty blooms of incurved variety Mrs. Hows (F.C.C. 1896) were shown by Mr. W. HOWE, gr. to Sir H. TATE, Bart. Streatham.

Mr. R. KENYON, Monkham Gardens, Woodford, showed Helen Shrimpton; and the DEVON CHRYSANTHEMUM COM-

PANTY, Telgmouth, a crimson Japanese flower with gold reverse, named F. G. Fowle.

This committee will meet but once more during the present season, on the occasion of the December show of the Society at the Royal Aquarium.

The Annual Dinner of the National Chrysanthemum Society is to take place on Wednesday next, the 29th inst., at the Holborn Restaurant, at 6.30 p.m. The Challenge Trophy, Holmes Memorial, and other Cups, Medals, &c., will be presented to the winners during the evening. The official circular specially invites the presence of ladies.

MISCELLANEOUS EXHIBITIONS

conducted by the following Societies have been held recently:—

Birkenhead and Wirral Horticultural.—On Nov. 30 Mr. H. May read a paper on the renovating of fruit-trees. The essayist dwelt upon the importance of doing this in an intelligent manner. Root-pruning and lifting the trees, together with a judicious thinning of the crowded spurs and branches, were considered primary points. Newly-chopped loam, lime-rubble, and charred-refuse, with an addition of bone-meal, were recommended as the best ingredients to use after the operation. It was recommended that all fruit-trees against walls should be lifted and root-pruned every third year. Cherries were excepted, as these were stated to resent frequent root-disturbance.

Highgate and District Chrysanthemum.—The fifteenth annual dinner of the above Society was held on Thursday, 23rd inst., at which the President, Mr. C. F. Cory-Wright, J.P., D.L., presided, and was supported by about eighty members and friends of the Society. Mr. W. H. Burks, a former president of the Society, proposed the toast of the evening, "The Highgate and District Chrysanthemum Society, coupled with that of the President. He remarked that on the fifteenth anniversary of their Society they might well feel inclined to blow their own trumpet, but he did not know that this was necessary, as the show spoke for itself. In toasting their President they were not only thanking him for what he had done in the past, but having accepted the office of President for another year they were living in lively anticipation of favours to come. The President in responding, said that he had been connected with the Society in one way and another ever since it was formed. He, unfortunately, could not be present at their recent show, but friends who were there, had informed him it was the best show they had ever seen in Highgate. The Silver Cups and Medals won at the second exhibition were then presented, and the President remarked that as there was only one cup left, he and Mr. E. H. Smithett would give a Silver Cup, to be competed for next year.

Shirley and District Gardeners'.—A monthly meeting was held on November 21, when a discussion took place upon the exhibits of the evening. There being a good display of Chrysanthemums, a number of members spoke on the subjects of "training," "diseases," and upon the usefulness of Chrysanthemums. One member, speaking as a naturalist, thought it desirable to raise plants from seeds instead of cuttings, considering that to raise plants continuously by the latter method, resulted in weakness of constitution and consequent susceptibility to disease. This point of view was debated at some length. Mr. E. J. Wilcox showed seeds of *Magnolia*, *Ampelopsis*, *Veitchii*, and *Catapa*; those of the last-named being very fine. The tree was said to be covered with them, and presented the appearance of a glorified Runner Bean.

Aberystwyth Chrysanthemum.—The second show was held on Nov. 15 in the Royal Pier Pavilion. The progress made by the society in the short space of twelve months has been considerable. The exhibits had increased to double, whilst the competitors included exhibitors from Shropshire, Hereford, and the lower part of Cardiganshire. One competitor exhibited in twenty-one classes, another in nineteen classes, another in twelve classes, and another in eight classes. In the open competition there were twenty-six classes, in the amateurs' six, and in the cottagers' six. In all the classes except one, there were over one entries, and in the majority of classes there were four, five, six, or seven entries. The special feature was the cut blooms, the finest class being the one in which a Silver Cup, value £5 (to be won twice before it becomes the property of owner), and £5 was offered as 1st prize; a Silver Medal and £3 as 2nd prize; a Bronze Medal and £2 as 3rd prize for the best twenty-four cut blooms, twelve Japanese distinct and twelve incurved. Lieut.-Colonel LLOYD, Aston Hall, Oswestry, won the 1st prize; Mr. THOMAS SPENCER, Ross, Hereford, the 2nd prize; Sir PLYSE PRYSE, Bart., Gogerddan, 3rd.

Leeds Paxton.—The eleventh annual show of Chrysanthemums was held in the Victoria Hall on November 14 and 15. Various other flowers, as well as foliage plants and some samples of choice fruits, are exhibited under the Society's auspices, but the feature of the display is the wealth of Chrysanthemums. The arrangement of the show was quite satisfactory. On the orchestra were tall Palms and foliage plants, forming a pleasant background for the musicians, and immediately below, in front of the orchestra, were displayed some choice bouquets and rare exotics. The two

large groups of plants, and the Chrysanthemum groups were ranged in the recesses at the sides, and next came the rows of cut blooms of various kinds, fruit and vegetables, covering the tables, which extended crosswise from the centre to the back of the hall beneath the Festival Gallery. The colouring, viewed from this end, was remarkably bright, contrasting effectively with the darker shades further away. Of the Chrysanthemum classes, the incurved varieties were excellent, both in symmetry, colour, and finish, the twenty-four blooms of not fewer than eighteen distinct specimens, which were shown by the Earl of Harrington, being voted among the finest staged this season. The competition in the class for a miscellaneous group of plants was confined to Sir JAMES KITSON and Mr. E. BECKETT FASER, and ultimately the judges agreed to divide the prize money, and award an equal 1st to each, for what one group lacked in brightness the other lacked in arrangement. The groups of Chrysanthemums, also, were noticeable for something too much of stiffness and flatness. The winner here was Mrs. TETLEY, Westwood; Mr. PETTINGER, Harrogate, was 2nd. Of open classes, 1st prizes for Chrysanthemums or other blooms fell to the Earl of Harrington, Sir James Kitson, Mr. P. Clark (Rodeley), Mrs. Taylor (Buckingham House, Headingley), and Mr. A. J. Hall (Harrogate); for fruits, to Mrs. Tetley, Mr. T. G. Mychreest (Allerton House), and Mr. A. T. Walker; minor honours being taken by Mr. J. Thornton (Drighlington), Mr. Pettinger (Harrogate), Mr. J. Clayton (Rothwell), Mr. A. Taylor (Leeds Covered Market), and Mr. J. R. Groundwell (Buslingthorpe). In the classes for gentlemen's gardeners and amateurs, confined within a radius of 6 miles from the Town Hall, Mr. Matthew Kitchen, Eller Close, Roundhay, took 1st prize for groups of miscellaneous plants.

Rugby Chrysanthemum.—The thirteenth Annual Exhibition was held on Nov. 15 and 16, and cut blooms especially were very good. For a group of Chrysanthemums and foliage plants, Mr. S. BENNETT, The Firs, Rugby (gr., Mr. Whyman), staged the best exhibit. Mr. O'Handler, gr. to ARTHUR JAMES, Esq., Cotton House, Rugby, had the best twelve Primulas; staging a dozen well-grown plants of the old double white. Of twenty-four Japanese blooms (distinct varieties), P. A. MUNTZ, Esq., Dunsmore, Rugby (gr., Mr. Blakeaway), was the only exhibit staged. The same competitor was 1st for eighteen Japanese blooms. For twelve Japanese blooms, Mr. PEARCE was 1st with some fine specimens of Madame Carnot, Mons. Pankoucke, Madame G. Henri, Mrs. W. Popham, G. C. Schwabe, Graphic, International, Edith Tabor, Mrs. J. Lewis, Vivand Morel, Mrs. Carrington, and Nellie Pickett; the last-named bloom won the Certificate awarded to the best Japanese bloom in the show. For twelve incurved blooms, Mr. PEARCE was the winner with nice blooms of John Lambert, Golden Empress, Violet Tomlin, Ma Perfection, Miss Violet Foster, Miss Mary Haggas, Miss Dorothy Foster, Queen of England, Lucy Kendall, Lord Alcester, Mrs. Heale, and Chas. H. Curtis. The National Chrysanthemum Society's Certificate was awarded to the last-named, as being the best incurved bloom in the show. There was a good display of fruit and vegetables, Mr. CHANDLER having the best Grapes; Mr. PEARCE, Mr. COLES, and Mr. JARRY being the chief winners in other fruit classes. Mr. COLES took leading honours for vegetables. H. K.

Longton Amateur Chrysanthemum.—The tenth annual exhibition of this Society was opened in the Town Hall, Longton, on Tuesday, November 14. The schedule comprised an open and amateur classes. In the open class the competition was keen, both in the incurved and in the Japanese section, the flowers in both divisions being remarkably good. Some splendid blooms were shown by Mr. McPHAIL, Superintendent of the Queen's Park, Longton, and took 1st prize. For incurveds, Mr. Holder, gr. to Lord FERRERS, Leicestershire, had an exceptionally well-grown lot, including two specimens of the green-coloured Mrs. Rogers. In the amateur division, there was a falling off in the entries for six cut flowers, but the collections that were shown were quite equal to former years. In the Japanese section, the competition was exceedingly keen, and both in the twelves and sixes, the flowers were very clean and well grown, and showed no traces of the smoky atmosphere in which they were grown, proving the great care which must have been devoted to their cultivation. The groups were only three in number, but these were well arranged, and contained a great variety of different forms both in Japanese and Chinese. The show of plants was not so good as in the case of some former years at Longton. Doubtless this was attributable to many of the growers preferring to show cut blooms, as on the whole there were a larger number of exhibitors in the cut bloom sections than formerly. The pretty Anemone section brought out a good competition.

Bristol & District Gardeners' Mutual Improvement Association.—The fortnightly meeting of this Society was held at St. John's Parish Room, Redland, on Thursday last, Mr. C. Lock presiding over a moderate attendance. The subject for the evening was "The Management of Bees," a paper being read by Mr. Kitley, of Redland. With the aid of a modern lar-frame hive and appliances, he made the subject very interesting, and showed how bees could be made not only profitable, but of much help to those interested in horticulture. He advised those of his audience who contemplated keeping bees to get at least an elementary knowledge of the subject before commencing, and gave many useful hints on manipulating, and the general management of bees. Mr. Kitley was cordially thanked for his lecture.

EARLY PEAS AND THEIR CULTURE.

It may appear rather early or rather late to write about Peas at this date, but most gardeners know that to have a regular supply from May to October, preparations must be made early in December, if the cool treatment be adopted. There are several methods, and as regards the forcing of Peas, one must study soils, position of the garden, and the variety grown; and I shall touch only briefly upon house or frame-culture from start to finish. I am not an advocate of sowing Peas in the open in autumn, there being so many difficulties to contend with, and the yield is uncertain on wet land; severe winters injuring the plants, as cutting winds also do after a spell of hard frost. My greatest successes with early Peas have been by sowing in pots early in December, and planting out early in the spring; but in this method much depends upon the locality. Peas may be grown successfully in the open with few difficulties in the southern shires, but only failure could be expected in northern ones; and a great deal always depends upon cultural details not necessary to go into here. If we take open air cultivation in the past, the only early Peas which were grown were the small varieties with blue, white, or green seeds—all much alike as regards quality, and lacking in flavour. These Peas had the merit of earliness, but the crop was soon over. The modern early Peas are larger than those, and their flavour much finer, besides being nearly as early. For the earliest crop from sowings made in the open ground, December is late enough; indeed, the first week in November is more advisable, it being of importance that vigorous root-growth takes place before mid-winter, and for this purpose some of the more robust dwarf-growers are very trustworthy, viz., Daisy, Early Morn, and Sutton's Bountiful, which are excellent out-of-doors, and equally good for growing in pots. The well-known Chelsea Gem is sown at Syon in pots, and also in frames, for which purpose its dwarf habit, earliness, and free bearing, are especially fitted. There is no lack of excellent Peas for early sowing, and it would be easy for me to name a dozen, all of which are reliable; indeed, so much attention has been paid to early varieties, that we now possess Peas which have size, quality, and true marrow-fat flavour, together with earliness. It will be understood that these early sowings should be made on south, or, at any rate, sheltered borders, and the seeds must be lightly covered. My own practice is to make rather deep drills; when by only partially filling these, a ridge of soil is left that forms a protection against the wind.

In heavy land the seed should be covered with soil of a lighter nature, such as leaf-mould or siftings from the potting-bench. It is prudent to sow the seeds more thickly than is necessary when the soil is warmer. Mice are often very troublesome, scratching out and eating the autumn-sown peas, that it is well to keep the sowings far away from buildings, and have traps constantly set.

The best returns are without doubt obtained from Peas sown in pots, say from December to March, and then planting them outside, grown in this manner there may be failures, but this mostly occurs by reason of coddling the seedlings by affording too much warmth, and not fully hardening them off before transplanting. The latter evil may be surmounted by sowing early, and using no artificial heat, but employing cold frames, merely affording a covering of litter over ordinary mats during severe weather. The plants suffer scarcely at all if grown cold, kept near to the glass, and afforded ample ventilation in mild weather. It will be well not to crowd the seed, but to sow six to nine seeds on the surface of the soil in 4½-inch pots, and to thin-out the weaker plants, leaving six of the strongest. Cool-grown Peas give less trouble in the spring, and they do not feel the change when transferred to the open ground.

There is no difficulty in having Peas fit for

consumption in the second or third week in the month of May from plants started in pots as advised, and there is, on the whole, but little trouble attending their cultivation; where pots are not liked, troughs, drain-tiles, or sods, may be employed. I have used 6-inch pots to advantage, and no drainage other than spent Mushroom-manure, as then the roots get less broken when shifting the plants to the open ground. As regards the transplanting, much will depend upon the weather at the time, and no strict date can be given; but the first week in March is the best time, although the work may extend to the end of that month. The growth being then well-advanced, the work must be carefully done, and the soil well-trenched, and not manured with dung, and a sheltered position chosen for the sowing. The varieties I have named will answer for the sowing, and I have sown Gradus and other large growers; and these, if a little late, are worth growing.

If Peas are forced under glass, only those of dwarf growth should be chosen; and of these, none is superior to Daisy, Bountiful, or Early Morn, which possess a marrow-fat flavour, the haulm of which may be advantageously topped at 2 feet from the ground, and it will throw out lateral shoots freely that will bear pods. Grow them from the start in 8-inch pots. I prefer to sow in this size of pot, leaving four to six or fewer plants. *G. Wythes.*

NOTICES OF BOOKS.

ORNAMENTAL SHRUBS FOR GARDEN, LAWN, AND PARK PLANTING, ETC. By Lucius D. Davis. (G. P. Putnam's Sons.)

THIS book, as its sub-title tells us, is specially intended to set forth the capabilities of the numerous species, native or foreign, suited for cultivation in the United States.

Botany, says the author, in a phrase that requires considerable modification, deals chiefly with fixed forms, as represented by orders, genera, and species, and takes little or no note of such varieties as are constantly making their appearance throughout the world. These varieties, however, are often more valuable for horticultural purposes than the species from which they sprang. Accordingly, we find, to take one illustration only, several varieties mentioned under the head of "Deutzia," such as *Deutzia crenata* var., *candidissima plena*, *scabra*, *Watereri*, *Lemoinei* x, *discolor* var. *purpureascens*, "Pride of Rochester," a form of *D. crenata* sent out by Messrs. Ellwanger & Barry, &c. These varieties are briefly described, and their merits assessed. There seems to be no sort of order, arbitrary or botanical, but that is of the less consequence, as an index is provided. Nevertheless, we think the most careless amateur would like to have the shrubs arranged according to their natural orders; to have, for instance, the *Kalmias*, *Rhododendrons*, *Azaleas*, *Heaths*, &c., grouped under the order to which they belong, instead of being scattered higgledy-piggledy throughout the volume.

The book is largely a compilation, but it is well done, and the illustrations are pretty, and some of them new. Three are curiously misnamed, such as *Weigela rosea*, for which *Kerria japonica* does duty; *Stuartia pentagyna*, represented by *Shortia*; and *Elaeagnus longipes*, for which a Crab Apple is shown.

In spite of the defects we have mentioned, the book is likely to be useful, especially to those who would otherwise find a difficulty in procuring information about the newer varieties.

A PRACTICAL INTRODUCTION TO THE STUDY OF BOTANY: FLOWERING PLANTS. By J. Bretland Farmer. (Longmans, Green & Co.)

AN excellent introduction drawn up by a master hand. The general conformation of flowering plants is explained, illustrations being selected from common plants, mostly easily obtainable.

The details relating to the minute anatomy or histology are treated with even greater skill; indeed, we know of no elementary work wherein this department is better or more clearly elucidated. Physiology is perhaps too meagrely represented. The latter part of the volume is devoted to demonstrations and illustrations of plants belonging to various natural orders, though strangely enough, we do not find any explanation of what the meaning of natural orders is, nor of the significance attached to "genera," species, or variety. A series of questions at the end of the volume serves to direct the students' attention to the main points for study.

Obituary.

ISAAC MATTHEWS.—On the 10th inst. occurred the death at his residence, Light Oakes, Milton, Stoke-on-Trent, of Mr. Isaac Matthews, senior partner of the firm of Isaac Matthews & Sons, nurserymen and seedsmen. Mr. Matthews, who was in his seventy-third year, was born at Wetley Moor, where his father was the proprietor of a small nursery of about two acres. Upon the death of his father this nursery was acquired by the gentleman now deceased, who soon afterwards obtained an additional eight acres, and later the Milton Nurseries of fifty-two acres, and a quarter of a century ago the Light Oakes and Bagnall Nurseries, making together near upon 150 acres. Trees and shrubs were a specialty in the business. Deceased, who was well known in the midland markets, leaves a widow and eleven children, eight sons and three daughters. Several of the sons are directly associated with the firm, and the business will be conducted by them as formerly.



The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DIRECTION.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (-) the Mean for the week ending November 18.	ACCUMULATED.				More (+) or less (-) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 45° for the Week.	Below 45° for the Week.	Above 45°, difference from Mean since January 1, 1899.	Below 45°, difference from Mean since January 1, 1899.					
0	8 +	29	8	+ 364	- 47	1	302	45.7	10	28
1	3 +	31	16	+ 305	- 8	6	177	29.4	10	32
2	2 +	30	9	+ 332	- 117	5	153	21.1	21	38
3	1 +	30	12	+ 406	- 214	6	139	20.8	13	43
4	1 +	25	12	+ 390	- 152	6	137	23.4	14	40
5	2 +	36	2	+ 567	- 307	7	121	22.9	31	47
6	3 +	29	3	+ 228	- 89	8	195	45.3	5	32
7	2 +	29	3	+ 395	- 169	8	169	32.4	24	38
8	3 +	45	0	+ 628	- 137	10	158	34.2	35	46
9	5 +	42	0	+ 339	- 106	4	200	32.8	13	34
10	4 +	50	0	+ 474	- 88	8	165	35.4	31	38
*	3 +	60	0	+ 871	- 68	9	147	24.7	55	53

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London. *Principal Graining, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending November 18, is furnished from the Meteorological Office:—

"The weather during this week was fair and dry over the Kingdom generally. Considerable rain was experienced, however, in the north of Scotland during the earlier half of the week; and a good deal of fog or mist prevailed later on in most inland localities.

"The temperature was again above the mean, the excess ranging from 1° in 'England, E.' and the 'Midland Counties,' to between 4° and 5° in Ireland. The highest of the maxima were registered either on the 18th or 14th, and ranged from 60° in the 'Channel Islands' and 'England, N.W.,' to 56° in 'England, E.' Towards the end of the week the daily maxima became gradually lower, until on Saturday that at Loughborough (where thick fog prevailed) was no higher than 32°. The lowest of the minima were recorded on the 16th in Scotland, and on the 18th in England and Ireland; they ranged from 28° in 'Scotland, E.,' and 24° in the 'Midland Counties' and 'England, N.W.,' to 31° in 'England, S.' and 'Ireland, N.,' 36° in 'Ireland, S.' and to 42° in the 'Channel Islands.'

"The rainfall was nearly equal to the mean in 'Scotland, N.,' but much less in all other districts, although some isolated places in the extreme north-west of Ireland reported large amounts. In many parts of the Kingdom the rainfall was scarcely appreciable, and in others it was entirely absent.

"The bright sunshine varied considerably in different districts, but in most instances it was above the mean—especially in the 'Channel Islands.' The percentage of the possible duration ranged from 55 in the district just named, and from 35 in 'England, S.W.,' and 31 in 'England, S.' and 'Ireland, S.,' to 13 in 'England, E.,' 10 in 'Scotland, N.,' and 5 in 'Scotland, W.'"

MARKETS.

COVENT GARDEN, NOVEMBER 23.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantums, p. doz.	5 0-7 0	Ferns, small, per 100	4 0-6 0
Arbor-vitæ, var., doz.	6 0-36 0	Ficus elastica, each	1 6-7 6
Aspidistras, p. doz.	18 0-36 0	Foliage plants, var., each	1 0-5 0
— specimen, each	5 0-10 6	Heliconias, each	15 0-105 0
Crotons, per doz.	18 0-30 0	Lilium Harris, doz.	30 0-40 0
Dracenas, var., doz.	12 0-30 0	Lycopodiums, doz.	8 0-4 0
— viridis, per doz.	9 0-18 0	Marguerite Daisy, per dozen	8 0-12 0
Ericas, var., per doz.	18 0-36 0	Myrtles, per dozen	6 0-9 0
Eunonymus, various, per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var., per dozen	4 0-18 0	— specimens, each	21 0-63 0
Ferns, in variety, per dozen	4 0-18 0	Pelargoniums, scarlet, per dozen	6 0-8 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per bushel:		Lemons, Malaga, chest	16 0 —
— Kings	4 0-6 0	— Messina, case 360	12 0 —
— Ribstonas	4 0-8 0	— Palermo, case	18 0 —
— Blenheimas	4 0-6 0	Lyches, Chinese, new, pkt., 1 lb.	1 0-1 2
— Nova Scotia, various, barrel	12 0-17 0	Medlars, in boxes	1 0 —
— Canadian New Town Pippins, barrel	24 0 —	— English, in sleeves	4 0 —
— Cox's Orange Pippin, bushel	8 0-16 0	Oranges, Teneriffe, case of 80 to 100	5 0 —
— Wellingtons, bah.	4 0-7 0	— Jaffa, case of 144	10 0 —
— Various Cooking, per bushel	1 0-2 6	— Lisbon, case	12 0 —
Bananas, per bunch	7 0-10 0	— Murcia, case of 420	5 6 —
Chestnuts, per bag	7 6 —	— Valencia	10 0-12 0
— in sacks, Italian	16 0-18 0	— Tangerine, boxes	1 0-1 6
Cobnuts, per lb.	0 6-0 7	Pears, Californian, cases	8 0-8 6
Cranberries, case	11 0 —	— stewing, per sieve	3 0-3 6
— American, per qt.	0 6 —	— French Duchesse, case of 28 or 36	5 6-6 0
— Eggs (Russian)	2 0 —	— Glout Moroccan, crates of 18x21 or 24 fruits	8 0-8 6
Grapes, English, Alicante, per lb.	0 10-1 8	Pines, each	1 6-4 6
— Belgian	0 6-1 0	Sapota Nuts, per lb.	1 3 —
— Gros Colmar, per lb.	0 10-1 8	Walnuts, Grenoble, shelled, p. bag	4 6-5 6
— Muscats, A., per lb.	1 6-3 0	— French, sacks, shelled, 45 kilo.	10 0-12 0
— Almeida, bis.	12 0-20 0		
Lemons, Naples, per case of 420	27 6 —		
— small case	12 0-15 0		

POTATOS.

Puritan, Snowdrop, Main Crop, Up-to-Date, &c., 60s. to 90s. John Bath, 32 & 34, Wellington Street.

REMARKS.—Melons and outdoor Mushrooms are now over for the season. Spinach is now coming in fuller supply, hitherto it has been scarce, owing to the late drought. Cabbages, Cauliflowers, and Savoys are coming in good quality and numbers, realising fair prices. Apples are about the same as last week, but there is no demand for small-sized or common sorts.

OUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. d.		s. d. d.
Arum Lilies, dozen blooms	8 0-10 0	Maidenhair Fern, var. doz. bunches	4 0-6 0
Asparagus "Fern," bunch	2 0 2 6	Odonoglossums, per dozen	4 6-9 6
Carnations, per doz. blooms	2 6-5 0	Marguerites, p. doz. bunches	8 0-4 0
Cattleyas, per dozen	15 0-18 0	Mignonne, doz.	4 0-6 0
Mucharia, per dozen	6 0-8 0	Roses indoor, per dozen	2 0-6 0
Gardenias, per doz.	2 6-5 0	— Tea, white, per dozen	2 6-8 6
Gladiolus Brencleyensis, 12 spikes	4 0-6 0	— Yellow, Perles, per doz.	3 0-6 0
Lilium Harrisii, per dozen blooms	6 0-9 0	— Safrano, per doz.	2 0-2 6
Lilium longiflorum, per dozen	5 0-8 0	Smilax, per bunch	8 0-4 6
— lancifolium album, per dozen	6 0-4 0	Tuberose, per doz. blooms	0 8-0 9
— lancifolium rubrum, per doz.	3 0-4 0		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. d.		s. d. d.
Artichokes, Globe, per doz.	3 0 —	Horsedradish, foreign, p. bundle	1 0-1 8
— Jerusalem, per sieve	2 0 —	Leeks, per dozen bunches	1 6 —
Asparagus, Spruce, per bundle	0 6 —	Lettuces, French, per dozen	1 6 —
— Paris, Green, per bundle	5 0 —	Cabbages, per dozen	1 6 —
Beans, Channel Islands, Dwarf, per lb.	0 6-0 10	Mint, new, Ch. Is., p. doz. bunches	6 0 —
— French, lb. pkt.	0 4-0 5	Mushrooms, house, per lb.	1 3 —
— French, in sieves, per lb.	0 4 —	Onions, bags	4 6-5 0
Beetroot, new, doz.	0 6-0 9	— Onions, picklers, in bags	2 6-3 0
— in bush	1 6 —	— Valencien, cases	5 0-5 6
Brussels Sprouts, p. sieve	1 0-1 3	Parley, per dozen bunches	1 6 —
— per bushel	2 0 —	— per sieve	1 0 —
Cabbages, tally	3 0-4 0	Parsnips, per dozen	0 6-0 9
— dozen	1 0-1 6	— bag	8 6 —
— Savoye, p. tally	4 0-7 0	Potatoes, Hebrons, Snowdrift, &c. per ton	60 0-90 0
Cardoons, each	1 3 —	Radishes, round, breakfast, per dozen bunches	1 6 —
Carrots, English, p. dozen bunches	2 0 —	Salad, small, punnets, per dozen	1 2 —
— good, cwt. bags, washed	2 6-8 6	Salsify, bundle	0 4 —
Cauliflowers, dozen	1 0-2 0	Seakale, per dozen punnets	15 0-18 0
— tally	8 6-7 6	Shallots, per lb.	0 4 —
Celeriac, per dozen	2 6 —	Spinach, Winter, per bushel	2 6 —
Celery, red, p. roll	0 10-1 4	Tomatoes, English, per lb.	0 4-0
— white, do.	0 8-0 10	— new	0 8 —
Colewort, p. bush	0 9-1 0	— Channel Islands, p. lb.	0 3-0 3 1/2
Cress, per dozen punnets	1 6 —	— Canary, deeps.	1 6-3 0
Cucumbers, doz.	3 0-4 6	Turnips, per dozen bunches	2 0 —
Endive, new French, per dozen	1 6 —	— cwt. bags	1 9-2 6
— English, p. score	1 6 —	Watercress, p. doz. bunches	0 4-0 6
— Batavian, doz.	1 6 —		
Garlic, new, per lb.	0 2 —		
— per cwt.	14 0 —		
Horsedradish, English, bundle	2 0-2 6		

SEEDS.

LONDON: November 22.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to-day's seed market was thinly attended, with but few transactions passing. Meantime, Clover-seeds all round, although quiet in demand, are steady in value. The late consignment and remarkable export movement of fine yearling English Reds to the Continent, and at good prices, is a thing quite unprecedented in the trade. Rape-seed is firm at the recent advance. There is no change in Mustard, but Linseed is weaker. In bird-seeds the sale is just now sluggish. Haricots exhibit an improved tone. Blue Peas meanwhile remain featureless. Tares are neglected.

FRUIT AND VEGETABLES.

GLASGOW: November 22.—The following are the prices realized since our last:—Canadian Apples, Kings, 16s. to 22s. per barrel; Baldwins, Greenings, Spies, &c., 14s. to 18s.; American Apples: Baldwins, 8s. to 10s. per barrel; Northern Spies, 10s. to 12s. do.; various other sorts, 8s. to 10s. do. Pears: Californian, Bourré Clairgeau and Winter Nellis, 12s. to 14s. per box; French, Bourré Magnifiques, 7s. to 7s. 6d.; Glout More aus, 8s. to 8s. 6d.; Easter Bourré, 7s. to 7s. 6d. per case. Grapes, Almelra, common, 7s. to 10s. per barrel; medium, 12s. to 16s. do.; best, 20s. to 25s. do.; English, 9d. to 1s. 9d. per lb.; Bananas, extras, 9s. to 10s. per box; No. 1, 7s. to 8s. do.; No. 2, 5s. to 6s. do.; Lemons, Malaga, 16s. to 18s. per half chest; Palermo do., 4s. to 5s. per box; do. new Messina 10s. to 12s. per case; Oranges, Valencia, ordinary 420's, 13s. to 16s. per case; Mushrooms, 1s. 6d. to 2s. per lb.; Tomatoes, English, 3d. to 5d. do.; Scotch, do., 4d. to 8d. do.; Onions, Valencias, 5 in a row, 5s. per box; do., 4 in a row, 4s. 6d. do.; Parsnips, 3s. 6d. to 4s. 6d. per cwt.; Leeks, 2s. to 3s. per dozen bunches; Cucumbers, 3d. each; Beetroot, 6d. to 1s. per dozen; Spinach, 2s. 6d. per stone; Celery, 10d. to 1s. per dozen; Turnip, 10d. to 1s. per dozen bunches; Carrots, 8d. to 10d. do.; Parsley, 6d. to 8d. do.; Cabbages, 8d. to 1s. 3d. per dozen; Cauliflowers, 8d. to 1s. 4d. do.

LIVERPOOL: November 22.—Wholesale Vegetable Market.—Potatoes, per cwt.: Lynn Grays, 2s. 9d. to 3s. 3d.; Giants, 2s. 8d. to 3s.; Main Crop, 3s. 6d. to 4s. 3d.; Bruce, 2s. 10d. to 3s. 6d.; Turnips, 10d. to 1s. per dozen bunches; Carrots, 1d. to 10d. per dozen bunches, and 3s. 6d. to 4s. per cwt.;

Parley, 6d. to 8d. per dozen bunches; Onions, English, 5s. to 6s. 6d. per cwt.; do., foreign, 3s. 6d. to 4s. 3d. do.; Cauliflowers, 8d. to 1s. 3d. per dozen; Cabbages, 8d. to 1s. 3d. do.; Celery, 10d. to 1s. do. St. John's.—Potatoes, 1s. per peck; Grapes, English, 2s. to 2s. 6d. per lb.; do., foreign, 4d. to 6d. do.; Cobnuts, 10d. per lb.; Mushrooms, 1s. 6d. per lb., and basket; Cucumbers, 6d. each. Birkenhead.—Potatoes, 10d. to 1s. per peck; Cucumbers, 6d. to 1s. each; Filberts, 10d. per lb.; Grapes, English, 1s. 6d. to 3s. 6d. do.; do., foreign, 4d. to 8d. do.; Mushrooms, 1s. to 1s. 6d. do.

CORN.

AVERAGE PRICES OF BRITISH CORN (per imperial qr.), for the week ending November 18, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat	28 1	36 1	- 8 0
Barley	28 5	36 4	- 8 1
Oats	17 2	16 7	- 0 7

GARDENING APPOINTMENTS.

MR. CHARLES HOPE, for the past four and a half years Gardener to G. M. ARTHUR, Esq., Morthen Hall, Rotherham, has removed with that Gentleman to Dinnington Hall, Rotherham.

MR. CHAS. STRAUHAGEN, for over three years General Foreman in the Gardens, Stoke Edith Park, Hereford, as Head Gardener to J. CORBETT, Esq., Ynys-Macngwyn, Towyn, Merionethshire, N. Wales.

MR. PHILIP GADBURY, late of JAMES VEITCH & SONS, LIMITED, King's Road, Chelsea, as Head Gardener to J. B. AKROYD, Esq., Chalfont Park, Slough, Bucks.

MR. WILLIAM DYER, for the past four years Foreman at Lullingstone Castle, Kent, as Head Gardener to J. H. JOHNSTONE, Esq., M.P., Bignor Park, Petworth, Sussex.

CATALOGUES RECEIVED.

PLANTS, BULBS, SEEDS, FRUIT AND OTHER TREES, SUNDRIES, ETC.

JAS. COCKER & SONS, Aberdeen, N.B.
THOS. KENNEDY & Co., High Street, Dumfries, N.B.
LITTLE & BALLANTINE, Carlisle.
BEN REID & Co., Nurserymen, Aberdeen, N.B.
HERD BROTHERS, Penrith.
CLARK BROS. & Co., 65, Scotch Street, Carlisle.
WILL TAYLOR, Osborn Nursery, Hampton, Middlesex.
DICKSONS, LTD., Chester.
JOHN COWAN & Co., LTD., Gateacre Nurseries, near Liverpool.
J. M. THORBURN & Co., 36, Cortlandt Street, New York, U.S.A.
OSMAN & Co., 132 and 134, Commercial Street, London, E.
HOOD & WOOD, Coldstream and Duns, N.B.
W. FELL & Co., Hexham.
F. MOREL & FILS, 33, Rue de Souvenir, Lyon-Vaise, France.

TRADE NOTE.

MR. ARTHUR ROBINSON, of 1A, Bishopsgate Street Without, has purchased the florist and seed business at Putney, lately carried on by Mr. W. A. Holmes, and formerly by Messrs. Mahood & Son.

ANSWERS TO CORRESPONDENTS.

BOOKS: A. T. C. Joscelyne. *Nature* is published by Messrs. Macmillan & Co., St. Martin's Street, Leicester Square, London, W.C.; and *Fern Growing* by John C. Nimmo, 14, King William Street, Strand, W.C.

CHRYSAETHUM SHOW: R. K. It is quite impossible for us to fully report even the most important of these and similar exhibitions. If details of 3rd and 4th prize exhibits were given, we should have no room for anything else. In former times the awards were treated as advertisements, and paid for by the Societies. Our publisher would no doubt not object if the practice were revived.

LAWN TENNIS COURT: J. H. A court for the single game, that is, for two persons, is 27 feet wide and 78 feet long. The court is divided across the centre by the net. The "service lines" are parallel to the net, and 21 feet distant from the same. A court for three-handed or four-handed games should be 30 feet wide, and the same length as the smaller court, and the posts for supporting the net should be placed 3 feet beyond the sides.

NAMES OF FRUITS: P. 1, King of the Pippins; 2, Stirling Castle; 3, Maux Codlin; 4, Lewis's Incomparable; 5, Scarlet Nonpareil.—M. N. 1, Hornes's Pearmain; 2, Dumelow's Seedling; 3, Forge Apple; 4, Cornish Aromatic; 5, Gas, coigne's Scarlet Seedling; 6, Bismarck.—W. R. S. 1, Lane's Prince Albert; 2, Cox's Orange Pippin; 3, Mère de Ménage; 4, Gloria Mundi; 5, Hambledon Deux Ans; 6, Hoary Morning.—Enquirer. 1, Blenheim Pippin; 2, Adam's Pearmain; 3, Pear Beurré Diel.—H. P. A. Winter Codlin.—Alpha, Norfolk. Pear Grand Soleil; Apple Cellini.—G. J. 1, Beurré de Wetterin; 2, not recognised; 3, Beurré Lefebvre; 4, Alfriston; 5, Caroline; 6, Ord's Apple.—H. S. W. 1, Beurré Clairgeau; 3, Bergamotte Delays; 4, Bergamotte Thounin; the others were quite unrecognisable, owing to over ripeness.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—W. E. G. Cotoneaster multiflora, Bunge.—M. C. Cedronella mexicana var. cana.—G. C. A species of Cotyledon, which we cannot name without the flowers. The true ice plant is Mesembryanthemum crystallinum.—J. McL. 1, Pteris Regina cristata; 2, Selaginella Wildenowii; 3, two plants, the green one, Pteris serrulata cristata, the other, same as No. 1; 4, Pteris oretica albo-lineata; 5, Pteris longifolia; 6, Ruscus androgynus.—W. C. Euonymus europæus (Spindle Tree).—J. W. Oncidium unguiculatum, said by some authorities to be a variety of O. tigrinum, but differing in the elongated labellum.—White Card-board Box. No Name. Epidendrum inversum.—S. 1, Hippophae rhamnoides; 2, Escallonia macrantha.—G. W. We are unable to name the Swiss Aster.—S. Wright. Hemanthus puniceus (Waved-leaved-Blood-flower).

SITUATION AS GARDENER IN AUSTRALIA: S. S. J. Advertise in these columns, or in some of the Colonial papers. There are many good situations to be had, but it would be prudent to go out and see for yourself.

SOLDIERS' WIDOWS' AND ORPHAN FUND: G. M. B. We do not think your plan feasible or desirable. Each of us has already made or will make his contribution; and each of us is, probably, willing to repeat it when requisite. Whilst acknowledging to the full our duty as citizens, we must in these pages give precedence to the claims of the gardeners' orphans, and of necessitous gardeners.

SUNDIAL: J. C. You must first ascertain the longitude of the place in which the dial will be set, and the true time for the place, and then at the summer or winter solstice, so to arrange the dial as to afford the right time. The metal disc on which the hours are marked being moveable, it is easy to do this.

SWEET'S GERANIACEÆ: H. W. You have only one volume. Apply to some second-hand bookseller. It is not very scarce.

VIOLET LEAVES DISFIGURED: Pontypool. No fungus; but cold drip is probably the cause.

VIOLETS MARIE LOUISE: A. B. An excellent lot of blooms.

WATER-PLANT: J. W. A Conferva-like plant, of which we will endeavour to give the name later on. See letter in to-day's issue.

YELLOW ANTS IN GLASSHOUSES: A. L. You seem to have tried every known antidote, and we regret to be unable to advise you further on the matter.

COMMUNICATIONS RECEIVED.—J. H. Howell.—C. W. D.—H. D. N.—J. W.—Major B.—W. L.—T. R. & Co.—E. White-way.—T. G.—J. M.—A. H.—Expert.—H. M.—A. O'N.—F. B.—A. C.—J. P. Sydney.—W. R.—T. Christy.—W. G.—J. O'B.—W. H.—Countess of I.—Rt. Hon. J. C.—G. C.—D. R. W.—H. W.—R. C. B., next week.—C. T. & Co.—Earl of A.—G. N.—N. E. B.—A. C., Verviera.—H. J. V.—A. D. N.

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardener's Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE Gardeners' Chronicle

No. 675.—SATURDAY, DEC. 2, 1899.

THE ITALIAN LAKES.

LEAVING Lucerne by the night express, and by the Brindisi route through the St. Gothard tunnel, no views of the scenery could be obtained of the Swiss mountains, nor could any sight be had of the spiral windings of the St. Gothard tunnel as the train proceeded on its journey to the highest point, and then descended in the same manner towards the plains of Lombardy. When daylight dawned, the first indication of luxuriant growth was to be noted in the waving fields or patches of Indian Corn scattered along the line of route. Thence onwards, until Lugano was reached, there was ever-varying scenery and vegetation to attract the eye. At Lugano a stop was made for breakfast, thence onwards by steamer down the Lake of Lugano, and by rail again to reach Menaggio, a railway station upon the Lake of Como. As soon as we emerged from the station at Lugano, the gardens began to claim attention by reason of the luxuriant growth of the Palms, Bamboos, &c. Proceeding down the lake, the one plant above all others that stood out conspicuously was the Oleander (*Nerium Oleander*); these were then just in their full beauty, thriving apparently in varied situations, but, generally speaking, near to the walls by the lake-side. Varieties of Hibiscus and of Aralias were also noticeable, whilst the Olive was present in large numbers upon the lower slopes of the mountains, where they dipped into the lake.

Leaving the steamer at Porlezza for the train again, a short railway journey upon this small railway soon brought us within sight of Como, but the gradients to be descended were very steep, hence it took time to complete the journey. Through this line of route both Figs and Walnuts were noted along the sides of the railway.

Having missed the steamer at Menaggio, an opportunity was afforded of performing the rest of the journey to Cadenabbia in the characteristic boat of these lakes—the gondola.

CADENABBIA, VILLA CARLOTTA.

The vegetation around this favoured spot is most beautiful, varied and luxuriant. An excellent use is made of the Plane-tree for forming shaded walks during the heat of the day by the side of the lake. The gardens attached to the Villa Carlotta are situated upon the southern slope of a range of mountains, of which Mount Galbige is the chief, being only separated from the lake by the roadway. No more picturesque spot for a garden could well be found, and the utmost use has been made of the natural surroundings to produce a lovely effect. The vegetation here is luxuriant in the extreme, aided by the water descending from the higher grounds, and from the evaporation of the lake itself. The gardens are entered from the

immediate front of the villa, and steps at once have to be ascended. No attempt, or but little, is made to adopt any formal style; true, there was a little display of carpet bedding, but it was toned down by the use of larger foliage plants up to the giant *Musa Ensete*. Conifers, it may be imagined, were here perfectly at home; such as the following were specially noteworthy—*Araucaria brasiliensis*, *Cryptomeria japonica*, *C. Veitchi*, and *Cupressus funebris* (up which a scarlet Rose was climbing, a variety we did not recognise). *Cedrus Deodara* was very fine, as well as many other Coniferous subjects not hardy in England. Both *Camellias* and Indian *Azaleas* thrive in an amazing manner; so also do the *Myrtles*, *Pomegranates*, and *Oranges*. Of the latter, in combination with Citrons, and others of the same family, a long pergola was well clothed. The effect thus produced was such as we cannot hope to attain unto in this country; the nearly ripe and ripening fruits on these were hanging over the walk in great profusion. The Bamboos alone are a feature in themselves; the varieties present in the greatest quantity were *Bambusa japonica*, with large growths fully 30 feet or more in height, which arched gracefully over the walks; *Arundinaria Falconeri*, 30 feet high, which made handsome specimens, one upon the grass being specially good; *Phyllostachys viridi-glaucescens*, *P. aurea*, and other varieties were also well represented, all of imposing dimensions, such as we can scarcely hope to attain to in England. Climbers were made free use of, and generally, too, in as natural a manner as possible, many clinging for support to other plants; these included *Bignonia grandiflora*, amongst other good things. The *Magnolias*, chiefly *M. grandiflora*, form noble symmetrical specimens, clothed from base to summit with most luxuriant foliage and dense growth—the flowering season was over; the tallest were from 35 to 40 feet high. Palms, it might be assumed, would, under these conditions, also thrive well; many of them are huge specimens. Note was made of *Brahea speciosa*, *Chamærops humilis* (very fine), and *C. excelsa*; *Phoenix* in variety, varieties of *Acalypha*, as *A. Macfeeana*, dotted here and there added to the effect; *Caladium esculentum*, *Papyrus antiquorum*, with *Funkias* in variety, well clothed with foliage, were used with excellent effect. Many flowering shrubs which with us in England have to receive the treatment of a temperate-house, grow there in the free manner one delights to see; the season of these was, however, over. But the scarlet Hibiscus was most effective still, and so was *Russelia juncea*, a plant we seldom see grown well in this country.

Especially good effect was produced in one spot, a ravine or dell, in which Bamboos and Ferns were luxuriating. The colour effect in this charming spot was produced by *Hydrangea Hortensia*, with its rich blue trusses of flowers. In dry, sunny positions, *Agaves*, *Aloes*, and other succulents were noted in profusion, many being huge specimens. In spots where grass would not thrive, *Ophiopogon japonicum* was used in the same way as we employ *Selaginella* in our conservatories.

In one spot immediately in front of the villa, *Adiantum capillus-veneris* formed a dense mass of fronds; this was in a well chosen position, being recessed, the water trickling

down into a pool below. The plants throughout this charming garden have thriven to that extent that some thinning-out will have to be done before long—regrettable as it seems to be obliged to do it. No doubt, however, it will be taken in hand in the same careful manner as characterises its present management. Well chosen spots here and there are kept open, through which delightful peeps of the lake may be had below. *Jas. Hudson.*

NEW OR NOTEWORTHY PLANTS.

CYMBIDIUM GAMMIEANUM.

A new *Cymbidium* which is generally supposed to be a natural hybrid, or a hybrid raised in England, which has got mixed with imported plants, is flowering in several collections; for in two of the instances which have come under my notice, the plants were purchased among *Cymbidiums* imported by Messrs. F. Sander & Co., St. Albans, who doubtless obtained them from the Sikkim Himalaya, where they have a collector of new types of *Cypripedium* insignis, and other desirable plants. *Cymbidium Gammieanum* is illustrated in that beautiful work, *The Orchids of the Sikkim Himalaya*, by Sir George King, K.C.S.I., and Mr. Robert Pantling.

The gardener will best be able to conceive its appearance when I state that it resembles a narrow-petalled, unstriped *C. giganteum*, with more flowers on the inflorescence than is found in that species. The sepals and petals, nearly 2 inches in length, are of a tawny-yellow tinge; the elongated lip is also of a tawny-yellow, spotted with purple, and bears a purple callus up the centre; the whole of the surface of the lip, and especially the callus, are downy. The column is of a yellow tint, slight, and it has spotting of a purple colour on the upper surface, and is more heavily spotted and tinged on the under side, the colour being the same. It is a plant of graceful habit, and if it should remain a constant winter flowerer, it will be a very useful one. *James O'Brien.*

BYBLIS GIGANTEA.

Amongst interesting plants of which seedlings have recently been raised in the Royal Botanic Garden, Edinburgh, is the *Byblis gigantea*, an insectivorous plant of the *Droseraceæ*, restricted to a few localities in Western Australia. I do not know if this is the first record of seedlings of this plant in cultivation in Britain. In an account of the Glasnevin Botanic Garden (see the *Gardeners' Chronicle*, April 22, 1899, p. 241), Mr. Burbidge mentions *Byblis* as one of the many rare plants in cultivation there. Beyond this notice, I have seen no account of the genus as being in cultivation.

The seedlings have short linear cotyledons, with but few viscid tentacles, the subsequent leaves differing chiefly in their length, and in the number of tentacles. One feature of this, as on all seedlings of *Droseraceæ* grown in this garden, is the extraordinary number of insects captured by them. The plants are simply covered with insects, and these always much exceed in number those found upon older plants.

Whilst referring to seedlings of *Byblis*, I may at the same time mention another insectivorous plant, the *Roridula gorgonias*, of South Africa. In the *Gardeners' Chronicle*, Jan. 23, 1897, p. 65, I noted the flowering of this species. We have saved seed in each of the past years, and have raised seedlings. The cotyledons here have no viscid tentacles, and are therefore very different from the subsequent leaves. The introduction to this garden of *Byblis*, completes the generic list of the family of *Droseraceæ* now in cultivation here. The genera of the family are *Drosera*, *Drosophyllum*, *Aldrovanda*, *Dionaea*, *Roridula*, and *Byblis*, and of each of these we have one or more specific representatives. *R. L. Harrow.*

SYSTEMATIC BOTANY FOR INDIAN FORESTERS.

[THE following extract is taken from Sir George King's address to the Botanical Section of the British Association at Dover. The earlier part of the address has been already given (p. 252), but in view of the prevalent neglect of systematic botany, referred to in a leading article on p. 328, it is desirable to make our report complete by the insertion of the remainder of Sir George King's address.]

"In conclusion, I wish to make a few remarks on the third great economic enterprise connected with botany in India, viz., the Forest Department. The necessity for taking some steps to preserve a continuity of supply of timber, Bamboos, and other products from the jungles which had for generations been exploited in the most reckless fashion, was first recognised by the Government of Bombay, who in 1807 appointed commissioners to fix the boundaries of and to guard the forests in that Presidency. This scheme was abandoned in 1822, but was resumed in a modified form during 1839-40. Seven years later a regular forest service was established in Bombay, and Dr. Gibson was its first head. Dr. Gibson in turn was succeeded by Mr. Dalzell—and both were botanists. In the Madras Presidency the first man to recognise the necessity of perpetuating the supply of Teak for ship-building was Mr. Connolly, collector of Malabar, who in 1843 established a Teak plantation at Nelumbur, which has been carried on, and annually added to, down to the present time. In 1847 Dr. Cleghorn (a botanist) was appointed to report on the conservation of the forests of Mysore (which contain the well-known Sandal-wood), and the following year Lieutenant Michael (still with us as General Michael, a hale and hearty veteran) was appointed to organise and conserve the public forests in Coimbatore and Cochin. The crowning merit of General Michael's administration was the establishment, for the first time in India, of a system of protection against the fires which annually used to work such deadly havoc. In 1850 the British Association, at their Edinburgh meeting, appointed a committee to consider and report upon the probable effects, from an economic and physical point of view, of the destruction of tropical forests. This committee's report was submitted to the association at the meeting at Ipswich in 1851. The weighty evidence collected in this report so impressed the court of directors of the East India Company that, within a few years, regular forest establishments were sanctioned for Madras and British Burma, the two main sources of the supply of Teak.

In 1856 Mr. (now Sir Dietrich) Brandis was appointed to the care of the forests of the latter province. These forests had been the object of spasmodic efforts in conservancy for many years previously. In 1827 Dr. Wallich reported on the Teak forests, and five years later a small conservancy establishment was organised, officered by natives. This, however, was kept up for only three or four years. In 1837 and 1838 Dr. Helfer reported on these forests, and an English conservator was appointed. In 1842 and 1847 Codes of Forest Laws were drawn up, but do not appear to have been enforced to any extent. In 1853 Dr. McClelland was appointed superintendent, but he continued to hold the office for only a short time. A few years after Sir Dietrich Brandis's assumption of the charge of the Burmese Forests, he was appointed Inspector-General of all the Government forests in British India; and it is to him that we owe for the most part the organisation of the Indian Forest Department as it now exists. That organisation includes two schools of forestry (in both of which botany is taught), one in connection with Cooper's Hill, and the other at Dehra Dun in Upper India. The latter has for many years been under the direction of a gentleman who is distinguished both as a forester and as a botanist. In the Cooper's Hill school, the higher grades of forest officers receive their training; at Dehra Dun those of the lower grades receive theirs. The officers of the depart-

ment on the imperial list, according to the latest official returns, now number 208, divided into the grades of conservator, deputy and assistant-conservator, with a single-inspector-general as chief. In addition to these, there are 566 provincial officers, ranking from rangers upwards to extra deputy-conservators.

Botanists took a leading part in moulding the department in its earlier years; for, as already stated, its pioneers—Gibson, Dalzell, Cleghorn, Anderson, Stewart, and Brandis—were all botanists. And to most people, who give even casual attention to the matter, it appears fitting that the possession of a knowledge and liking for botany should form a strong characteristic of officers whose main duties are to be in the forest. And this belief did for some time exercise considerable influence in the selection of recruits for the department. But, except in the Dehra Dun School, it does not appear to guide the department any longer. For example, at the Entrance Examination to the Forest School at Cooper's Hill, only three subjects are obligatory for a candidate, viz., mathematics, to which 3000 marks are allowed; German, to which 2000 are allowed; and English, for which 1000 are given. Botany is one of the nine optional subjects of which a candidate may take up two, and in each of which 2000 marks may be made.

Botany is taught at Cooper's Hill, and (according to the Calendar of the College) it forms one of the "special auxiliary subjects" for the forest student. I do not wish to say a single word in depreciation of the botanical teaching at this college, which is probably excellent of its sort. I do not know what value, as part of their professional equipment, students are accustomed or encouraged to attach to the possession of the means of acquiring a knowledge of the trees and shrubs in the midst of which they are to pass their lives in India. But this I do know, that the ordinary forest officer educated in England now arrives in India without sufficient knowledge to enable him to recognise from their botanical characters the most well-marked Indian trees. To tell such an officer the name of the natural family to which a plant belongs conveys no information to him whatever, for he knows nothing of botanical affinities. Moreover, the forest officer after he has arrived in India is not encouraged to familiarise himself with the contents of the forests under his charge. This will be better appreciated by giving an example than by any number of remarks. Some three years ago, Mr. J. S. Gamble (a Forest officer) published a monograph of the Bamboos of British India. From Bamboos, as you may possibly be aware, a very large amount of Forest revenue is annually derived. The sales of Bamboos for the year 1896-97 amounted to no less than 110 millions of stems. A great number of the species of Bamboos have the curious habit of flowering gregariously at remote intervals of thirty or forty years, and the flowering is followed by death. The absence from the forests for years in succession of flowers of a number of the species, and the similarity of many of them in leaves, had hitherto made members of the group most difficult of identification. Mr. Gamble had devoted himself to their study for many years. He had carefully examined all the previously collected materials stored in the Herbaria at Kew, the British Museum, Calcutta, and elsewhere; and large special collections had been made for him by Mr. Gustav Mann and other officers of Government. Moreover, he had General Munro's great paper in the *Linnean Transactions* as a basis. Mr. Gamble's work was undertaken with the full approval of Sir Joseph Hooker, who indeed accepted Mr. Gamble's account of the Bamboos for his *Flora of British India*. Mr. Gamble's monograph is illustrated by a life-sized drawing of each species, with analyses of the flowers on a larger scale. When completed, the book was published as one of the volumes of the *Annals of the Calcutta Botanic Garden*. In consideration of the supposed great importance of the book to the forester, and in the belief that the copies would be eagerly taken by the Forest Department, an extra hundred copies were printed, and these hundred copies were put into stout canvas binding, suitable for camp use. These copies, or as many of them as he cared to take, were offered to the head of the Forest Department in India at the reduced price of fifteen rupees per copy. The result was, an official refusal to buy a single one, although the purchase of the whole hundred (which was not asked for) would have cost only 1500 rupees—a sum which would have reduced the revenue of the year by about one twelve-thousandth part! An appeal against this ruling having been made to a still higher authority, a modified order was subsequently issued permitting such forest officers as desired to possess the book to buy copies and charge the cost in their office expenditure. I may state that the book was not a private venture. It was produced at the expense of the Government of Bengal.

Having myself served in it from 1869 to 1871, I can speak from my own experience as to the value, from the utilitarian point of view, of a knowledge of the names, affinities, and properties of the trees, shrubs, and herbs which compose an Indian jungle, and of a knowledge of these as individual members of the vegetable kingdom rather than as masses of tissue to be studied through a microscope. The appointment which I held in India for twenty-six years after leaving the Forest Department gave me full opportunity of getting into touch with all who interest themselves in a knowledge of plants, and of discovering how few of these at the present day are Forest officers. The majority of the latter, if they love their trees, are content to do so without knowing their names or relationships! There are, of course, splendid exceptions who know as well as I do. The general decadence of the teaching of systematic botany in England during the past twenty years is, perhaps, to some extent the cause of the low estimation in which the science is held by the authorities of the Indian Forest Department. Twenty-five years ago systematic and morphological botany, no doubt, had too great prominence given to them in the teaching at universities and colleges of this country, and the other branches of botanical science were too much neglected, although I do not think they were despised. Now, it appears to me, that systematic botany is too much neglected. I hope it is not also despised! Few of the systematists who survive in England are now to be found attached to the universities. They are mostly clustered round the two great Herbaria in London; and such of them as have to look to systematic botany for the means of livelihood, are not in the receipt of salaries such as one might reasonably expect in one of the richest countries in the world!"

ORCHID NOTES AND GLEANINGS.

"DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES."

THE third series of this useful publication is now complete. The fourth series will, we are told, appear in future at bi-monthly intervals, instead of monthly, the price of the subscription being reduced to 30 francs (£1 4s.), payable in advance. Subscriptions should be paid to M. Goossens, Rue Quinaux, Schaarbeck, Bruxelles. With the present number an index of the plates already published is given; thus we find forty-one *Cattleyas*, ten hybrid *Cattleyas*; eight species of *Cymbidium*, with two hybrid forms; about thirty species of *Cypripedium*, with fifty hybrid forms. *Dendrobium* is represented by about twenty-three species, and three hybrids; *Epidendrum* by fourteen species, and one hybrid; *Laelia* by about twenty-four species and five hybrids; *Laelio-Cattleya* by eight forms; *Lycaste* by ten species; *Maed. walli* by fourteen species, and two hybrids; *Miltasia* by fourteen forms, and seven hybrids; *Odontoglossum* by forty-eight, fifteen of which show varieties of *O. crispum*, and ten

hybrids. The genus *Oncidium* is illustrated by twenty-eight species and varieties, and two hybrid forms. *Phalenopsis* comprises ten plates of species, and no hybrid forms. *Vanda* has fifteen representations of species and varieties, and no hybrid forms. Each of the above-named genera has its own special portfolio, but the species of the following genera are not numerous enough to be accorded such a privilege, which is to be regretted. Now that the plates can be bound in any way the possessor pleases, this objection is of minor moment. These genera are *Ada*, *Aërides*, *Angraecum*, *Anguloa*, *Bifrenaria*, *Brassavola*, *Catacsetum*, *Cirrhopetalum*, *Cochlidia*, *Celogyna*, *Compactia*, *Cyperorchis*, *Cyrtopodium*, *Diaa*, *Epilaelia* ×, *Epiphrontis* ×, *Eulophiella*, *Maxillaria*, *Mormodes*, *Pescatorea*, *Phaius*, *Pleurothallis*, *Renanthera*, *Scuticaria*, *Selenipedium*, *Sobralia*, *Sophrontia*, *Stanhopea*, *Stauroplepis*, *Trichopilia*, *Warszewiczia*.

Lord Burleigh, a late variety. It is short-jointed in growth, most prolific in bearing, and will be recognised as one of the best Apples for dessert in the early part of October. The fruit will probably not store long, and should be used within twenty-one days of gathering. It will be sent out in 1900. (See fig. 130.)

VITIS COIGNETIÆ.

THIS Vine, with its gloriously-tinted autumn leafage, appears to be not only capable of withstanding the severity of our Scottish climate, but also of affording decorative effects rivalled by no other plant. I do not know if two forms of the one species are in cultivation, or if two distinct species are grown under one designation, but we have here two kinds, which in general appearance exhibit no very marked difference until autumn, when the foliage of the one assumes a light-crimson tint of

FLORISTS' FLOWERS.

DECORATIVE CHRYSANTHEMUMS.

I DO not think it can be said that exhibitors or the admirers of the decorative Chrysanthemum, so-called, have been neglected in these pages for the last month, at any rate, an enormous number of shows having been reported, and information concerning the winners of prizes disseminated. There are many other cultivators and connoisseurs who deserve some attention likewise, viz., those who admire Chrysanthemums solely for their decorative value in a mass, or in clusters of many blooms; really handsome floriferous plants, which will grow less than 8 feet high, and with but a small amount of labour and expense. Now that varieties have increased so much, plenty of material from which to select in all sections is at the service of every one. The admirer of the purely decorative varieties are as much catered for by the raisers of new varieties as even the exhibitors and cultivators of big blooms. There is no difficulty whatever in enumerating names of varieties, including the newer ones, which could not fail to give satisfaction if the cultural requirements are duly carried out; and these are simple, as compared with those called for in the production of blooms of the finest quality. A start must be made with stout, healthy cuttings in the first week in January, inserting these singly in 2½-inch pots in rich, sandy soil, which should be placed in a hand-light, or propagating-frame, standing inside a greenhouse or cold pit until rooted. Rooting having taken place, gradually accustom the little plants to the air, and in the course of a week or ten days they may be stood on a shelf close to the glass in a cold greenhouse or cold frame, with protection against frost. The aim should be directed to the ensuring of a stocky lot of plants. As soon as growth becomes apparent, the points should be nipped out at 4 inches high, the nipping being repeated when about 5 inches of new growth has been made; afterwards the plants may be permitted to grow at will. The size of the blooms and their number on a plant can be regulated by disbudding or thinning the shoots later on.

As the roots fill the pots, re-pot them. There is no need to abide by any stated lines for re-potting, nor is any certain size of pots recommended, these being matters to be decided by the gardener. The chief point is the encouragement of growth from start to finish. It may, however, be stated that a pot 9 inches in diameter is large enough for the most robust-growing variety, and one 2 inches less in diameter will suffice for the small-growing and small-flowered ones, and such are very handy for indoors decoration.

The sort of potting compost to be used is a rich porous rather than a fanciful mixture of so many pounds of each; and such a compost will be found in good fibrous loam (three-quarters), half decayed stable-manure (one-quarter), with a small quantity of leaf-mould, silver-sand, and charcoal if the loam is heavy and tenacious. To every bushel of this compost 1 lb. of Thompson's Vine-manure may be added in the early stages of growth, the quantity being increased to 2 lb. at the final shift. The Chrysanthemum needs much care in affording water when young, for although a moisture-loving plant, it suffers irremediable injury from a too free use of the watering-can. As a general rule, it may be said that when the soil is approaching dryness is the proper moment to afford water, and at no other.

The following is a list of varieties which will not fail to afford satisfaction. As nearly as possible they are grouped in their colours, and selection is thus rendered easy:—

White-flowered varieties.—Elaine is still popular; in fact, of all white-flowered Chrysanthemums, this is still the whitest. It is the variety by which to test others, and it will be found that many of the so-called whites are not white at all when placed beside Elaine; then Madame Carnot is a good

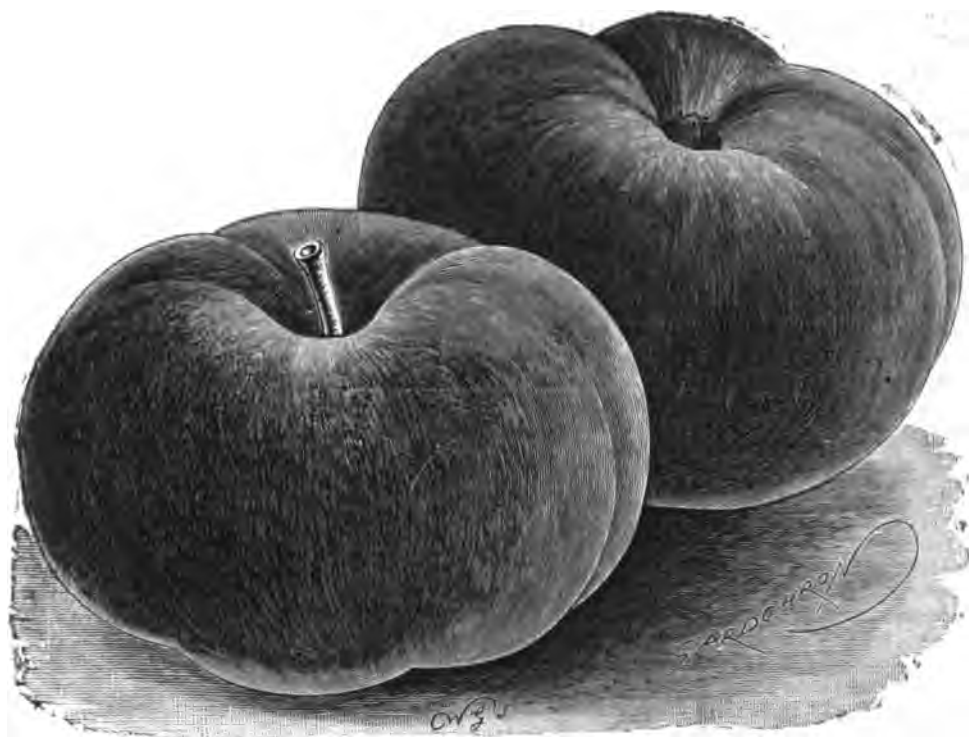


FIG. 130.—APPLE MISS PHILLIMORE.

wiczella, *Zygoclox* ×, and *Zygopetalum*, containing respectively from one to five illustrations. These figures are near approximations only; but they are interesting, not only as showing the number of forms described by M. Cogniaux, and drawn by M. Goossens, but they serve to give an idea of the relative degree of popularity of certain genera and species, and of the extent to which they have been hybridised or cross-bred. The great advantage of this publication is, that accuracy of detail is considered of more importance than artistic effect, and hence these plates, restricted though their dimensions be, are of more service to botanists and Orchid-growers than many publications of a more ambitious character.

MISS PHILLIMORE APPLE.

THIS variety, which received an Award of Merit at the meeting of the Royal Horticultural Society on November 7, 1899, is a seedling raised by the veteran gardener, Charles Ross, of Welford Park, and was purchased by Messrs. Bunyard & Co., the Royal Nurseries, Maidstone, in 1896. It is said to be a cross between Gladstone, an early variety, and

wonderfully brilliant effect; and that of the other, less brilliant, becomes a duller shade of crimson, with some leaves bronzy-purple, and others yellowish-green. The former of these was sent from Carton, and the other from the nurseries of Messrs. Veitch and Sons, Chelsea. Both plants are almost equally meritorious, the Irish one excelling in brilliancy of colour. I drew Mr. Black's attention to dissimilarities in the two when he was here in September, but he was unable to give a definite opinion as to their identity. All the growths are pruned hard back in the spring, and after breaking, the stronger buds only are allowed to push. These produce long and vigorous shoots clothed with large leaves, that are attractive during the whole period of development. One plant, it may be added, is trained to a wall with an exposure to the west, but it is allowed to ramble, while extending, where it pleases. The other is trained as a standard, to a small tree-stem, from the top of which the shoots reach the same wall, so that it may safely be concluded that plants accorded a southern exposure, will be relatively more effective than even these. R. P. B., Prestonkirk, N.B.

free-flowering variety; Queen of the Market is superb; and Isabel Williams is a white flower of the Elaine type, with the florets of Niveum. These five are all that could be desired in white flowers. Mrs. H. Weeks is much better as a decorative variety than many would suspect; Mlle. Lacroix, when seen in a mass, has an unique character, and is very desirable.

Broad-petalled varieties are well represented by Emily Silsbury, Western King, and Lady Esther Smith.

Late-flowering varieties will easily be culled from Madame Philippe Rivoire, Niveum, The Queen, Souvenir de Petite Ami, and Lady Trevor Lawrence.

Yellow-flowering *Chrysanthemums* are much appreciated, and the variety R. Hooper Pearson is one of the first rank, with lustrousness quite unequalled by any other variety; the new Cheveux d'Or and Golden Plume must not be omitted. Clinton Chalfont is very fine and bright; Madame Liger Ligereau, Hugh Crawford, and M. Dysius are a trio of varieties but little known at present, but pale-yellow tints are represented by P. J. Warren, Lady Onslow, Mrs. Filkins, Soleil d'Octobre, Oceana, and Australian Gold. The variety H. Lincoln is still one of the finest of late-flowering "mums," so likewise are the incurved varieties C. Curtis and Major Bonnaffon.

Bronze-coloured varieties are popular and numerous, of which I may name Source d'Or, which is still a leading one; Charles Davis is free to flower, and dwarf of growth; Rycroft Glory cannot be excelled for its freedom to produce flowers; Secrétaire Fierens is a fine variety, with a pleasing flush red; M. Charles Molin, T. Wilkins, Mrs. Maling Grant, Le Grand Dragon, Julia Scaramanga, Colonel W. B. Smith, and C. A. Owen complete my list of bronzes.

Crimson or red are favourite colours with many persons, and they are well represented by H. J. Jones, one of the best; Rycroft Scarlet, a dwarf, and very highly floriferous variety, and the nearest approach to scarlet that we possess; Reginald Godfrey, Matthew Hodgson, Lord Cromer, Hon. F. D. Smith, Hero of Omdurman, John Shrimpton, Royal Standard, Richard Dean, E. C. Schwabe, Edwin Molyneux, and Joseph Chamberlain are trustworthy. Pink and its nearly allied tints, lilac and mauve, are much liked, and *Chrysanthemums* of this class are La Nympe, Bouquet, Margot, and President Borel are old varieties still in vogue. Vivian Morel is newer, and, as yet, still unsurpassed; Mrs. F. A. Bevan and Madeline Davis are chaste varieties, exceedingly free to flower; Lilian B. Bird, with its long, narrow, quill-like florets, has still many admirers; Chatsworth, with its deep rose stripes on a lighter ground, is attractive; Belle Mauve, Pink Selborne, and the new Amy Ensoll, are all worthy additions to this class.

This list would not be complete without mention being made of Pride of Madford, one of the brightest of the Japanese varieties, when grown so as to present the surface of the petals instead of the reverse. E. Molyneux.

TREES AND SHRUBS.

TREES FOR SURREY SANDS.

In an article in the *Field*, Sir Charles Dilke records his experiences with several of the newer and other Conifers. The blue variety of Lawson's Cypress, *Cupressus erecta glauca*, is highly praised as a wind-break as well as for its decorative properties. The Corsican Pine, *P. Laricio*, excites the writer's enthusiasm, while the black Austrian is placed on a lower level. Nothing is better than the common Scotch—the native Pine in former ages—and fast resuming its ancestral habitat where circumstances are propitious. For single specimens, *Pinus ponderosa*, *Picea orientalis*, and *P. pungens*; and for an

avenue, *P. Laricio*, if the iron "pan" be removed. *Picea pungens argentea* is also commended, but is not altogether trustworthy, for trees that once were beautiful have become "scraggy," a condition which almost all Conifers are liable to assume as they grow older. The green *pungens*, we may add, does well on London clay, and is very dense and strong growing.

CARYOPTERIS MASTACANTHUS.

It is evident that the good qualities of this aromatic shrub are bringing it late prominence in the south of England. It is pleasing to find it succeeds also in Scotland as a hardy shrub, though in our case it was planted out with some fear as to whether it would prove hardy or bloom sufficiently early to escape frosts. *Queenbush* is 5 feet across, and flowers in the most profuse manner, though it must be confessed it is growing along with *Carpenteria californica*, and other reputedly tender subjects in a very warm position, and I think it not unlikely that failure would ensue if it were grown in an exposed place. In general appearance it is when in full bloom somewhat reminiscent of *Ceanothus azureus*. As well as being pretty, the flowers, and also the leaves when touched, emit a very pronounced aromatic scent. The flowered-out shoots require to be cut back annually in spring, and weakly growths altogether removed. It succeeds in ordinary soil. R. P. Brotherton, Prestonkirk, N.B.

ARAUCARIA IMBRICATA.

It is no uncommon thing to meet with adult specimens of *Araucaria imbricata* in an unsatisfactory condition, and especially on light, well drained soils—the rooting medium usually advised for them. The trees grow symmetrically for, say, twenty years after being planted, then they get less vigorous, and eventually growth comes to a standstill; the lower branches die, and the trees become anything but objects of beauty. My opinion of the reason for this state of things is, that it is due to lack of water in the soil during the season of growth. In the province of Araucania, in Central Chili, the home of *Araucaria imbricata*, a considerable amount of rain falls between May and September, or later in the year, the remaining months of the year being almost rainless. It is this copious rainfall that is lacking in this country, especially in the north, south, and east; on the west coast and in Ireland, where a heavy rainfall occurs, the trees form fine specimens. A tree in these gardens (Isleworth), considered a good specimen, is about 40 feet in height, with a stem girth of 5 feet, and spread of branches 20 feet, began to decline a few years ago, and it was thought that it had reached the limits of its existence, and as the loss of the tree would have been a serious matter, it was resolved to copy nature; and water was laid down, and so arranged that a flow of about 30 gallons a day was secured during the summer months; a portion of the soil being removed, so as to form a basin to contain it. During the two years that this kind of water-cure was adopted, the tree has much improved, and the top is a dense thicket of young shoots, through which the sky can scarcely be seen, and the lower branches have drooped from the increase of their weight of new growth, and now fill the space occupied by dead branches before the treatment was commenced. New shoots which are pushing out directly from the trunk, also bid fair to restore the symmetry of the tree. This sort of treatment, or a modification of it, is neither desirable nor called for on retentive soils. *A. imbricata* is deservedly a tree for important points in garden landscape; and any kind of treatment that will keep a well formed specimen in good health is labour well expended. I may mention *apropos* of *Araucarias*, that a specimen of *A. excolsa*, 6 feet in height, was left outside last winter in order to test its hardihood, and it was found that it withstood 3° and 4° of frost unharmed, but finally succumbed to 8° of frost. Geo. B. Mallett, Isleworth.

THE BULB GARDEN.

MONTBRETIAS AND TRITONIAS IN SCOTLAND.

So valuable are the Montbretias in the flower-garden, that one need advance little in defence of the desirability of saying something about their behaviour in Scottish gardens. One finds that they are, year after year, becoming more largely grown, and that almost the only obstacle to their extended cultivation is the fear which exists in the minds of some that they are not hardy enough to withstand the winters of our northern land, whose rigours are, one has confidence in saying, much exaggerated, although certain districts are colder than others. The writer has had frequent opportunities of studying the hardiness of the Montbretias, either from growing them or from being in communication with others in various districts; and these comparisons lead him to the conclusion that in most Scottish gardens, with one or two precautions, not needful in some, the lovely hybrid Montbretias may be planted with safety. This remark is, however, made subject to the statement that there are gardens in which they cannot with safety be left in the ground during ordinary winters. Some who have failed to preserve their plants in the open in winter seem of opinion that their districts are too cold, but one finds that the failure generally proceeds from the character of the soil in which they are grown. One knows, for instance, of a garden in the southern counties of Scotland, in which the Montbretias have survived the most severe season of recent years, and, not many hundred yards off, another garden in which they are destroyed, even in the milder winters we have had of late. In one garden in the east they are not to be relied upon; in another only a mile or two away they give no trouble. In the north-east also, they are hardy in most gardens, and in the milder west they usually need no protection. There are two descriptions of soil which appear to give rise to those unfavourable opinions and experiences. The one, as in the southern garden referred to, is that of a cold, heavy, and damp nature; the other being one of a very light character through which the frost penetrates readily, and to a considerable depth. One sometimes finds that soil of the latter kind is not adapted to bulbous plants of doubtful hardiness.

If we can once realise that the Montbretia is hardy enough to stand our Scottish winters in most places, it would not be difficult for those who cannot grow it to give it a little surface protection when it is situated in light soils. One useful precaution is to leave the withered foliage uncut until spring. Our natural desire to have a tidy garden is responsible for depriving some plants of their natural shields from cold and wet. Those who have heavy and retentive soils must endeavour to lighten them if they wish to succeed with these flowers. So far as I can ascertain, a few of the yellow varieties seem a little less hardy than *Tritonia Pottii* or even than *Crocus aurea*. In some districts the latter almost requires a covering of ashes or other loose material by way of precaution.

While one considers *Tritonia Pottii* quite hardy in most gardens, one must speak with less confidence of the very beautiful *T. imperialis*. It has not yet been long enough tested in the outdoor garden under ordinary conditions for me to write with any confidence. I think, however, that we have a reasonable ground for saying that it may prove almost, if not quite, as hardy as the old *T. Pottii*. I now know of a few gardens in the south of Scotland where it has been out for at least a couple of winters without injury. These winters have not been of what we may call average severity, but they have, on the other hand, been unusually wet, and have, besides, been followed by late spring frosts. Both of these, as is well known, are frequently more harmful than hard winter frost. I saw in the course of the past summer a very thriving clump of *Tritonia imperialis* in the

garden at Kirkconnell, Dumfries, where it had been for two winters with only the protection of a mulch of cocoa-nut fibre. Beyond the radius of the fibre, offsets had begun to appear. It seems almost superfluous to draw further the attention of Scottish growers to the desirability of experimenting with this fine plant, with which a new feature could be given to the flower border.

One would like to add a word or two as to the arrangement of the Montbretias in the garden. One has seen some fine beds consisting of one colour only, and similarly groups in the border all of one tint. Some time ago Mr. Brotherston, of Tynninghame, made the remark in the *Gardeners' Chronicle* that the red and yellow Montbretias looked

IRIS SUSIANA.

The pushing growths of this denizen of old gardens reminds one that those who wish to give it a trial should lose no time in procuring plants to set out at once. The real difficulty one has to face in its cultivation in the north is the unnatural period during which the earlier portion of its growth is made. Here it invariably starts into new growth in October as soon as cold nights set in. Fortunately, it is sufficiently hardy to withstand the frosts of an ordinary winter, though a little litter placed lightly among the foliage is an expedient worth adopting as a precaution. We have a clump that annually produces flowers, and every year increases in vigour, a happy condition

more than once been told is the correct treatment to accord this and allied species.

In Hill's *Eden*, which contains a beautifully engraved bloom, it is recommended to raise and increase stock from seeds, and if we are to credit the author the seedlings produce flowers in eighteen months from the time of sowing, a period which is, so far as my experience with seedling Irises goes, very much too brief. It is also recorded in this work that the Dutch introduced the plant into Europe in 1573. Gerard engraves an exceedingly poor specimen of this flower under the name of "*Iris chalcidonica*, or Turkey Floure-de-luce," and adds, it is "a rare and beautifull floure to behold." It may be noted, in conclusion, that a variety belonging to the Germanica group is sometimes cultivated in gardens as *I. Susiana*. R. P. B., *Prestonkirk, N.B.*

CYPRIPEDIUM "MILO," WESTON-BIRT VARIETY.

THIS variety stood out among the fine lot of *Cypripediums* exhibited at the Royal Horticultural Society, from Captain Holford's garden at Weston-birt, Tetbury, on Nov. 21. It was raised from *C. insignis* Chantini and *C. oenanthum* superbum. The dorsal sepal is pure white, the lower half thickly spotted with deep blackish-purple spots. The lower pair of conjoined sepals is similarly but less conspicuously marked. The petals and the lip are deep purplish-brown, glossy on the surface. (See fig. 131.)

COLONIAL NOTES.

BOTANIC GARDEN, GRENADA.

Area.—The Botanic Garden comprises 14 acres and 18 perches. It was established in the year 1886 by the Government upon the advice of Dr. Morris, then of Kew Gardens, to further the interests of agriculture and botany, &c.

The Botanic Garden lies upon a sloping site that continues down to sea level. A small jetty communicating with a shaded path leading to the gardens is built into the Lagoon, forming a comfortable landing place for visitors to the gardens. Its object is to introduce new economic and ornamental plants; to show by experiment what will, and what will not, grow in the colony; to advise colonists in general in agricultural and horticultural objects; to interchange plants, seeds, &c., for desirable plants, seeds, &c., with people, and institutions locally and abroad; to supply planters with small or large numbers of economic plants at rates published on the monthly plant sales list; to maintain and catalogue a herbarium of the indigenous flora, timber trees, medicinal and ornamental plants, grasses, ferns, mosses, fungi, and weeds; to afford generally practical information and advice in agriculture and horticulture; and to be the centre from whence economic and ornamental plants may be distributed throughout the colony of Grenada.

The curator visits the out-districts periodically in the interests of the peasantry, the planters, and the Botanic Garden.

Mr. W. E. Broadway is the curator.

GRAFTING-WAX, EFFICIENT, AND EASY TO MAKE.

To three parts of rosin add one part of beeswax, melt together in an iron pot; for use, remelt in a carpenter's glue-pot, and when the wax is of a consistency to work freely, apply with a small brush. The uses of the glue-pot are two-fold; the jacket of hot-water will prevent the wax being heated to a point dangerous to the scions, and further will retain it in workable state for a considerable time; without the intervention of the hot-water jacket, it is quite possible to make the grafting-wax much too hot for safety. The proportions of rosin and wax given would be suitable for the English climate; under the African sun I find it is better to use four parts of rosin to one of beeswax. This cheap and



FIG. 131.—CYPRIPEDIUM "MILO": FROM CAPTAIN HOLFORD'S COLLECTION, WESTONBIET.

better mixed than separate. This is not what is usually found to be the case, and it was not until I had an opportunity of seeing this arrangement in the Tynninghame garden that I could appreciate the idea. The mixed Montbretias made a much prettier effect than groups of the same size, in the same borders, but consisting of one colour only.

I desire, ere closing, to remark that the Montbretia is greatly benefited by being lifted at intervals of two or three years and replanted, after taking off the offsets. I do not find 6 inches apart too much, if large spikes are required. Another remark is that it does not thrive nearly so well in a dry, sunny position as in one that is fairly moist, with a little shade, provided that the soil is properly drained, and not too heavy. S. Arnott, *Carsethorn-by-Dumfries, N.B.*

that I am fain to attribute to manurial surface-dressings, the method of applying manures which, in the case of all species of *Iris*, appears to be that best suited to that family. Our plants came originally from northern Italy, and I inferred from the soil that clung to the roots that they had been cultivated in a heavy kind of soil. They were planted in a soil not exactly of the same nature, but in one that was slightly sandy, which was surrounded with sound loam as a root-run for the plants when once established, and this medium seems to have met their requirements perfectly. The position selected for their growth was the warmest and the most sheltered obtainable, and judging from the manner the plants have progressed from the first it appears they do not require to be subjected to the "roasting" process which I have

simple preparation has been used extensively in these gardens and nursery for many years past with great success. *E. Tidmarsh, Curator, Grahams-town Botanic Gardens.*

THE FERNERY.

FERNS: VARIETIES.

It is difficult to account for the variations found among seedlings. It has been suggested that hybrids may be obtained by sowing spores of different kinds together. Many of the more distinct varieties do appear to be of hybrid origin; but from my own experience I am led to believe that the question of parentage must always remain a matter of doubt. All the different varieties that have come under my notice have originated by chance rather than by design. I have known instances among *Adiantums* where spores have been accidentally mixed before sowing which have resulted in some distinct varieties; but whether cross-fertilisation took place is open to doubt, for when I have tried experiments I have never succeeded in getting anything distinct. I think most of our best varieties are simply natural variations of the same species; those which prove abortive being the most beautiful, owing to the energy which would be expended in maturing spores being concentrated in the fuller development of the leafy portion of the fronds. Taking *A. Farleyense*, though I cannot understand why it should be considered a variety of *A. tenerum*, it is quite evident that it is a natural variation from some species, and the fact of its being entirely destitute of spores, the whole energy of the plant is concentrated in the leafy portion of the fronds. In *A. capillus-veneris* var. *imbricata* there is little doubt about this being closely allied to our native Maidenhair; this, too, is barren, though in the place of spores small bulbils are formed on the margins of the pinnules, and from these young plants may be established. This appears to have originated as a chance seedling. Reverting to my own experience, it was when spores of *A. emulum* and *A. Waltoni diffusum* were accidentally mixed before sowing, which resulted in a greater variety among seedling Ferns than I have ever seen. *A. elegantissimum*, *A. tenellum*, *A. Hemsleyanum*, and others, came from this batch; in fact, among upwards of a hundred plants there were hardly two alike. *A. reginae* came among a batch of seedlings where spores of *A. scutum* had been mixed with those of *A. Victoriae*. The original plant of *A. reginae* was very distinct, but although it may be raised from spores, they do not come true, many of the seedlings being dwarf as in *A. Victoriae*.

LOMARIA GIBBA PLATYPTERA.

It is recorded that this was the result of sowing *L. gibba* and *Blechnum brasiliense* together, but I believe it is simply a barren form of *gibba*, and I am strengthened in this belief by the fact that I have found it among seedlings of *L. gibba* when no *Blechnums* could have come in contact with them. Although it appears to have spores along the mid-rib as in the *Blechnums*, I have never known of an instance where seedlings were raised; but I have on several occasions found them among the gibbas. *Lomaria ciliata grandis*, and *L. ciliata major* came as chance seedlings from *L. ciliata*, and these, especially the first-named, appear to be allied to the *Blechnums*, yet both of them reproduce from spores. *Grandis* does not come so free, but *major* may be raised as freely as any Fern I know, though a considerable variation will be found among seedlings.

GYMNOGRAMMAS.

Although the various distinct varieties usually come true from spores, occasionally a number of variations will be found among one batch of seedlings. The colour of the farina, or powder, varies almost as much as the colours in some flowering plants. We now have some seedlings of the crested var. *Wettenhalliana*, some of which are silvery-

white, others varying from pale sulphur to deep yellow. I may mention that *G. Mayi*, which appears to be a vigorous form of *G. peruviana*, does not appear to come freely from spores; in fact, I have never known a batch to be raised, but have found stray plants among other varieties. *G. Pearcei robusta* is another which does not mature spores, and I am afraid it would now be difficult to find this beautiful variety. *G. schizophylla gloriosa* varies when raised from spores, and to keep the true form it should be propagated from the young plants or bulbils, which are formed on the extremities of the fronds.

DAVALLIAS.

Some good varieties of these have appeared among chance seedlings, especially from *D. fijiensis*; these all appear to be natural variations rather than hybrids, for I have found the same results from successive batches of seedlings.

NEPHROLEPIS.

These will also vary when raised from spores, and in selecting the spore-fronds they should be taken from the best habited plants, even the individual fronds make a difference. The beautiful *N. Bausei*, obtained from a frond of *N. pluma*, a few of the pinnæ of which were deeply cut.

ASPLENIUMS.

Some very distinct varieties of these have occurred, notably from *A. Baptisti Drueryi*, a crested form being the most remarkable, being the only one of this section which has any semblance of a crest. *Mayi* and *elegantissimum* appear to be intermediate between *Baptisti* and *pteridoides*, but whether they are actual hybrids or not it would be difficult to determine.

POLYPODIUMS.

Varieties of these (except of the British species), are not numerous. *P. Mayi*, which came as a chance seedling among a large batch of *P. glaucum*, is another remarkable instance of the beautiful development of a barren variety. I may mention that from the same batch of seedlings a few of a semi-crested character were found, but I doubt if these would retain their character as they advance. *P. Schneideri* is another instance of remarkable frond development. I have found spore-cases on this, but have not succeeded in raising seedlings, nor do I think anyone else has done so.

PTERIS.

Of Ferns generally cultivated, the varieties of this genus are more numerous than of any other. A curious point with regard to some of the crested forms is that the multifold growths will continue to grow on the same fronds for an indefinite period. I have seen plants with fully-matured fronds, which, when stimulated, will start to make new growth from the extremities of the fronds; and in some of the densely-crested varieties it seems quite natural for them to go on increasing in density so long as they are kept in a healthy state. Of the varieties, it is difficult to divide those of serrulate from those of cretica, there being now such a number of intermediate forms. Of serrulate, I find among dried specimens collected nearly thirty years ago, a very vigorous variety, with large spreading fronds. I have come across a similar variety among seedlings since, but have never been able to get a batch of seedlings, though what have appeared to be good spores have been plentiful. Among all the various crested varieties, until the advent of *P. Wimsetti*, I never found one with the crested lobes on the sides of the pinnæ; it would be found that in all the others the multifold growths are terminal. In *P. Childsii*, which is a new variety, and, I believe, entirely devoid of spores, these side growths are very remarkable. *P. Summersii* is somewhat similar, but has a more decided terminal crest; these were both chance seedlings. *Wimsetti* was also an accidental find among a batch of crested cretica. *Tremula* has given some remarkable distinct varieties. The crested form which most resembles the type is *Smithiana*; *elegans* and

grandiceps have heavy, drooping cresta, and at first sight *elegans* might be taken for a variety of serrulate, but on closer inspection the parentage is quite evident. Of cretica there are some very distinct varieties, both in simple and crested forms. *Drinkwateri* would suggest some affinity to umbrosa. I have lately received fronds of two other varieties from the raiser of *Drinkwateri*: one named *metallica*, has very broad pinnæ of a deep green, with the bright surface as in umbrosa. *Pteris Victoriae*, the pretty variegated Fern which came from the Philippines, has given some distinct varieties, *Reginae* and *Reginae cristata* being the most useful. It is curious that the same varieties have been raised both on the Continent and in America as in England; also the variety named *tremula variegata*. When this first appeared, it looked very promising; but it has proved a disappointment, for, so far as I am aware, it does not reproduce from its own spores, and the limited number obtained from *Victoriae* soon grew out of character.

It is curious that although we hear of crosses having been made, all the most beautiful garden varieties we know have been the result of accident rather than design. *A. Hemsley*.

ORNAMENTAL ECONOMIC PLANTS.

GENERALLY speaking, we see but few exotic economic plants in English gardens, even when they have sufficient ornamental value to warrant their inclusion in collections of stove and greenhouse plants. To the ordinary mind, plant-yielding products for man's utility, and that are withal beautiful in foliage or flower, possess interest of no ordinary kind. Nor must we overlook the educational value of such plants, the more especially when they are grown in manufacturing districts interested in their products. Notably, and perhaps foremost among such plants are the—

Cottons (Gossypium).—These plants grow but a few feet in height; they have woody stems, palmate leaves, and numerous showy yellow flowers, followed by egg-shaped seed-pods, which burst when they are ripe, exposing the white masses of crude cotton surrounding the seeds. *G. herbaceum*, an annual, and *G. barbadense*, a biennial, are the best species to grow. The plants are most handsome when flowers, and half-grown and bursting pods, are shown on the same plant. They can be grown well in a tropical or sub-tropical house, with a moist atmosphere, and should be fed (to secure the best results) with similar manures to those given to *Chrysanthemums*. Seeds germinate readily in a moist hot-bed. The seed-pods, if undisturbed, will remain on the plants long after the leaves have fallen.

Coffee (Coffea).—Plants of Coffee are always interesting. They are hardwooded, dwarf shrubs, producing glabrous, Laurel-like leaves, and small white flowers, followed by green berries, which become red when ripe. They may be grown well in the cooler end of the stove-house, and give but little trouble. They may be propagated by seeds (the best method), or by cuttings of the ripened shoots, inserting either in a brick hotbed. Pruning may be resorted to in order to keep the plants within reasonable limits.

Tea (Camellia Thea).—These plants may be easily grown in an ordinary greenhouse. They are small evergreen shrubs, bearing white flowers about an inch across. They like a liberal root run, for if confined in small pots the plants become thin, and speedily flower themselves to death. Compact plants of both these species, and of *C. sasanqua*, a bigger plant with larger flowers, are well worthy of the little attention they require.

Cocoa (Theobroma cacao).—Small plants of this species, confined to single stems, are very handsome. The flowers are brownish and small, and borne on the naked stems beneath the leaves. These leaves are bold in outline and of considerable substance. If the plants had no economic interest,

they would be worth growing for the foliage alone. I have not seen plants in fruit in English Gardens. They require similar treatment to that given to *Secocra* or *Codisium*.

Orange (*Citrus*).—This genus is well represented in gardens by the common Orange—*C. aurantium*, which is grown for its fragrant flowers. The *Tangerine* (a variety of *C. aurantium*) is much more floriferous than the type, and is by far the better plant to grow. It is compact in habit, and is rarely seen without a few fruits, which are very fragrant when ripe. In order to secure longevity of the specimens, the pots should stand on a cool bottom. The plants thrive well in a compost of fibrous loam and rough leaf-soil in equal parts, beaten tolerably firm. The "Shaddock" (*Citrus decumana*) is also well worth growing where room can be found for so large a plant, its bold handsome foliage has always a cool and fresh appearance.

Date Plum (*Diospyros kaki*).—This is a small, deciduous tree, bearing Tomato-like fruits, which are edible when ripe and thoroughly bletted. It may be trained to the trellis in an ordinary greenhouse, or grown as a bush. The tree is of handsome appearance when in fruit, and is worth growing on this account alone.

Among a host of other plants of historic or economic interest are *Ficus religiosa*, a small tree with ovate acuminate leaves, sacred to the Buddhists. It is quite as easy to grow as is *F. elastica*, and, like that species, makes a useful pot-plant. The markedly acuminate leaves single this plant out for notice in any collection.

Melia Azedarach, a woody plant, with elegant compound leaves, useful for greenhouse or table-decoration. It is evergreen, and grows well in an unheated house. It is known as the "Manna Ash" or "Bead tree."

Fatsia papyrifera, a small shrub, with the habit of *F. japonica*. It has woolly stems, and palmate leaves of soft texture. It makes an excellent pot-plant. So also do many plants of the orders *Zinibaceæ* and *Cucurbitaceæ*, too numerous to mention here. *Geo. B. Mallett*.

CEREUS CANDICANS VAR. DUMESNILIANA.

This is a tall-growing columnar form whose deeply-furrowed stem is studded with tufts of long, straight spines. The flowers are large and pure white; the plant has flowered this season for the first time in the collection of Justus Corderoy, Esq., to whom we are indebted for the photograph here reproduced (fig. 132).



FIG. 132.—*CEREUS CANDICANS* VAR.
DUMESNILIANA.
FLOWERS WHITE.

A GERMAN OPINION OF ENGLISH GARDENS.*

AFTER visiting some fifty gardens in England, Mr. Brodersen writes as follows in *Die Gartenkunst*, one of the principal German horticultural journals, which devotes a considerable amount of space to matters pertaining to landscape-gardening and garden-architecture, and published under the auspices of the Society of German Landscape Gardeners:—

Before I had seen English parks and gardens, I thought, from reading descriptions and seeing the illustrations, that I was able to form a fairly accurate picture of what these gardens were like, but I must now confess that I was mistaken. Moreover, I now consider that the term "English style of gardening" as applied to many of our German gardens, is no longer correct. At the present time the difference between German and English gardens is so great, that there can be no longer any connection between them. When speaking of English gardens and their peculiarities, we are often told that England has a favourable climate totally different from our own; that, therefore, the plants at

the disposal of the landscape gardener are in greater variety in England than in Germany; moreover, that shade is not necessary to the same degree as with us, and therefore the plantations are smaller and the area of turf or lawns larger than with us; and that in England more money is spent on gardens.

But the fact is not pointed out that the principal difference between German and English gardens is not only in the climate, the material and the means employed, but more especially in the mode of construction, and in the style. Often, too, it is inferred that English gardens are more beautiful than the German ones, and should be taken as our models. Such conclusions in my opinion are entirely wrong. I am bound to admit at once that during winter and early spring an English garden must of necessity be more pleasing and more varied in effect than a German garden, on account of the many evergreen and flowering shrubs which will not stand our winters, and also on account of the amount of money and labour spent on flowers. I, therefore, fully understand the comments of praise bestowed on English gardens by those who

out the latter you have to walk on the grass, which sometimes is traversed by "grass paths" kept neatly mown for the purpose.

Since walks in English gardens are not of the same importance as those in Germany, this explains the fact that plantations and their effects with a view to picturesque grouping, as seen from the paths, receive but scanty attention in England.

It is certainly most remarkable that even in recent times the arrangement and planting of English pleasure-grounds are carried out without regard for the immediate surroundings, or without making use of distant pictures in the landscape [!]. Moreover, the grouping itself is, according to our ideas, not artistic, to say the least of it.

I could not discover in any newly-laid-out grounds the endeavour manifested in the older parks to make them appear as large as possible, enabling the eye to penetrate beyond the boundaries, and suggesting that the whole surrounding country formed a part of the park itself. My impression was that most modern plantations were arranged without the slightest regard to the surroundings, and with but little consideration for effect as a whole. The plantations are clumsy, and without picturesque effect.

Immediately on entering the park-gates at Enys, in Cornwall, I noticed in the park a certa in repose in the grouping of the trees, such as I had not observed before, even the hedges had come in for a considerable share of attention. On communicating my impressions to Mr. Meyer, I was told that Mr. Hogbin, the head gardener, was also the home-steward of the estate. This explained matters. After a pleasant drive through the "beautified landscape," we reached the pleasure-grounds, and were fortunate enough to have Mr. Hogbin himself for our guide. Mr. Hogbin's taste for the beautiful—which had been shown even in the fields—was now further exemplified in having caused a judicious thinning out and a transformation of the plantations, with due regard to the park as a whole as well as its surroundings. Although these measures could only be considered as modest attempts, the good results obtained were nevertheless such as to be immediately noticeable. I was all the more interested in this matter since I had repeatedly mentioned to Mr. Meyer my regret at the evident neglect of beauty beyond the park boundaries generally.

Although it would often seem as if plantations were arranged quite at random, this is not the case entirely. Special care is taken to select for the plants positions suited to their requirements, where their well-being would be assured. But the individual plant, and not the whole effect, receives the greatest consideration, and this is the chief point of difference between German and English gardens. Very rarely are carefully-planned plantations consisting of trees and shrubs so arranged, that the individual specimen disappears in favour of the picture as a whole, and equally rare, are projecting small groups and single plants merging into the sward. But if the grouping in the plantations leaves much to be desired, one is compensated on the other hand, by a sight of splendidly-developed single specimen trees, Conifers, &c., which are often magnificent. The effect of such specimens is so grand, that one becomes inclined to overlook the faulty arrangements as regards a picturesque effect of the whole.

On open lawns, or on the outskirts of woods, we find gigantic Evergreen Oaks, Cedars, Araucarias, Bamboos, Palms, *Dracenas*, *Rhododendrons*, *Hollies*, &c., as well as many hardy herbaceous plants; *Gunnera manicata*, with leaves 3 yards across; alpine plants in artistic rock-gardens, which supply a continual source of delight.

The immediate surroundings of the residence are adorned with flowers in a manner but seldom seen with us. Everywhere the love of the English for well developed plants is apparent. In this particular we Germans are behind them; wherever you look you cannot fail to recognise the tendency of the Briton to embellish his home with

visited them during the spring. Such critics, however, appreciate in most cases only the beautiful details of the garden, without troubling about the arrangement as a whole, and the question of style is to them a matter of indifference. With regard to English gardens I feel firmly convinced of one thing, and that is among the English generally there is a lack of men whose aim in the first place is to see that in the gardens that are to be laid out there should be perfect harmony, and whose sense of beauty is developed to such a degree that even an ugly curve in a walk would be offensive in their eyes.

I feel sure that those Britons who are acquainted with some of our best parks and gardens are well aware of the fact that the latter have a higher artistic value than gardens in England. The curve of the walks is considered of but little importance in England. Most walks are laid out as required by the conditions of the traffic, &c., and whether the outline of the walk is pleasing or ugly appears to be quite immaterial!

In England, however, walks through a park are not at all of the same importance as with us. They are not as with us, "the silent guides through the most pleasing parts of the landscape;" but to find

* Extract from an article entitled "English Gardens," by A. Brodersen, Landscape Gardener and Garden Architect, Berlin.

plants. He is not content simply to possess them and to look at them, but he manifests his love for them by tender care, by studying their wants, and by bringing them to the highest degree of perfection. The love for plants penetrates all classes of society. Even the poorest woman has on Saturday still a penny to spare to buy some flowers for decorating her home.

In this direction a wide field is still open to the landscape gardeners of Germany; let us cultivate this field by endeavouring to increase the love for plants among our people. *Communicated.*

INDIA.

CARROTS AND THE FAMINE IN INDIA.

Mr. PROUDLOCK, the Curator of the Botanic Gardens in the Nilgiris, thus records the results of some experiments made under his direction:—

Plot 1 was sown with the special object of testing the value of the Carrot as a famine crop, and it was a complete failure, as every plant died within a month after watering was discontinued, or about eight weeks after sowing. The seed germinated well. The varieties sown were the long red and long white respectively. It may be noted that this is not considered to be a famine district.

Plot 2.—The varieties sown were the long red and the long white, and both germinated well. They were properly attended to as a garden crop, with the result that good crops of full-sized roots were harvested. The roots of the red variety were of good flavour, while the roots of the white variety were rather deficient in flavour. A considerable proportion of both varieties of seed was sold in small quantities to the general public; and I may add that, up to date, I have received no complaints about the seed sold.

THE WEEK'S WORK.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain BOLFORD, Westonbirt, Tetbury, Gloucestershire.

Deciduous Shrubs.—Where new shrubberies are about to be planted, and the soil has not been broken up before, the first operation should be to thoroughly drain the land and afterwards trench it to the depth of 2 feet, mixing with the staple as the work proceeds decayed manure, wood-ashes, or charred rubbish, and throwing the bottom-spit up to the surface, so that it may become pulverised during the winter. As most deciduous shrubs are grown for their flowers and the colour and forms of their leaves, positions should be chosen where the sun reaches them the greater part of the day, as success in flowering greatly depends upon the strength and proper ripening of the shoots.

Helleborus, Christmas Roses, &c.—When these are required to bloom early, as in the case of *H. niger* the Christmas Rose, handlights should be placed over them, with some hay, bracken or tree-leaves pressed firmly between the hand-glasses in order to keep warmth in the soil, and thus hasten their flowering season. Treated in this manner the blooms are not spoiled by being splashed with earth, and the flower-stems are longer and stronger than when not protected. Another method of treating the Christmas Rose is to lift the root-masses and plant them in large pots with as little disturbance as may be, and place them in cold frames; but I have found that it is not so good for the plants, as the fleshy roots die back, and it takes a long time to re-establish them.

Herbaceous Borders.—The flowering-stems of most things may now be cut back to within 6 inches of the ground, the weeds removed from between them, and the border lightly dug over with a five-tined fork. When coarse-growing plants have become very large, or they crowd neighbouring plants of lesser growth, they may be dug up and divided at about this date and replanted; and they will flower earlier and stronger than if their removal had been delayed till the spring.

Window Boxes may be rendered bright-looking in winter by planting them with compact little

specimens of the yellow variegated *Euonymus japonicus elegantissima*, and *E. ovata*, or the silver variegated variety of *E. latifolius* and *E. radicans*; small plants of the golden forms of *Retinospora* and of *Vinca minor* being placed between them, the trailing growth of the latter falling gracefully over the edge, and giving a furnished appearance to the boxes. When preparing the boxes use plenty of crocks at the bottom, and arrange the plants moderately close, so that heavy rain will not swamp them, a dryish state of the soil favouring their well-being. Tulips, Crocuses, and Hyacinths will make a pretty show in the spring, and if some mossy Saxifrage or Sedum acre be planted on the top, the soil will be hidden.

Liliums.—These bulbs always produce stronger stems and larger blooms if they are allowed to remain in one spot for several years. As *L. auratum*, *L. chalcedonicum*, *L. Humboldtii*, *L. Martagon*, *L. speciosum*, *L. tigrinum*, and *L. umbellatum*, are hardy, it will only be necessary to shorten back the stems, and to place some soot in the hollows of the stems and over the surface of the soil, as a check to the ravages of slugs. As a safeguard against frost, a layer of coal-ashes 2 to 3 inches thick may be laid over the bulbs.

FRUITS UNDER GLASS.

By W. STUBBELL, Gardener to Lieut.-Col. RALPH VIVIAN, Wood Ashton, Trowbridge.

Tomatoes.—The earlier fruiting plants, if they have produced a sufficiently satisfactory number of trusses, should be stopped; four or five trusses, according to the strength of the plants, and the size of the pots in which they are grown, will be as many as it will be prudent to retain. Light top dressings of soil and bone-meal may then be applied, in preference to manure-water, as a stimulus. The lateral shoots must be removed as fast as they appear. Let ventilation be afforded in a moderate degree in mild weather, and avoid the use of high temperatures, or the spot disease may destroy the fruit. The flowers should be artificially impregnated every day about noon; meanwhile keep the air of the house dry, and afford a small degree of warmth in the heating apparatus. Succession-plants in small pots should be placed where the fullest amount of sunlight reaches them. Tomato-plants raised in September or later in the year, when potted, should be placed near the sides of the pot and not at the centre; the plants keeping in better health, and the roots increasing in greater number and strength, than is the case when potted in the usual manner. If the white fly infests the plant, apply the XL-All vapour twice at short intervals of time. Flowers-of-sulphur made into a paste and smeared on the hot-water pipes is another good remedy for this insect, but it will injure tender plants which may be occupying the same glasshouse. More Tomato-seed may be sown if the stock of plants is insufficient, but unless the seed can be very thinly sown, and there is the convenience of a shelf near the glass in a warm house, sowing should be deferred to the new year.

Pruning Vines.—The Grape Vines, except in the case of the latest, may be pruned at this season; but Vines on which the leaves are still green and sappy should not be touched. Such Vines should be afforded a small amount of fire-heat by day, in order to finish the ripening. Different varieties require different methods of pruning, as, for example, the Black Hamburgh may be pruned closer than would be suitable for Gros Guillaume, the latter being very shy of fruiting on short spurs; Gros Maroc, again, will benefit by its spurs being left of greater length than the Hamburgh. As a rule of general application, it may be said that close spurping is productive of small bunches, which, in most families, are more useful than larger ones. A shoot should be cut back to a strong, plump bud which is in close proximity to the main rod. Vines whose fruiting-spurs have been allowed to grow to a considerable length are much improved by the occasional removal of the rods having the longest spurs and substituting young rods for them. This kind of partial renewal is best done at this season. If the rods cannot be spared, a few of the spurs should be shortened, when new shoots may push, which in time will form spurs. The rods of young or newly-planted Vines should be shortened more or less according to their strength, the weaker being the more severely shortened. If vine-propagation by means of "eyes" be practised, some of the best shoots should be selected, plainly labelled in bundles, and then laid in out-of-doors. All vineries

that are not actually started, and in which no fruit is hanging on the Vines, should be thrown wide open. The greatest attention must be paid to the destruction of insect enemies infesting the Vines. The worst of these is undoubtedly mealy-bug, which if not waged vigorous war against renders the fruit perfectly uneatable. The Vines must have the loose bark rubbed off by hand, all crevices cleaned out, and then be washed with hot-water, and afterwards receive a dressing of Gishurst's Compound Soap at the strength of 3 ounces to the gallon of water, the dressing being repeated once before the Vines are started. The surface soil of the border should be removed, together with the leaves, prunings, &c., and be burned forthwith; the hot water-pipes scrubbed with strong soap-suds and soda, and all wood-work and the walls rendered quite clean. If the Vines can be allowed to freeze a few times it will do good.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener, North Myms Park, Hatfield.

Eranthemum pulchellum.—This plant is very serviceable for the decoration of the stove, intermediate-house, and warm conservatory at this season, and the flowers are of a colour not very common in winter flowers. They are produced successively for a considerable time when the plants are not subjected to too low a temperature, and therefore when used in the conservatory they should be placed at the warm end.

Stephanotis floribunda.—Plants which flowered early, and have since been afforded a good rest in a cool temperature, may now be started into growth. An application of tepid water should be made, and the temperature of the house raised to 60°. Plants in pots that are filled with roots should be shifted into larger pots; or if that be not possible, a top-dressing of rich compost should be afforded, after removing some of the soil. Later plants should be kept somewhat dry at the root, and rested in a temperature of 55°. If mealy-bug infest them, the opportunity should be taken while the plants are at rest to spray them with petroleum, soft-soap, and warm water.

Medinella magnifica.—The floriferousness of this fine plant is much increased by affording it a thorough rest. It should be grown throughout the summer in a light part of the stove, and at the beginning of the autumn, when the growth is matured, it may be freely exposed to the sun, with little risk of injury to the foliage. From the present time until the plants show bloom in the spring, they should be kept in a house with a temperature of 55°; but when about to flower, they should be removed to the stove, and be afforded frequent applications of manure-water.

THE KITCHEN GARDEN.

By H. MARHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Digging and Trenching.—All work of this kind should be carried on vigorously during the present month, affording the land dressings of manure at a good depth, if it need manure. Light and porous soils are considered by some gardeners to be the better for being dug at the end of winter, but where the area to be dug is large, a considerable proportion of kitchen-garden land, as a matter of prudence, should be dug at the present season. Wet and stubborn land is the better for being ridged at the winter season, the ridges being laid from north to south, so as not to have a wet side and a dry one. If draining is necessary, this should have attention before the digging is begun.

The Walks.—Having finished the digging of the land, the Box-edgings may require relaying or mending, and these operations may be undertaken in mild weather, although they are more properly carried out in March, April, and May. Where Box forms the edging material in a kitchen-garden, and nothing looks nicer, although to keep it in good order it entails a lot of trouble, a greater height than 3 inches should not be allowed.

Potatoes.—Sets for forcing should now be placed in shallow trays or boxes, and be covered lightly with finely-sifted leaf-soil, putting them in a newly-started Peach-house, &c., to sprout. Potatoes may be forced with every chance of success in pots or in warm frames and brick pits. If in pots, choose 12-inch ones, which should be washed clean, and allowed to get dry before they are three-parts filled

with light fresh soil. Place three tubers in each pot, burying them 3 inches deep. When the haulm reaches above the edges of the pots, moulding-up should be partially carried out, more soil (warm) being added when the tops get higher. This holds good of Potatoes in hot-beds as well as in pots. Water should be sparingly applied till the roots have become numerous, and leaf-growth considerable. All the light possible must be afforded the plants from the time the shoots break through the soil till the crop is ripe. Hot-beds for Potato-forcing should in preference be made with this season's tree-leaves and stable litter, and the whole mass should be turned over and mixed together three times at the least. The hot-bed materials should be made quite firm in the process of building, and when the heat has sunk to a safe point, say 75°, light rich soil to the depth of 10 inches should be spread over the bed. The tubers may be set at 8 inches apart in the rows. Carefully admit air after the tops appear above the soil; and if the heat should rise higher than the figure named, holes should be made all over the bed with a stout stake in order to let the heat escape. The top-heat should not exceed 60°, and it must be kept at that height by moderate linings of stable litter. Some gardeners sow early varieties of Radish after planting the sets, but these are seldom satisfactory. Cover well at night.

Peas.—Preparations should now be made for sowing Peas for forcing and growing in the open.

Onions.—The bulbs in some gardens were somewhat late in being harvested, and as decay is very likely to occur among them they should be examined at short intervals, and all rotting bulbs removed. Onions need to be stored in a very airy position if they are to keep well, and no place is less suitable for them than a damp, close one under ground. Hard frost will not injure Onions, provided the thawing of the bulbs is slow and gradual.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FRANKLIN WILSON, Bart. Clons Lawn, East Sheen.

Madagascar Orchids.—Importations of these species are seldom made in large quantities, consequently when a small parcel arrives, efforts should be made to secure some of the plants, and having succeeded in this, to grow them well. The Orchids, native of this tropical island, have either curiously-formed or beautiful flowers, but unfortunately they are very often found to be intractable subjects to cultivate and maintain in a healthy state for any great length of time. *Eulophiella Elizabethæ*, although it is a species that was imported in thousands a few years ago, has almost disappeared from collections, yet, so far as my experience goes, its cultivation is comparatively easy. Imported plants, acquired at this season, should not be hurried into activity, but rather allowed to remain at rest till the spring, by placing them on a moist stage in an intermediate Cypripedium-house; and should any of them make roots, let the plants be placed in shallow, perforated pans filled with crocks, and surfaced with a compost consisting of fibry peat two parts, fibrous loam and sphagnum-moss one part each, and sprinkle in, as the operation proceeds, some finely-broken crocks. These pans should then be hung in the light in a warm house, and not be afforded much water, merely sprinkling them occasionally. Established plants of this species will at this season be finishing their growth, and strong plants thrusting forth flower-spikes. As the latter issue horizontally along the surface of the compost, there is much need of carefulness in applying water, otherwise they may damp off. The best method is to immerse the pan to the rim in tepid rain-water. The compost should have become fairly dry before water is afforded. The leaves should be often cleaned with a sponge, in order to remove red-spider and thrips.

Phaius tuberculatus, imported sometimes with the above, should be treated in a similar manner, until potting becomes necessary. The plant does best in shallow Teak-wood baskets well furnished with crocks as drainage, and also mixed with the compost. The latter may consist of the best Orchid peat and sphagnum-moss in equal proportion, and on this the rhizomes should be secured with wooden pegs. For the present, let the plants be hung up with the *Eulophiellas*, carefully moistening the surface occasionally, without however wetting any young growths that may appear.

Phaius Humbloti should, when received, be fixed in pots of a suitable size, filled almost to the rim with crocks, and then be placed on a stage at the warmer part of the Cattleya-house, water being afforded occasionally. When roots appear the crocks should be removed to the depth of 1½ in., and be replaced with a compost similar to that advised for the *Eulophiella*. Moisture is essential, but much of it will similarly injure the new growths.

Grammangis (Grammatophyllum) Ellisii.—This is another newly-imported Madagascan, which the gardener seldom succeeds in keeping in a flourishing condition, the treatment afforded it during the earlier stages usually being wrong. If a plant be received at this season, let it be fixed in a pan filled with crocks, and staged or suspended in the East Indian-house, being careful that no drip reaches it. Until root activity begins, little notice need be taken of it so long as the pseudo-bulbs do not shrivel; when, however, new roots begin to show, a small portion of the crocks should be replaced with an equal part of peat and moss, and a kind of treatment similar to that accorded the *Catasetums* adopted.

Angræcums from Madagascar should not be afforded much moisture during the winter.

Epidendrum vitellinum should now occupy a position near the roof ventilators of the cool-house, and be so placed that cold draughts do not reach it, water being almost entirely withheld.

Cattleya citrina, now developing new growths, should be suspended in a light airy position, in a warm intermediate-house, and when roots appear be afforded water sufficiently often to keep the small quantity of material about them in a moist condition.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORSTER, Esq., Drogheda, Maidenhead.

Bush Fruits.—The pruning of Gooseberry and Currant bushes may now be undertaken. In pruning the former, the spurting method, in vogue at one time, is not so much practised as formerly; but more young wood is left to produce a heavier crop of berries the following season. Where this style of pruning is carried out, some of the branches must be cut clean out from near the base, giving sufficient space to allow of the ready gathering of the fruits. The different varieties of Gooseberries vary much in habit of growth; some are of a stiff erect growth, while others have a more or less pendulous form. and the pruning must be adapted to the various habits, removing, partially or wholly, from the latter those shoots which, if allowed to remain, would, when weighted with fruits and foliage, touch the ground. Red and white Currants may be pruned somewhat harder, by spurting in the side-shoots to two or three eyes, and allowing the leading shoots to extend, and training up young shoots from towards the base, so that a few of the old ones may be dispensed with annually.

Black Currants require a different mode of pruning. The young growths on fully-grown bushes should not be shortened, excepting in so far as to remove the points of the weaker shoots; but the oldest branches should be cut clean away at the ground-level, pruning so as to give the bush a shapely appearance, and leaving the branches sufficiently wide apart as to allow the light free access when in leaf. Growth arising from the roots should be preserved, as these will in the course of a year or two take the places of those annually removed. A strong, free growth should be encouraged by surface-manuring, as an antidote to the Currant-bud mite (*Phytoptus ribis*), which has become a scourge to the black Currant in some districts; and bushes of strong growth are not so liable to be infested. Where the buds are seen to be swelling unduly, the presence of this mite may be suspected; and it will be prudent to go carefully over the bushes and cut off all affected buds, and burn them. So far, no certain cure or antidote seems to have been discovered better than the constant examination of the bushes, and the removal of the buds. After pruning is completed, Gooseberry and Currant bushes should be dressed with some mixture to prevent the birds taking the buds; and in some districts the sparrows and bullfinches are often very troublesome in this respect. One of the best preventatives is a solution of Bentley's Quassia extract, used at the rate of half-a-pint to three gallons of

rain-water, with a little freshly-slaked lime and some soot added, which, when well mixed, will be of the consistency of thin cream. This can be syringed over the trees by using a syringe with the jet up. The bitterness of the quassia renders the mixture distasteful; but the dressing must be repeated occasionally during the winter to be efficient, especially after heavy rains.

The Gooseberry-Caterpillar.—Where this pest has been troublesome during the past spring, it will be advisable to take the precaution of removing a couple of inches of the surface-soil, together with any leaves and rubbish there may be under the trees, where the cocoons of this caterpillar are found during the winter; and when the leaves appear in the spring, the saw-flies emerge from the cocoons, and lay their eggs on the young leaves. The soil and rubbish should be removed to the middle of the rows, and be deeply dug in; or, better still, be placed in a hole at a little distance away, and the soil dug out replaced under the trees, after a sprinkling of fresh lime has been applied. If treated thus, the probability of a future attack will be much lessened.

Propagating the Gooseberry and Currant.—Cuttings should be selected and inserted in the open border forthwith, where home propagation is desired. The shoots selected for this purpose should be of moderate strength, and from 12 to 15 inches in length. With black Currants, whose basal growths are encouraged, the cuttings should be inserted intact; but for Gooseberries, and red and white Currants, all the buds, excepting four or five at the point of the cutting, should be cut out with a sharp knife—the buds that remain furnishing the main branches of the bush. When inserting the cuttings, cut out with a spade a somewhat upright trench, on any warm border where the ground is moderately light, about 6 inches in depth, bedding them in firmly 6 inches apart, in rows 9 to 12 inches asunder.

THE APIARY.

By EXPERT.

Wintering.—Every bee-keeper should now wrap up all bees warmly with cloths, &c. Old sacking is a very good thing, provided a little naphthaline-powder is placed between the pieces, so as to keep away the moths. This year has been a wonderful one for the wax-moth, and the size of these creatures this season has been remarkable. It is very important that these pests should be kept clear of the hives, as it does not take them very long to destroy a colony. I found this year two colonies destroyed by them; and the most remarkable thing about them was, that they had actually been impressed into the wood-work of the frames. A winter passage should be provided in all cases through or over the combs, to enable the bees to travel freely when so disposed. A tray fitting the hive, and filled with chaff, cork-dust, or sawdust, sowed up in a bag, should be placed over the frames. This will be found a good safeguard during the winter months.

Candy-cake.—All stocks, whether good or bad, should have a brick or two of candy-cake placed on them. It is prudent to take care of all half-finished sections, or those that have been damaged, and place these on the frames, instead of having the bother of making candy-cake; and I agree with a good many, that the natural food is by far the best.

Roofs.—These should be looked to at frequent intervals. A plan which I usually adopt is to ask a manufacturer of tarpaulin to save all small pieces, and when he has a sackful I send for it, or they bring some in, as the case may be. After all is wrapped up nicely, I place a piece of old rickcloth or tarpaulin over it, and by an occasional examination, I find out which are wet; I have then only to remove the cloth, throw off the water, and replace it, at the same time marking those which are bad. Should, however, the roof be very bad, cover it with a piece of felt or zinc. A roof which leaks very badly is always a trouble.

Wax.—All wax should be carefully extracted, and all refuse burnt or buried; this is very important, as by leaving comb about it is sure to get infested by the wax-moth, and sometimes foul brood may arise from it—and one has to bear in mind that when an apiary is once infested with this terrible pest, what a job it is to get rid of it. Only one who has gone through it with a large apiary can realise the vast amount of labour and expense involved in stamping it out.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER**. Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR DECEMBER.

TUESDAY,	Dec. 5	Royal Horticultural Society's Committee Meeting. National Chrysanthemum Society's Mid-Winter Show (3 days). Scottish Horticultural Association Meeting.
THURSDAY,	Dec. 7	National Rose Society's Annual Meeting and Dinner.
TUESDAY,	Dec. 12	Royal Horticultural of Ireland Meeting.
MONDAY,	Dec. 18	National Chrysanthemum Society's Executive Committee Meeting.
TUESDAY,	Dec. 19	Royal Horticultural Society's Committee Meeting.
MONDAY,	Dec. 25	Christmas Day.
TUESDAY,	Dec. 26	Bank Holiday.

SALES FOR THE ENSUING WEEK.

MONDAY, Dec. 4, and the following Tuesday, Wednesday, Thursday, and Friday, Dutch Bulbs, at Protheroe & Morris' Rooms.
WEDNESDAY, Dec. 6.—Important Consignments of Japanese Lilies, Tree-Ferns, Azaleas, Roses, &c., at Protheroe & Morris' Rooms.
FRIDAY, Dec. 8.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period November 19 to November 25, 1899. Height above sea-level 24 feet.

1899.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.			LOWEST TEMPERATURE ON GRASS.
		At 9 A.M.		DAY.	NIGHT.		At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	
		Dry Bulb.	Wet Bulb.							
NOVEMBER 19 TO NOVEMBER 25.		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 19	E.S.E.	43.1	42.1	46.1	36.1	...	45.6	48.5	51.7	27.4
MON. 20	W.N.W.	41.9	40.7	48.5	31.8	...	44.2	48.3	51.5	24.8
TUE. 21	N.N.W.	37.6	37.2	46.3	32.5	...	44.2	47.9	51.2	24.0
WED. 22	W.N.W.	46.9	45.0	49.0	36.7	...	44.7	47.8	51.1	27.5
THU. 23	W.N.W.	45.9	43.0	49.8	43.9	...	45.5	47.8	50.9	31.0
FRI. 24	S.W.	48.2	45.1	50.2	43.8	...	45.9	47.8	50.6	30.7
SAT. 25	S.W.	48.1	45.9	51.7	46.1	...	46.5	47.9	50.5	37.8
MEANS...	...	44.5	42.7	48.8	38.7	Tot.	45.2	48.0	51.1	29.0

Remarks.—The weather has been dull and dry, no rain having fallen since the 9th inst.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—41.3°.

ACTUAL TEMPERATURES:—

LONDON.—November 29 (6 P.M.): Max. 51°; Min. 43°.

Fog; slight frost.

PROVINCE.—November 29 (6 P.M.): Max. 51°, S. and W. Counties; Min. 41°, N.-E. Scotland.

A PAPER prepared by Mr. D. E. State Forestry. HUTCHINS, Conservator of Forests, Capetown, and read before the Society of Arts on November 22 last, will, it is to be hoped, attract the attention of statesmen and landowners. Some of the statements made in it, and some of the proposals brought forward appear to err on the side of exaggeration, but there is nothing to be said against the general principles laid down. Details may require revision, but there can be no doubt as to the general truth of Mr. HUTCHINS' contentions. The paper is published in full in the *Journal of the Society of Arts*, but we may call

attention to some of its principal conclusions. Mr. HUTCHINS laments the wasted opportunities offered by the treeless mountains of Wales, Ireland, Scotland, and other districts. He shows how the defect might be remedied by the establishment of a State Forest Department, and of State forests on an adequate scale. Financial obstacles have no terrors for Mr. HUTCHINS. A million sterling per annum would be required as he estimates, but, as we have now to buy and import timber to the amount of over twenty millions, which might be grown here equally well, the sum mentioned is not out of proportion; whilst the fall in the current rates of interest on capital renders British state forestry remunerative for the first time in history. The rural population would be greatly benefited. If three-hundred thousand acres were annually planted, work would be found for at least fifteen thousand labourers, corresponding to a population of seventy-five thousand people, the numbers increasing each year till at the end of thirty years permanent employment in the forests would be provided for one hundred and fifty thousand labourers, or a total population of seven hundred and fifty thousand people.

On one point we do not think popular opinion will support Mr. HUTCHINS. He is of opinion that the present generation, as a whole, is of inferior physique to its predecessors, and he attributes this to factory life, dwelling in towns, and a relative absence of out-door exercise and occupation. We do not think the facts bear out these conclusions. Taken as a whole the country was never in a healthier condition than it is now, the death-rate has diminished, the mortality from phthisis even is stated to be only half what it was a few years ago. We have only to look at the young men of the present day and compare them, as some of us can, with their predecessors, to see that athleticism, in spite of being carried to absurd extremes, has had a most beneficial influence on the rising race. In any case, we quite concur with Mr. HUTCHINS in his estimate of the value of forests as recreation grounds.

What value the forests would have from a defensive point of view in case of an invasion we are not in a position to judge. In any case, some years must elapse before their value in this connection could be assessed, and decidedly the longer the period the better in all ways! The diminution of the smoke nuisance is another benefit that we or our successors will obtain by the use of wood rather than coal as fuel. Mr. HUTCHINS concludes his paper with the following reasons for immediate action:—

1. Twenty million seven hundred and fifty thousand pounds spent every year for wood that could be equally well grown at home.
2. Consols at two per cent.
3. Shrinkage in foreign sources of timber supply.
4. Fall in the value of land in Britain.
5. Livelihood for the country population.
6. Recreation for the towns' folk.
7. Aid in defending the country against invasion.
8. National insurance.
9. Abatement of smoke nuisance in towns.

Mr. HUTCHINS writes clearly and forcibly. He sees what is wanted, and he knows how it can be supplied. In a future issue we shall probably make extracts from what is certainly a most suggestive paper, and one demanding the most careful attention on the part of experts.

CHRYSANTHEMUM MRS. ALFRED TATE.—This flat-petalled Japanese variety was shown by Mr. Lees, gr. to F. A. BEVAN, Esq., Trent Park, Barnet, at the Floral Committee of the R.H.S. on Nov. 21, when it received an Award of Merit. We selected it for illustration (fig. 133) as a good representative of the short, flat-petalled section, and of symmetrical form. In colour, it is of a brownish-orange, our artist says "sienna-orange." It is said to have originated as a sport from Etoile de Lyon, than which it is more regular and uniform in shape.

ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral meeting of the Royal Horticultural Society will be held on Tuesday, December 5, in the Drill Hall, James Street, Westminster, from 1 to 4 P.M. A lecture on "Some of the Plants Exhibited," will be given by the Rev. Professor G. HENSLOW, M.A., at 3 o'clock.

"THE JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY."—The November number of the *Journal* has just been issued, and is creditable to the skill and diligence of the Editor. It contains a full report of the papers read before the Society from June last, as well as the lectures given to the students at Chiswick by Professor HENSLOW. In addition, there are the reports on the trials at Chiswick of French Beans, Peas, Tomatoes, Lettuces, Potatoes, Pompon Dahlias, and notes on the work of the several committees. The report of the Hybridisation Conference is postponed.

HORTICULTURAL CLUB.—The usual monthly meeting and *conversazione* was held on Tuesday evening at the Rooms of the Club, Hotel Windsor, Victoria Street, Westminster, when there was a good attendance of members. The subject for discussion was "The Fruit Crop of 1899," which was opened by Mr. ALFRED H. PEARSON, in a practical and instructive paper, which we give in another column. A valuable discussion followed, in which such experts as Mr. GEORGE BUNYARD, Mr. MONRO, Mr. ALFRED RIVERS, and others joined. It was much appreciated by all present, and a cordial vote of thanks was accorded to Mr. PEARSON for his paper.

LINNEAN SOCIETY.—On the occasion of the meeting to be held on Thursday, December 7, 1899, at 8 P.M., the following papers will be read:—1, Mr. J. W. FAWCETT, "On some Vegetable Poisons used for the Capture of Fish by the Australian Aborigines;" 2, Mr. G. M. THOMSON, "On some New Zealand Schizopoda;" 3, Mr. H. M. BERNARD, "On the Structure of Porites."

THE WALSHINGHAM MEDAL.—Mr. H. H. W. PEARSON, B.A., assistant for India in the Kew Herbarium, has been awarded the Walshingham Gold Medal of the University of Cambridge, which is given for the best essay in biological science.

FRILLED ANEMONE LEAVES.—Mr. AMOS PERRY, Plant Farm, Winchmore Hill, sends us leaves of *Anemone japonica*, lobed and frilled at the edges, as in some of the *Scolopendrium*s. This is, of course, only an increased amount of subdivision, such as is common in *Anemones* and other *Ranunculaceae* plants. We have met with similar productions on other occasions, as from the garden of the Rev. WOLLEY DOD.

BELGIAN FLORA.—The easiest book on the Flora of Belgium is the *Abregé de la Petite Flore de Belgique*, published by M. ALFRED COGNIAUX, a fourth edition of which, dated 1900! is now (November, 1899) before us. The Belgian Flora is so nearly identical with our own, that we have no hesitation in recommending this little volume to beginners in British botany conversant with the French language. We doubt the appropriateness of most of the vernacular names, feeling sure that they are not native-born, or used by the inhabitants. Do they speak of the *Pavot douteux* when they mean *Papaver dubium*? or of "*Ranuncule scélérat*," and of scores of other names, which are

but translations from the Latin, and not required? Directly the pupil gets interested in his subject, away go the popular names; or if he does not become interested, why take any further trouble about him? His tastes lie in some other direction.

"ASSOUAN AS A HEALTH RESORT."—By W. E. KINGSFORD (SIMPKIN, MARSHALL, HAMILTON, KENT & Co., London).—As stated in the prefatory note, the chief object of this publication is to draw

comparatively slight, and is effected gradually. Assouan is now rendered easily accessible, and there is accommodation for invalids, by which many have already benefited; the chief danger here, as elsewhere, being in departing too soon after winter, while the European climate is still ungenial. Physicians, whose patients are prepared to remain in Egypt until March or April, should certainly turn their attention to this little Guide, and the locality therein recommended.

previous explorers. They are the most complete reports yet published, and will doubtless long remain standard works on these subjects. The work is liberally illustrated throughout. The plate of Eggs of the Little Stint has been reproduced in chromo-lithography by Herr GREVZ, of Berlin (who so successfully executed the greater number of the plates in the late Lord LILFORD's work on *British Birds*), and care has been taken to give the best results with the eighty-eight plates, as well as with

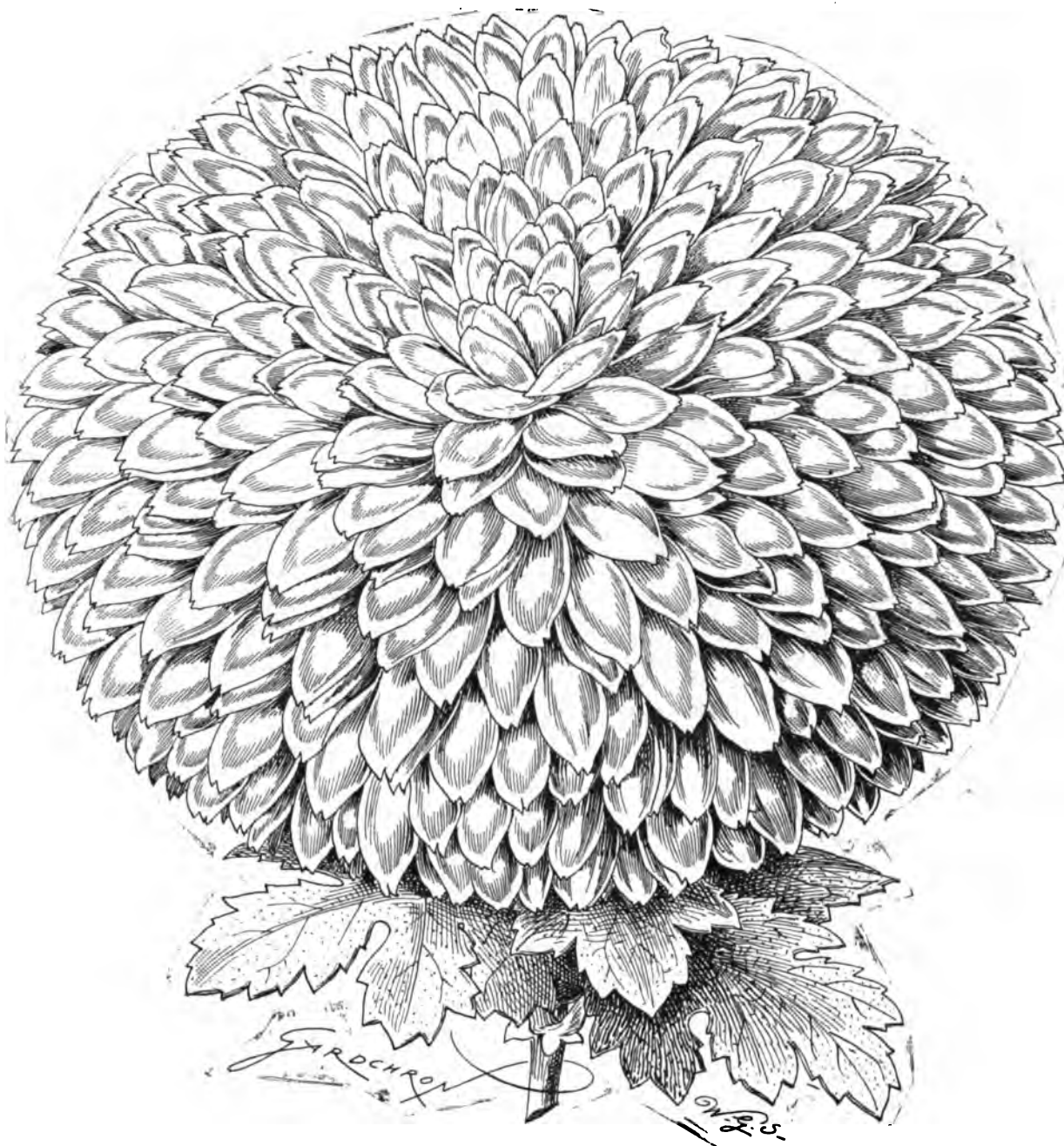


FIG. 133.—CHRYSANTHEMUM "MRS. ALFRED TATE": COLOUR REDDISH-ORANGE. (SEE P. 418.)

the attention of the medical faculty to the value of Assouan as a health resort, and to the provision of accommodation suitable for invalids at the hotel which is now in course of erection. The writer certainly makes out a good case, showing that at Assouan the dry Libyan desert air is obtained in its full purity; that, in fact, that station is "the driest health resort known in the world. It possesses the advantage that this is attained without elevation, and is accompanied by an almost ideal winter temperature." Further, the difference between the day and the night temperature is

"BEYOND PETSORA."—The book issued under this title by Mr. H. J. PEARSON is a record of two voyages to Novaya Zemlya, and the Islands of Barents Sea, undertaken with a view of studying bird-life during the breeding season. The author was fortunate in securing as companions Colonel FEILDEN (Naturalist of H.M.S. *Alert*, in the Arctic Expedition, 1875-76) and the Rev. H. H. SLATER. Colonel FEILDEN's Appendices on the Botany and Geology form a very attractive and interesting portion of the volume, combining the results of his personal observations with those of

the maps. The edition is limited to 500 copies. Those desirous of possessing the work should communicate at once with Mr. R. H. PORTER, 7, Prince's Street, Cavendish Square, London.

MARKING IMPORTED POTATOS WITH NAME OF PLACE OF ORIGIN, ETC.—We learn that a Potato-exporter in Germany has commenced to mark the bags with a large stencil-plate, bearing his initials, name of town, a number, and the representation of a large cathedral, or similar object. His intention is to accustom the English small

consumers to his brand, and by these means to force the English importers to buy his Potatoes in preference to those of others. The goods are not packed by himself, but by a number of independent packers, who work at the same time for other exporters. The above mark, consequently, does not mean a real brand.

WIDOWS AND ORPHANS OF THE SOUTH AFRICAN WAR.—On the 7th ult. a public meeting was held in the Floral Hall, Covent Garden, by permission of the Duke of Bedford, for the purpose of collecting subscriptions for the Mansion House Fund for the widows and orphans (South African campaign). At the commencement of the meeting it was announced that about £270 had already been promised among several of the leading brokers, salesmen, and growers who were connected with Covent Garden Market; and at a subsequent stage of the proceedings it was intimated that the Duke of Bedford had given a donation of £500, in addition to the various amounts which he had already contributed for the same purpose. Before the meeting terminated, the list amounted to nearly £1000, and the total amount subscribed up to the present is about £1800. It is expected that the fund will reach £2000, and a cheque for £1000 has already been remitted to the Lord Mayor as a first instalment.

—We learn from the *Yorkshire Telegraph and Star* of Monday, Nov. 27, that on Saturday, Messrs. FISHER, SON & SIBBAY (Limited), Royal Nurseries, Handsworth, carried out an excellent idea to help the fund now being formed for the relief of the wives and families of the men at the front, it having occurred to Mr. W. ATKINSON, the managing director, that the Sheffield people might be disposed to favour a sale in aid of this excellent object. Accordingly a sale was announced for last Saturday, at the Sheffield establishment, Market Street. The premises were handsomely decorated with patriotic flags, and foliage-plants, flowers, floral-baskets, &c. The sale was a signal success, and the promoters were particularly gratified by the number of working-men and their wives who gladly availed themselves of the opportunity of obtaining flowers and plants at a reasonable price. The amount realised was £40.

STERILISED GRAPE-JUICE FOR BEVERAGES.—It would appear as if our Canadian friends will soon be ready to place on the English market a quantity of the preparation sufficient to test its chances of success as a commercial speculation. We understand that at the agricultural station the manufacture was successfully carried out; the experimental stage is now in the hands of the capitalist. We may note that large quantities of juice have been made, but, not having been properly treated, it fermented, and became useless, the micro-organisms becoming masters of the situation. Now, the simplest process for the destruction of the objectionable organism is heat; heating is the safest and most effective means of sterilising, but, of course, care is required in so controlling the temperature as to secure sterilisation without doing damage to the flavour. The temperature of the juice should be gradually raised to 170° F., keeping it at this point for some ten minutes, and then bottling it rapidly, care being taken to use for this thoroughly sterilised and absolutely air-tight vessels. These vessels should be kept in a tank of boiling water, taken out as required, and immediately filled and corked up with the least delay. The experiments at the "station" proved efficacious in the matter of cider and perry—as was to be expected.

NATHAN MARKS, whose name has been mentioned in connection with the war in Natal, was a well-known nurseryman, carrying on business at Johannesburg.

CHARLOCK.—Mr. STRAWSON concludes, from the returns sent in, (a) that Charlock can be destroyed in growing corn crops in May and June without injury to the latter, by spraying with 50

gallons 2 per cent. solution of pure sulphate of copper per acre; (b) that the best time to apply this is when the Charlock is young and from 2 to 6 inches in height; (c) that where the Charlock is destroyed the corn crops are improved. That the principal causes of failure are: (d) spraying too late; (e) using insufficient solution; (f) using impure copper sulphate. The most successful spraying is on Charlock when 2 to 6 inches high. To those who intend to spray their crops in the future, it is most desirable to decide early upon the acreage to be sprayed, and make every preparation in good time in order to secure the greatest advantage from what has proved to be a beneficial discovery.

A CHRYSANTHEMUM EXHIBITION, at which no cut blooms are shown, or prizes awarded, lacks two very important features from the standpoint of the average visitor, and certainly of exhibitors. Such an one was, however, held on the 21st ult., at Retford, and it proved a success. The event was arranged to support the local fund in aid of the widows and orphans, and wounded, that will result from the present war in South Africa. Excellent groups of Chrysanthemum plants were contributed by residents in the neighbourhood. These exhibitors included E. E. Harcourt Vernon, Esq. (gr., Mr. Welsh), A. R. Garland, Esq. (gr., Mr. Hebden), H. Peake, Esq., West Retford House (gr., Mr. Heath), F. Huntsman, Esq. (Mayor) (gr., Mr. Nixon), West Retford Hall; F. W. Denman, Esq. (gr., Mr. Worthington), and Captain Whitaker, Babworth Hall (gr., Mr. Best). A magnificent group of Orchids was contributed from the gardens of F. LAYCOCK, Esq., Wiseton Hall, Capt. of the Sherwood Rangers, and who is now "at the front" with General FRENCH. The sum of £39 was realised.

THE GERMAN EMPEROR AT BLENHEIM.—During his visit to Blenheim, the German Emperor planted on the east side of the large lawn in front of the Palace, a specimen of *Picea pungens* glauca. Mr. WHILLANS tells us the specimen is about 4 feet high. This is not only one of the most beautiful, but also one of the hardiest of the Spruces.

MR. OWEN THOMAS, V.M.H.—The *Journal of Horticulture* reports that Mr. OWEN THOMAS was the recipient, on Saturday last, of a gold and blue enamelled Maltese cross from his Imperial Majesty the Emperor of GERMANY. The cross represents the German Order of Coronation, 1861 (4th class). We congratulate Mr. THOMAS on the distinction conferred.

PLANT PORTRAITS.

NERINE MANSILLI, *Garden*, November 11, 1899. Dull crimson, flushed with lilac.

PHYCALMIA REGIA X. A hybrid between *Phycalmia corallina* and *P. bracteata*. Flowers crimson, in elongated dense spikes. *Fl. Dutch Revue* Tinslow, tab. III, 1899.

ROSE GRAND DUC D'ALGER, *Rosen Zeitung*, October.

ROSE GRUSS AN TEPLITZ, hybrid Tea, raised by Geahwind; bright crimson; semi-double. *Rosen Zeitung*, October.

STOCK (BROMPTON) EMPRESS ELIZABETH, double crimson very floriferous. *Binary Catalogue*, Erturt, 1899-1900.

NOTICES OF BOOKS.

BOTANY FOR BEGINNERS. Ernest Evans.

MESSRS. MACMILLAN & Co. have published under this title an elementary treatise which will be serviceable to beginners, and especially to those unable to obtain the aid of a trained teacher. It deals with the morphology of plants, general and histological, but the illustrations relating to the microscopical structure are rough and obscure. The physiology of nutrition, growth, and movement is treated very clearly. In at least two places the reader is told that classification is based on the resemblances and differences of plants, which is an inadequate statement, omitting as it does the very important fact that the nearer approach classification makes to genealogy, the more perfectly natural

is it. A natural system is necessarily a genealogical one, and it may so happen that the "resemblances" are specious, and the "differences" immaterial. On the whole, it is remarkable how the author has managed to condense into so small a space so lucid a digest of the details relating to the conformation, structure, and physiology of flowering plants. There are at least two, and we think three, other books with the same title, but although they all deal with the same subjects, the treatment is different.

LA CULTURE DES CHRYSANTHÈMES À LA GRANDE FLEUR. Par V. Vivian Moral.

FIVE years ago M. Vivian Moral, whose name is one of the most familiar to English Chrysanthemum-growers issued a little treatise on the subject of big bloom culture. It is evident from the issue now before us that further and fuller details have been wanted by his readers, and to supply this want the author has entirely revised, corrected, and enlarged what was a mere brochure into something much more substantial.

The new work is a neatly-printed little volume of sixty-two pages, with some capital illustrations. It contains chapters on propagation, on the cultivation of standards, specimen plants, big bloom culture in pots, in the open ground, together with much useful information on composts, manures, and insect pests. A monthly calendar of operations is given, and a list of the best varieties. We notice, too, at the close of the work a glossary of technical terms employed by growers, many of which, being borrowed from the English, need explanation. The price is one franc, and the book is to be obtained of the author at Lyons.

CULTURE DES CHRYSANTHÈMES À LA GRANDE FLEUR ET À TAILLE BASSE. Par G. Chabaune et A. Choulet.

THIS is another handy little reprint of a work on the popular autumn favourite, somewhat larger than the preceding, but dealing more particularly with a phase of cultivation known as the "culture lyonnaise," which consists of growing the Chrysanthemum in a very dwarf form, but also aiming at the obtaining of large blooms. Many of the Chrysanthemum-growers in and around Lyons adopt this method, and plants grown in this way are most useful for grouping, and remind us very much of the "cut-downs" grown by Mr. C. Orchard some years ago. In addition to the cultural matter there is a chapter on fertilisation, which is the substance of a paper read by M. Gérard at the Congress of the French N.C.S. at Orleans. Another chapter contains M. Chiffot's paper on maladies and parasites.

A select list of varieties suitable for this mode of culture concludes the work, which, like the one previously mentioned, also contains some illustrations explanatory of the text. This one can be obtained of MM. Rivoire et fils, 16, Rue d'Algérie, Lyons.

AS DAHLIAS CACTUS. Par H. Cayeux.

WE think about four years ago we noticed a little pamphlet on the Chrysanthemum by this gentleman, who is head gardener at the Polytechnic School, at Lisbon. Like its predecessor, the one now before us is in the Portuguese language, and contains brief instructions relating to the history, propagation, and cultivation of the Cactus Dahlia in Portugal. It will no doubt be a useful addition to the somewhat limited horticultural literature of that country.

CULTURAL MEMORANDA.

RIVINA HUMILIS.

DURING the winter season berry-bearing plants are much sought after as decorative material for rooms and the dinner-table. This species of Rivina is effective, and one of the most useful for these purposes.

There are two modes of propagating *Rivinas*—by cuttings and seeds; and my own is by seed, of which I sow a small quantity at frequent intervals in a warm, humid house or pit, and the seedlings are kept in the early stages near to the glass. The plant grows to a certain height before branching, and I think it best to allow them to do this and pinch out the side-growths till the stem is 1 foot in height, and in this way obtain small standard plants, which is the prettiest form for this plant. Although a warm, moist house is the most suitable whilst the plants are growing fast, they should be afforded a dryer one as soon as the flowers begin to appear, in order to ensure the fertilisation and the production of perfect panicles of berries. *H. T. M., Stoneleigh.*

and in various situations in the grounds are some very fine old Cedars. But apart from these, there are few trees and shrubs that are noteworthy beyond the native species.

On the other side of the residence is a good-sized kitchen-garden, which also contains the necessary fruit-trees for home needs. Wexham Park is by no means remarkable for a large fruit supply, whether tender or hardy kinds; but Lady Pigott has a very great interest in well grown plants, whether flowering or ornamental foliage species. This fact explains the circumstance that at the present time some lean-to Vineries are in the process of conversion into structures more suited to the cultivation of Ferns, Palms, and a third for miscellaneous species of plants. The Fernery

with care and given shading until they have become established. The seedlings are put singly into 3-inch pots in September, and moved into 5-inch pots in October, using two parts of a rich fibrous loam, one part leaf-mould, and one part burnt wood-ashes, sand, and charcoal, adding a little bone-meal and soot. They are repotted into 8-inch and 10-inch pots in January. My best *Humeas* this year that reached a height of 12 and 13 feet, were grown in 10-inch pots. When the pots have become full of roots, I feed the plants regularly with sheep-manure and soot-water, using Clay's Fertilizer for a change. They have always soft water given them. *Humeas* do not require heat beyond what will protect them from frost and damp, and cold winds. Sudden changes of any kind are fatal to their growth. I have found that by keeping the plants growing and well fed, never allowing them to suffer for want of water, thrip or spider will not make its appearance. About 100 plants are grown here, and they are used for the decoration of the dwelling-house, conservatory, and flower garden. In the latter situation the pots are plunged in the beds, experience having shown that if planted out the



FIG. 134.—WEXHAM PARK, SLOUGH.

WEXHAM PARK, SLOUGH.

OUR illustration (fig. 134), shows the eastern front of the residence of Sir Charles and Lady Pigott, which is about two miles from the town of Slough, at Stoke Poges. In the forefront of the picture is the principal flower parterre, that at the time our photograph was taken presented a very charming effect. The beds were planted upon the "dot" system, and whilst the surface of each was neatly furnished with *Pelargoniums*, tuberous-rooted *Begonias*, *Coleus*, *Iresine*, and other popular bedding plants, the effect was much improved by frequent dot plants of standard *Fuchsias* and *Pelargoniums*, also *Humeas*, &c.

In tube may be seen some magnificent specimens of *Agapanthus umbellatus*, a very suitable plant for placing in such positions, or upon terraces, where its effect in summer is decidedly better than is afforded by trimmed, stiff-looking *Laurels*, *Bays*, or other hardy shrubs. On the same side of the house, but a little further removed, is a rosary,

will be a prominent span-roofed house in the centre, and in appearance at least, the alteration will be a great improvement.

Reference to indoor plant-culture reminds us of the extraordinary specimens of *Humea elegans* exhibited from this garden on several occasions during the past season at meetings of the Royal Horticultural Society at Westminster (*Gardeners' Chronicle*, July 1, p. 15). We have so seldom seen such specimens in late years that the following details of the cultivation afforded the plants by Mr. John Fleming, gardener at Wexham Park, may be useful:—

"I sow seeds in July and in August in clean pans that have been provided with free drainage. The compost is one of two parts loam, one of leaf-mould, and one of sharp sand. This is pressed firmly into the pans to within half an inch of the top, and watered before the seeds are sown. After sprinkling sufficient sand over the surface to cover the soil, the seed is sown thinly and covered with just sufficient soil to hide the sand. The pans are then put in a cold frame and protected from draughts and direct sunlight. In the course of a month the seedlings are pricked off into boxes, and they are watered

Humeas die. They are very favourite plants of Sir Charles and Lady Pigott, who, in July last, had the honour of presenting four specimen plants in full flower to H.R.H. the Princess of Wales, who greatly admired them."

At the time of our visit to Wexham the *Humeas* for next season were in 5-inch pots, and gave every promise of again being a success. But it is after the commencement of spring that we have found *Humeas* most susceptible to attacks of disease, and until the plants are actually in flower it has seldom been safe to conclude what number of specimens would remain good.

In the other houses were noticed excellent plants of various species. *Begonias* Mrs. Heal and *Gloire de Sceaux*, *Poinsettias*, *Adiantum Farleyense*, and *Souvenir de la Malmaison* *Carnations*, in very considerable quantity. The winter-flowering *Pelargoniums* were making a fine show in a light span-roofed house. Most of the plants were in 5-inch pots, and many of them had near upon a score of flower-spikes. Mr. Fleming thinks it best with these to use rather small plants, and afford the

plants the necessary nutrition by a system of feeding.

Another house was filled with *Salvia splendens* grandiflora, some of the plants being in 5-inch pots, and others in 10-inch pots. This is a grand, showy winter-blooming plant, that may usually be expected to bloom until the month of February. *Cyclamens* also are well grown, and in quantity, and Mr. Fleming is in the habit of exhibiting them in December.

In the stove were capital *Codiaeums* (*Crotons*); that magnificent *Begonia*, President Carnot hung from the roof, with abundance of its showy blossoms; and *B. Gloire de Lorraine*, *Dracena Sanderiana*, *Saintpaulia ionantha*, and *Tillandsias*, were all observed to be thriving well.

Unfortunately for Wexham Park, in past years there have been far too many gardeners, and this has been attended with the usual results. But it would now appear that Lady Pigott's practical interest in the garden, and Mr. Fleming's efforts, will prove effectual.

HOME CORRESPONDENCE.

THE LOQUAT.—I beg to ask if you will furnish me with some particulars respecting the fertilisation of the Loquat (*Photinia japonica*), which is now flowering freely in the pleasure-grounds here. How would you advise the flowers to be fertilised? Do you think the fruit could by any means be induced to perfect themselves in the open air in this locality? I may mention that the specimen is an old one, standing 8 feet in height, and about 15 feet in circumference at the top; but somewhat irregularly grown. The Pomegranate also does well here grown on a wall, and flowers freely during July and August, but I cannot induce it to set any fruit. Perhaps some of your correspondents may enlighten me on the subject. *George Dance, Jr. to Sir Elliott Lees, Bart., M.P., South Lytchett Manor, Poole.* [The flowers are perfect. The stamens ripen a little before the pistils. There would seem no difficulty in setting the fruit with a camel's-hair-pencil under glass in an orchard-house. We do not think you would succeed in the open-air, either with the Loquat or the Pomegranate, but shall be glad of any remarks from our correspondents. Ed.]

A CARGO OF APPLES.—A correspondent, writing on the subject of Canadian Apples, says: "The other day I was returning from Antwerp, and found a fine variety of Canadian Apples set out for consumption in the saloon, and on noticing their fine colour and flesh, was informed by my neighbour that he had furnished them for the appreciation of the passengers. He had freighted a 5000-ton steamer with choice lots—some of them consignments for continental customers, the remainder as a speculation. At Antwerp the steamer could not be got over the sill of the dock, and consequently had to lie off; and thus it came to pass that he was now on his way to London, to make arrangements for docking and selling. He would then telegraph to the skipper, who would 'bout ship, and get the job finished; and I understand the matter was successfully ended—thanks to the pluck and energy of a man who was all Apples—and these Canadian." *E. C.*

THE RAISING OF MUSHROOMS AT LEITH.—Your eminent correspondent, "D. T. F.," seems to be up in arms against the Leith Town Council for giving directions that the Mushroom-beds in old wine-cellars should be removed. I would say—"Well done, the Leith Town Council." Having to grow a considerable amount of Mushrooms, and once having lived in a bothy which was all cellared beneath, and where the Mushroom was grown all the year round, I think I should know something about the matter. It is all very well talking about home industry, but when the Mushroom has to be grown either in the open, or in house-cellars in thickly-populated districts, it becomes a nauseous business. The sweetness of a Mushroom-bed is not the kind of thing that any of us would care about having in our bedrooms. In my opinion, Mushrooms grown in such ill-adapted, badly-ventilated holes, cannot be as good for

human food as those grown in the open or well-ventilated sheds; and for that reason alone the practice should be discontinued. I think most readers of the *Gardeners' Chronicle* will smile at the comparison of plants in apartments, window-boxes, and Mushroom-beds. *D. L. M.*

CUSCUTA REFLEXA.—I send you a specimen of *Cuscuta reflexa*, as grown in open air on *Jasminum revolutum*, and *Foraythia suspensa*, from the branches and twigs of which it dangles and swings in a pretty way, being now covered with its white and sweet-scented flowers; 5° of frost kills it, however, or it would become a dreadful pest here as in N. India. *F. W. Burbidge.*

ODONTOGLOSSUM CRISPUM.—My ten years' experience with H. Garnett has taught me that, to grow *Odontoglossum crispum*, so that the last pseudo-bulbs made here about equal those made in its native habitat, air, and yet more air, must be afforded the plants. During the past two years our plants have made great progress; and for pseudo-bulbs to diminish in size is unknown, a condition which is due to the large amount of air afforded. The house in which the plants are grown is a half-span lean-to; the path is excavated out of the chalk, and the stage level or thereabouts with the ground outside. The plants are placed on an open teak stage, and drain-pipes with perforated zinc caps start from the ground-level, dip under the soil, and convey the cool air under the open stage, which is 10 inches above the ground-level. The shingle on the ground and the path are kept always thoroughly moist. A 4-inch flow and return-pipe runs half the length of the house, and along the back wall. Walters' roller-blinds, elevated 6 inches above the roof by means of iron trusses, are made use of. The door of the house is rarely closed except in extreme weather and high gales, and yet plants from the thumb-size and upwards thrive equally well. Plenty of moving air is life to *O. crispum*; and draughts, which we used to fear, do not alarm us in the least now. Let me advise my fellow-amateur cultivators of this queen of flowers to shake off old prejudices, and afford air to their plants. I am giving substantial and separate prizes for Orchid amateurs and professionals here in the spring, and hope the competition will be keen. *R. G. Fletcher, Brighton.*

SPECIMEN CHRYSANTHEMUM OF THE VAR. MADAME CARNOT.—I send you a photograph of Madame Carnot Chrysanthemum, with which I won the National Chrysanthemum Society's Silver Medal, awarded at the Bath Show. I obtained the plant from a cutting in May, 1898, and grew it that season in a 6-inch pot as a single-flowered plant for use in facing a group. Subsequently, in November, I cut the plant down to within 18 inches of the pot, and obtained afterwards three breaks. The plant was stopped once, and all the rest of the shoots were produced naturally. All the flower-buds "taken" were those known as second crowns, and they were taken during the last week in August, and first week in September. The plant was 8 feet across, and 5 feet 6 inches high in centre of plant. *Alfred Young, gardener to Lady Pitman, 17, Royal Crescent, Bath.* [A very fine plant indeed, but the photograph is not suitable for reproduction. Ed.]

A CHRYSANTHEMUM SPORT.—We are sending you this morning a specimen bloom of a sport which occurred here last year upon the variety Western King. The sport has the same habit and constitution as the parent variety, and has been named General Symons. *T. Robin & Co., Balmoral Vineries, Guernsey.* [The flowers are full, of a lemon colour, and the sport will doubtless be welcome. Ed.]

TOMATOS AS A FIELD CROP.—Having read the articles on the above subject on pp. 257 and 369, I may, perhaps, be allowed to add a few remarks. Your correspondent, "B. C. R.," says, that to be successful in the culture of open-air Tomatos, it is necessary to put out plants from 5-inch pots, with one truss of flowers set. I quite agree with him, as it is an impossibility to reckon on 5 lb., to say nothing of 10 lb., of produce from each plant, if planted out from 60's, however good may be the position. To bring about the desired result, glass-houses in which to raise the plants are necessary, and as I should prefer a distance of 2 feet between the rows, and 1 foot from plant to plant, one would be

able to put more than 20,000 plants to the acre. To raise this number of plants, more than fifteen houses of 100 feet in length, and 12 feet in width, would be required, this, at the present cost of glasshouses, is a very large item of expense which would pay in time; but the initial outlay would be too great for many who, otherwise, might feel tempted to try. If considerably cheaper constructions, answering the same purpose as glasshouses could be obtained, many like myself would try it; and the crop, especially if it was produced in August, would be a sure instead of a chance crop. Enormous quantities of excellent fruit by this means could be raised, which would help to prevent the flow of inferior foreign Tomatos into our markets. *W. M.* [Common garden-frames, if efficiently heated, would be as useful, and much less costly, than houses. Ed.]

DOUBLE-FLOWED DAISIES.—We naturally expect to find double-flowered Daisies, those dwarf, compact forms of *Bellis perennis* flowering freely in our gardens in April and May. But visiting a garden on Kingston Hill a few days since I noticed a couple of beds on the lawn that were masses of white flowers, and naturally wondered what the plants could be, to be thus so freely blooming in November. When I got near to them I found they were double white Daisies, and Mr. Blencowe, the gardener, told me that the plants, then quite 6 inches broad, were from seed sown in a shallow box under glass in May last, and were of Messrs. Sutton & Son's strain. How remarkably strong had they become in spite of the great heat and drought of the season! Many of these plants were carrying from ten to twelve fully-expanded blooms, white as snow, and as prettily double as the most ardent lover of double Daisies could desire. I could but think that growers of cheap plants for hawkers would find a good harvest in raising many thousands of such plants as these, that thus bloom so beautifully in November, for certainly, offered cheaply, they would find a ready sale. *A. D.*

MANURING.—No land is, as a rule, more productive of crops of vegetables of nice flavour than that of good-class private gardens. But in the manuring, there is very little of what may be described as scientific teaching observed. The practice is rather due to constant observation of effect derived from cause, and that ordinarily seems to be sufficient for the occasion. Necessity more generally governs gardening practice than do scientific teaching. Certainly, the gardener has learnt to know from his earliest years that deep cultivation of the soil, allied to the putting into it plenty of animal and vegetable matter in a state of partial decay, creates abundant crops, and that, too, on the same ground for centuries. No garden thus treated and occasionally dressed with lime or soot but continues to respond to the gardener's labours, even though that ground may have been cultivated and cropped continuously for 1000 years. We see forests of giant trees, or huge single trees of centuries old, fed only [partially. Ed.] from year to year by the decaying leafage of their own production; and the gardener, observing this, naturally utilises such vegetable matter in a more artificial way for crop production, and obtains splendid vegetables, fruits, and flowers. In how many gardens where there is a scarcity of animal manure, and but little of artificial manure is utilised, have the crops to be dependent for food supplies on vegetable matter in a state of partial decay, and yet what good crops result! But all gardeners none the less prefer the free use of animal, or as commonly called, farmyard manure, although, as a rule, very little of the farmyard products find their way into the gardens. Generally, the farmyard is the most wasteful receptacle for animal manure that it is possible to find. The manure becomes either highly fermented, and wastes exceedingly, or it is saturated and sodden with water, and its best properties washed out and lost in the ditch adjacent. Generally the gardener obtains his supply fresh from the stable, and it is at once either applied in the form of mulch to brace a crop; or is prepared by frequent turnings and moistenings, to avoid waste in any form, for the making of hot-beds or Mushroom-beds, and whilst so occupied, there is much decomposition, and little waste. [No: the nitrogenous matter is taken up by the Mushroom, or dissipated. Ed.] The beneficial effects of dressings of such manure, after it has done its work as beds, is amply shown in the nature of the crops that result. Just also is it the case with vegetable

matter of any description, properly decayed leaves especially. Thus it is that outside of scientific teaching, practical experience and observation become such valuable aids to the gardener in his manuring. Nothing in relation to any manure is worse than to allow it to lie about in heaps, to get heated, or washed by rain, and wasted. Those who have noted in a corn-field the spots of strong green growth seen in the young corn running down the ridges, see at once where the carts deposited the manure in heaps, and it was allowed to be for some time ere dispersed. Had that dispersal been done at once, all the ground covered would have benefited alike. As it is, portions are much overfed, and the greater portion is starved. We see the same thing in pastures where cattle run. We see it in a more painful way in fields where huge heaps accumulate for months, only to wantonly waste. Gardeners are not so careless, for they utilise every manurial element they can obtain, even such as some farmers would despise. Cultivate the soil deep and often, and feed it with any sweet decaying vegetable matter, and it will never become barren. That is a good garden axiom. A. D.

ROMAN HYACINTHS' ROOTS DECAYING.—There does not seem to be anything particular in "Perplexed's" experience in failing to grow Roman Hyacinths, as he is only one of many who have failed to grow bulbs satisfactorily through affording water after potting and before plunging them in Cocoanut-fibre refuse or coal-ashes in cold frames or out-of-doors; but if "Perplexed" will use the following compost, i.e., one part soil, one part leaf-mould, two parts sand, half part charcoal, and not afford water till top-growth has commenced, he will find that failure to cultivate bulbs will be a thing of the past. In potting these and other bulbs, place the base of each bulb on a pinch of powdered charcoal or silver sand. F. Briggs, *Cragdale Gardens*.

BEGONIAS.—In a note referring to hybrid Begonias (*Gardeners' Chronicle*, Feb. 25, 1899, p. 122), I mentioned the late Col. Clarke's beautiful hybrid "Moonlight," the result being that I found it was still in cultivation, Major Mason replying that he grew it in memory of his old friend, but it was not until after the Major's death that I secured some plants through the kindness of his son. These, when received, were in very small pots, but have done well and are now in full flower, and I may say fully bear out my earlier experience, being a mass of creamy white blossom, which is very suggestive of its name (Moonlight). If the white variety of Gloire de Lorraine proves as good as the pink it may be a dangerous rival to Moonlight, yet I fully believe if this had been taken up as Gloire de Lorraine has it would have become a general favourite. Early in the year there were several growers of Gloire de Lorraine who were very sanguine on the point of raising seedlings, but I have not yet heard of any successful results. "A. F." (*Gardeners' Chronicle*, Feb. 18, p. 107) being among those, and from what he said in regard to the flowers closing over after attempting to fertilise, it would appear that actual fertilisation had taken place. If seedlings could be raised we might get some variation in colours, but I doubt if we should get a more pleasing shade of pink than the original, or a plant that would produce a greater abundance of bloom for such a long period, and this succession is no doubt owing to its being abortive, and as it can be propagated either from leaves or cuttings we do not lose much through not being able to raise seedlings. A. Hemslay.

CRATÆGUS PYRACANTHA AS A STANDARD.—One rarely sees this fine hardy evergreen grown as a standard; but it is a superb ornamental plant in the autumn in this form. The plant I see daily has a good-sized head, literally covered with pendent branches, laden with bright coral-red berries. Originally planted against a low wall, it shot up above the wall by developing a strong main stem, which was allowed to go upward, and in time it developed a head. We are so accustomed to see this plant trained in a rigid or formal manner to a wall, with its branches in a horizontal position, that it is a relief to look upon the free head of a standard glorious in its sheen of brilliant berries; and as the birds appear to leave the fruit of this *Cratægus* long before they touch them, its comparative freedom in this respect is indirectly another testimony to its usefulness. R. D.

PEACH-TREES: PROTECTING THE BLOSSOMS, ETC.—A good deal has been written recently in the pages of the *Gardeners' Chronicle* on the protection and non-protection of Peach blossoms; but the subject is sufficiently important to admit of a few more remarks being made thereon. During the twenty-five years I had charge of the gardens at Longford Castle, I protected the Peach and Nectarine-trees every spring during the time they were in flower, and for a few weeks after they had set their fruits, being of opinion that the embryo fruits were liable to receive injury from frost during the period of time indicated. Every year during the whole of the time mentioned I secured heavy crops of Peaches and Nectarines from trees occupying walls having south, west, and south-west aspects, and which were protected with Eddy's No. 5 protecting material during the flowering stage. The fruit set so thickly as to render severe thinning absolutely necessary every year, the individual flowering shoots being closely studded with young fruits. A few trees of *Violette Hâtive* which had been planted against a wall having an east aspect to form a succession to supplies of ripe fruit of the same variety previously obtained from trees growing against south and west walls, and which were not afforded any protection during the flowering period, bore fairly good crops of fruit most years, but not every year. My experience goes to prove most conclusively that in order to secure a good crop of Peaches and Nectarines every year the trees must be protected during the flowering stage, and this, too, must be thoroughly done; otherwise the trees will be best left to take their chance in the matter of the blossoms being injured or otherwise by the effects of frost. As a matter of fact, many Peach-trees have been rendered short lived—practically ruined, through want of proper care and forethought being exercised in the fixing of the blinds employed for protecting the expanded flowers. The slightest wind arising during the night causes the blinds to flap against the trees, thereby destroying the young wood-buds, as well as knocking off the fruit-buds and flowers, with the result that the trees become quite bare of young wood in their "infancy," as it were, instead of being furnished from the bottom upwards with plenty of good healthy-bearing wood. The protecting "machinery," used with such good results at Longford during the number of years mentioned above, consisted of upright poles, the thinnings of young plantations of Fir, Spruce, and Larch, about 4 inches in diameter at the thickest end; coping-boards about 12 inches wide, and 1 inch thick. The thick end of the poles was let into the ground a few inches, at from 18 to 20 inches from the base of the wall, and at intervals of about 5 feet, the thin ends having a slice 4 inches deep, and 1 inch thick, cut off the face down to transverse cut, made with the saw at this point to screw batten to for tacking the blinds on in due time. The half-round side of the individual poles was let into brackets, driven into the wall immediately under the brick coping, at 5 feet apart, and screwed thereon. Screw-bolts, flat at bottom, with a threaded bolt and nut on top, were screwed on to the face of the posts at the top for the reception of coping-boards, the latter having holes corresponding in size with the above-mentioned bolts bored in them at the proper distances apart, and a few inches from the edge, to admit of boards resting on the projecting course of bricks when placed in position, a 2-inch plate being placed over the bolt on boards before putting on the nut, and screwing the latter closely down on same, thereby making the coping quite secure against the effects of wind and weather. This done, screw the necessary number of pulleys on battens—say one at every other pole (10 ft. apart), and put one hook on the batten midway between each pair of poles to loop up the blinds to when drawn up in the morning. The protecting material used was, as already stated, Eddy's No. 5. This I had in lengths, to suit lengths of individual walls, and 9 feet wide, so as to cover the trees to within a foot or so of the ground, three widths being joined together in order to give the required width. All blinds had webbing stitched on the sides (top and bottom) and ends next the wall, also crossways at intervals of 10 feet, in a perpendicular line with the several pulleys, in order to afford additional strength to the blinds, thereby enabling them to withstand the strain involved in raising and lowering them every evening and morning until a week or two after the fruit has set. Brass or galvanised iron rings should be stitched on the bottom of

blinds at 5 feet apart, so as to come opposite the upright posts, for securing on hooks driven into the latter low enough down to strain the blinds to the extent of slipping the rings over them when securing the protecting material for the night; rings should also be sewn at intervals of 1 foot on the pieces of transverse webbing to admit of lengths of sash-line being passed through them, and over pulleys fixed on battens immediately above the rings as a means of raising and lowering the blinds, one end of the line being secured to the first ring on bottom side. When the blinds are drawn well up under the coping in the morning (as soon as the sun shines on them after frosty nights), and the lines are securely fastened to hooks fixed on poles for this purpose, and looped close up to coping on hooks fixed on battens midway between upright poles, the trees are fully exposed to light and air from bottom to the top. So much for judiciously protecting the blossoms, and hereby securing a good set of fruit from trees previously well-cared for. Healthy young trees to begin with; planted in good-sized and carefully-prepared holes extending 2½ feet on either side the central position marked on the wall for the trees to occupy when planted, and extending the same distance therefrom; the outline of the holes curving inside these points. The holes should be excavated to the depth of a little over 2 feet, placing therein, if considered necessary, about 6 inches thick of brickbats, clinkers, or such-like, for drainage, covering the latter with thin turves or litter prior to filling in the holes to the ground-line with good loamy soil, and (if easily obtainable), one-fourth of lime-rubble or wood-ashes, this being well-mixed before being placed in the holes. Place the young trees in the centre of the holes thus prepared, and cover the roots with about 6 inches thick of the same compost, giving each tree a shake in an upward direction in planting, in order to let the soil well in among the roots, afterwards mulching to the thickness of 3 or 4 inches with half-rotten manure, and then water, to settle the soil about the roots. Trees thus treated will make satisfactory growth, and in due time, yield good crops of fruit, providing the foliage is kept clean, judiciously disbudded, and the young fruit thinned out to proper distances from each other—say 6 inches at first, subsequently reducing the number by one-half; and lastly, giving good supplies of water at the roots during the whole period of growth. Indeed, it is almost impossible to keep the soil about the roots of wall-trees too moist during active growth, if at any time. This I have proved to be the case time after time in transplanting wall-trees from one position to another. Clean, free-growing, and well-conditioned trees have larger and stronger flowers than trees of a different character. H. W. Ward.

NURSERY NOTES.

JOHN WATERER AND SONS, LTD.

THE fact that most species of evergreen trees and shrubs find an unusually suitable home around Woking, and in the district of Surrey which lies betwixt that town and Windsor, is fully impressed upon the visitor to Bagshot long before he reaches his destination. From the railway may be seen many plantations of Firs and other Conifers, whilst the grounds around every gentleman's residence that is passed are ornamented with choice Conifers, and a prodigality of hardy Rhododendrons. Alighting at Bagshot, the quiet little railway-station on a loop-line which connects "Royal" Ascot with the main route to the south-west of the London & South-Western Railway Company, is seen to be plentifully decorated with trim-looking specimens of the Irish Yew, Cupressus, Retinosporas, and others; whilst the cottage gardens on the roadside, which have a much-cared-for appearance, each possess one or more specimens of similar species. The reader will readily imagine therefore that the general effect of the landscape in this locality in winter is not bare, like a typical English scene at this season, but quite otherwise. It is warm-looking, well sheltered, leafy, as if determined to excel in the production of "Christmas" trees.

The nurseries of Messrs. Jno. Waterer & Sons are about ten minutes' walk from the station, and the land has been under cultivation by a branch of the Waterer family for more than seventy years. It extends upon both sides of the road, and with a few fields rather further removed from the residence, includes an area of about 200 acres. The late Mr. John Waterer, it is well known, was a specialist in evergreen trees and shrubs, and by him were introduced from the Bagshot Nurseries many choice varieties of Conifers and Rhododendrons.

It is interesting now to inspect "original" specimens of types that at this day are exceedingly well known and equally valued. What a much better appearance, too, has the nursery through the retention of a few such specimens that, having now developed the characteristics that come of a number of years growth, serve to relieve to some extent the monotony begotten by great "drifts" of legitimate nursery stock! The original tree of the rosy-crimson flowering variety of Rhododendron known as Blandyanum generally produces a wealth of about 4000 blooms. A magnificent specimen of the Weeping Beech is a feature of the nursery that will also live long in the memory of the visitor. There are few, if any, like it.

HOLLY AND HOLLY-HEDGES.

Nor are the Weeping Hollies less remarkable. Several of these are perfect specimens, and fully bore out the statement of Mr. F. Gomez Waterer, under whose guidance the good things of the nursery were inspected, that the Holly is the most abundant and flourishing of the many hardy evergreen trees in the district. But we were surprised to hear Mr. Waterer declare that he could show us within half-a-mile the most remarkable hedge of Holly in England. With that magnificent hedge in the grounds at Keele Hall, Staffordshire, illustrated in the *Gard. Chron.*, Jan. 7, 1893, p. 19, fresh in our minds, we gladly accepted the opportunity to see one that could be so described. The hedge at Bagshot extends all round a private garden there, and was planted by the grandfather of the present generation of Bagshot Waterers, perhaps fifty or sixty years ago. For at least 100 yards of its length, the hedge rears itself wall-like to a height of about 40 feet. It is a single hedge, and in this respect, is somewhat different to that at Keele, which has a width of nearly 30 feet, and for some distance at least, there is a path through the centre, whilst there are bushes on either side, which meet as they grow up. We still think the Keele hedge the grander example, but that at Bagshot is none the less remarkable, and in height at least probably excels. Everywhere about Bagshot may be seen the Holly; and in all cases, except where they are robbed of necessary nutriment by larger forest-trees, they are vigorous specimens. It is not surprising, therefore, that Messrs. Waterer have elected to make one of the specialties in their nursery a plant that requires in that district a very moderate amount of cultural care. We shall not say much upon the varieties of Holly in the nursery. They are numerous, run very near to each other, and most of them are well known. But *Ilex latifolium*, a distinct species, with large leaves more like to those of a Rhododendron; *I. crenata* (Japanese), a small-leaved, compact habited species; *I. aquifolium* var. *Golden King*, a new variegated variety of the type of *I. a. Hodginsii*; and *Golden Queen*, a well-known variegated form of the common Holly, were conspicuous. As standards, the freer-growing varieties have the less stiff appearance, but except for particular purposes, we do not admire any of them cut to this form.

CONIFERS, &c.

All the best Conifers are cultivated at Bagshot, and of some species there are fine specimen trees. *Tsuga Mertensiana*, better known as *Abies Albertiana*, for example 60 feet, is a very fine tree; and so is one of *Abies grandis*, one of the quickest growing of Conifers, making fully 4 feet

advance upwards each year. These are but a few of the specimen trees, and the species that are not so represented, at least may be found in the nursery "drifts." The well-known and popular species of *Abies*, *Pinus*, and *Cedar*, including that magnificent blue Cedar, *C. atlantica glauca*, not quite a novelty, but of which the supply is as yet unequal to the demand.

The *Thuyas*, *Retinosporas*, *Cupressus*, *Juniperus*, *Librocedrus*, *Taxodium*, *Sequoias*, &c., and varieties of most of them, were observed in large quantities. The mention of *Librocedrus* reminds us that *L. decurrens foliis aureo-variegatis* was first distributed from the Bagshot Nurseries; but the best golden-coloured Conifer for giving effect, is probably *Retinospora obtusa densa aurea*, a name sufficiently long we should think for the tallest *Sequoia* that ever grew. *R. obtusa erecta* has an erect, exceedingly prim habit, and seven or eight-year-old plants looked very pretty. This particular form has the hall-mark of the R.H.S. First-class Certificate.

The golden *Arbor vitæ*, *Thuja occidentalis aurea*, was represented in some quantity, and green *Arbor vitæ* hedges intersect the grounds occasionally, to protect the nursery plants from high winds. The greater part of the nursery land lies in a narrow valley, but the banks and a good stretch of land upon the summit are also included, so that considerable variation in conditions is obtainable. A dry season seldom inflicts injury to any of the plants, and at the close of the year 1899 this circumstance is very noticeable.

There are hosts of flowering-shrubs cultivated, including the *Andromedas*, such as *A. speciosa*, *A. floribunda*, &c., now covered with inflorescence that will develop very soon after the turn of the year; *Kalmias*, *Sedums*, hardy species of *Ericas*, *Gaultheria*, *Buddleia*, *Catalpa*, *Cornus*, *Cotoneaster*, *Deutzias*, *Escallonia*, *Forsythia*, *Weigela*, *Skimmia*, *Lilacs*, *Laburnums*, *Honeysuckles*, *Berberis*, *Spiræas*, &c. *S. Thunbergi* was still in full leaf a week ago, being almost an evergreen, and it has great decorative value in late autumn as a plant, or for furnishing shoots to be cut for use in conjunction with flowers. Plants especially suitable for the formation of game coverts are abundant, and native forest trees, like the Holly already noticed, are raised from seeds each season.

RHODODENDRONS.

But in Rhododendrons exists the premier specialty of the firm. Bagshot is an ideal home for this extremely popular, exceedingly beautiful, and most useful of all spring-flowering shrubs. Whether it is the soil or climate that is most responsible for this we cannot say, possibly it is both. Local conditions are favourable, and the sandy loam which constitutes the staple soil, is a grand rooting medium for them. There is a field of 9 acres now full of plants, and 20 acres more almost wholly Rhododendrons; but taking into account "drifts" that appear here, there, everywhere, there are between 70 and 100 acres under Rhododendrons. We are not going into the question of varieties, because not a single sort is expected to bloom in December; and every plant, instead of being a wealth of bloom, as it may be next spring, at the present moment suggests a well-stocked larder. The shoots are terminated by big, fat flower-buds, that will only wait for the lengthening days before expanding into a mass of showy flower.

Perhaps in the base of the valley Rhododendrons do not always "bud" abundantly, but the year 1899 has been dry enough and warm enough for all. There is a fine stock of *Pink Pearl*, the most magnificent, hardy Rhododendron we have seen, which last season was awarded the Royal Horticultural Society's First-class Certificate.

LAYERING PLANTS FOR STOCK.

The stool-ground has a very remarkable appearance. Not a single Rhododendron is propagated from a cutting. All are layered or grafted. If grafted, the stocks are worked low, and afterwards planted low, and the scion itself encouraged to

make roots. For layering, the plants are brought down to the ground just as a *Carnation*; great specimens with thick branches that when "sprawling" upon the surface of the ground cover a very considerable area. How such branches are got down without breaking them, we do not know. They are layered without any tonguing. This additional operation, we were told, does not expedite the process of root formation, which is a singular fact. The layers are ready for removal in two years; some take three years, but varieties that will not "layer" in that time will not do so at all, and are therefore grafted.

It is surprising to see the number of species of plants that are so layered. Here an immense Rhododendron, there a fine *Garrya elliptica*, and yonder something else. Altogether an "American" nursery, as that at Bagshot is termed, is a very interesting one—even in November.

SCOTLAND.

CHRYSANTHEMUMS AT TERREGLES, DUMFRIES.

It is so short a time since a description of the beauties of Terregles Gardens, Dumfries (C. E. Galbraith, Esq.), appeared in the columns of the *Gardeners' Chronicle*, October 14, 1899, p. 290, that no account of them is now necessary. It is, therefore, merely to the fine collection of Chrysanthemums that reference will be made in these notes. Mr. McKinnon, whose name is not unknown to readers of this journal, has a considerable number of Chrysanthemums under his care, there being something like 1200 of all varieties grown for cutting purposes. For the most part, the plants—the larger varieties, of course—are left with only one flower to each stem, a practice which, if, perhaps, not the most profitable mode of culture, at any rate ensures the obtaining of at least one good bloom. All the plants are vigorous, and no difficulty whatever is experienced in inducing them to bloom freely.

Several of the newer varieties are grown with success, notably the two crimsons, *H. J. Jones* and *Mrs. W. Seward*. The favourites are, however, among the whites: *Mutual Friend*, *Madame Carnot*, *Lady Esther Smith*, *Mlle. Marie Hoste*, and *Mrs. Harry Cheesman*; and, of other colours, *Vivian Morel*, *Charles Davis*, *Duke of Wellington*, *Duke of York*, and *William Seward*. *Lady Hanham*, which, like *Charles Davis*, is one of the beautiful sports from *Vivian Morel*, is also grown, besides the pick of modern varieties. A typical hairy Chrysanthemum is *Mr. Latimer Clark*, which grows well; and *Elsie*, a fine canary-yellow, may be mentioned as one of the reflexed varieties reared.

For decorative purposes, *La Triomphante* is found to be one of the best, its free-blooming being a great advantage; and *Source d'Or* and *Elaine* are also very useful. The plants are of a good dwarf and bushy habit. A large number of the early-flowering varieties are grown for cutting and other decorative purposes, including the rich, bronzy-yellow *Ryecroft Glory*, the rosy-tinted *Margot*, and the older pearly-white favourite, *Bouquet de Dame*. The single varieties are also extensively grown at Terregles from their suitability for cutting, the ease with which they are grown, and their graceful appearance being much in their favour. The chief plants are the chaste, rosy-white *Mary Anderson*, and the fine canary-yellow *Miss Annie Holden*. *Robert J. Arnott*.

CONTINENTAL NOVELTIES.

Mr. H. HENKEL, Darmstadt (Hesse), is offering fresh seeds of rare deciduous shrubs, Conifers, herbaceous perennials, Cacti, &c., including the following five rare Conifers, viz.:—*Picea pungens*

argentea pendula, a prickly, weeping form, with blue-green needles; *P. Engelmanni glauca pendula*, Engelmann's blue-green weeping Spruce; *Pseudotsuga Douglasii glauca pendula*, pendulous blue-green Fir; *Abies subalpina* var. *cærulescens*, Western American silver balsam Fir; and *Abies subalpina glauca*.

ENQUIRY.

MR. T. SPENCER would be much obliged if some of our readers would inform him if bisulphide of carbon could be safely used in a Vine-border infested with wire-worm. This fluid was, as we know, largely used in the vineyards of France as a remedy for Phylloxera, and is presumably not injurious to the roots.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

NOVEMBER 21.—*Present*: Dr. M. T. Masters, in the chair; Mr. Michael, Rev. W. Wilks, Mr. A. Sutton, Mr. E. F. im Thurn, and Rev. G. Henslow, Hon. Sec.

Hippeastrum species.—With regard to the specimen exhibited by Mr. Wilks at the last meeting, supposed to be a reversion from the florists' "Amaryllis," which was derived by hybridisations on species of *Hippeastrum*, it appears to be very close to *H. stylosum*, Bot. Mag., 3278, introduced in 1892. It differs, however, in having white streaks instead of green on the perianth, and the stamens and style are shorter. The leaves also are narrower. Mr. Wilks observed that he has had it for eighteen years, and that it is remarkable for its very vigorous growth, being also very nearly hardy. Mr. im Thurn remarked that it is very abundant in British Guiana, and is so close to *H. equestris* that it would seem to be a form of that species.

Lilium giganteum, capsule.—Mr. Wilks brought a ripe capsule of this species, and alluded to the readiness with which it ripens abundance of seed in various localities in this country, giving opportunities for producing varieties.

Canker on Apple Trees.—Dr. William G. Smith sent the following report on specimens received in October, and forwarded to him for examination:—

"A specimen of this canker was received recently with a request for some information on the cause of this common trouble. The case sent I consider a typical form of canker caused by the ascomycete fungus, *Nectria ditissima*. The action of this fungus in causing canker was first described by Robert Hartig (*Untersuchungen auf d. forst-botan. Institut*, (Munich) I. p. 209, 1890). Good descriptions are given in the English translations of Hartig's and Tuben's text books, in G. Massee's recent text book, in H. Marshall Ward's *Timber Diseases*, and by C. B. Plowright (*Gardeners' Chronicle*, April 19, 1894). It is unnecessary to repeat here the details given in these works. The reasons for considering *Nectria* as the chief agent in the present case are:—(1) Near the centre of each of the three canker areas sent is the dead stump of a side twig, which by being pruned or broken would afford an entrance to *Nectria*—a wound fungus; from this point the canker has spread, up, down, and round the still living main branch. (2) The presence of two forms of spores of *Nectria*. In one branch the external canker has passed over into a form of wood-rot, which is passing along the inside of the branch.

"This is one form of Apple-tree canker, but is not the only form. The condition which disposes a tree to canker is a wound deep enough to penetrate the softer tissues of the bark. This may be caused by the pruning of twigs, or by their being broken or gnawed; it might also be due to a deep crack in the bark, such as one sometimes seen on trees as the result of excessive growth or internal pressure; or it might be a crack in the bark caused by sun or frost, or the killing-back of immature twigs in winter. (The latter case Hartig distinguishes as frost-canker, capable of extending each successive winter without the agency of fungi.) Given, then, an open wound, the soft tissues exposed offer a suitable substratum for the growth of fungi, bacteria, or animal organisms. The tissues of the Apple-tree seem well suited for the growth of *Nectria*; and, when one considers the common occurrence of the fungus as a saprophyte, on dead wood, or as a parasite on many kinds of trees, it is not surprising that it is the fungus which generally establishes itself. Hartig and others have proved that, having obtained a footing on a wound, *Nectria* is able to attack the living tissues, and gradually to bring about a canker. In the same way any other organism with a partiality for the tissues of the Apple-tree may, individually or in company, be an agent in converting a wound into a canker; for instance, at least three species of *Polyporus* and a *Hedra* amongst the Hymenomycete fungi, and probably some bacteria.

"*Prevention*.—No form of spray or wash is likely to give permanent results. Trees badly cankered should be removed and burnt as soon as possible. Where practicable, the canker may be cut out, care being taken to cut well into the healthy

parts around; the wound thus produced should be carefully painted over with tar. This must be done in autumn or winter, otherwise the tar will not sink in. Wounds made in pruning, lopping, or otherwise, should be guarded. If the orchard is liable to canker, it is safest to tar even small pruning cuts."

Apple stocks with caterpillars.—Mr. Ballard, of Colwall, sent some tops of a Lord Suffield stock perforated. They had been attacked by the caterpillar of the "wood-leopard" moth (*Zeuzera Aesculi*), some being still within it. A woodpecker had subsequently further injured the shoots by trying to extract the grub. The best remedy is to insert a stiff wire, and so extract them.

Nests of the Rose-leaf-cutter bee.—Mrs. Biggs, of Leyton, contributed a large section of a decayed Poplar, perforated by the borings of a caterpillar. These were now occupied by the nests of this species of bee, *Megachile centuncularis*.

Fog deposit on glass.—Mr. Hudson sent a sheet of glass from a conservatory to show the large amount of deposit upon it after the late destructive fog described at the last meeting.

THE FRUIT CROP OF 1899.

SOME little time ago our esteemed Secretary asked me to give a few notes this evening on "The Fruit Crop of 1899," a somewhat barren subject at the best, and I asked myself the question, What can one say upon a matter like this that has not been said and repeated time and again? I found no answer to my question, and I have no excuse for coming before you this evening except the poor one that I am acting in accordance with our Secretary's orders. It is easy for those who are gifted with the pen of a ready writer to hang an article or write a paper upon any text, but, unfortunately, I do not find myself in that happy state; nevertheless, having set out I must carry through somehow, and I crave your indulgence if I wander slightly at times from the text.

First, then, we must, I think, admit that, speaking generally, the season of 1899 will have to be numbered amongst the poor fruit years; and the best we can say of it is, that good crops have been extremely partial. Certain favoured spots have produced fine crops of fruit, and the fortunate possessors have had a good time, sending fruit to markets, and with scant supplies, and receiving good returns in the way of money.

STRAWBERRIES.

To commence with the Strawberries, certain localities had good crops, but the fruit was never plentiful, nor did one see much of it on the coster's barrow. In our local markets the price ranged from 8d. to 6d. per pound, and back again to 8d., which would show that they were not in any way plentiful. Our local growers had an excellent crop and first-rate weather for picking, and consequently scored a great success; but in the county of Kent, where our largest supplies usually come from, one heard of hundreds of acres of Strawberries being ploughed-in, as there was no crop worth picking.

The cause of this disaster is not far to seek, and I think we may safely say that it was the long drought of 1898, for although we had a very trying spring this year, with late frosts and cold winds of long duration, I do not think that the spring weather would account for this total failure. Of course, one knows that spring frosts will blacken and destroy Strawberry flowers when they are expanded, but the blooms do not all come out at once, and it takes a considerable frost to kill the unopened buds; moreover, many growers tell me that they had no blooms to begin with.

Speaking of my own personal experience, our trial-beds of one-year plants, set thickly, were rarely, if ever, better, and we had so much fruit that much of it was wasted. It would not be of much interest for me to give a list of those varieties which did best, for I find that no fruit varies more in cropping and quality in different districts than does the Strawberry, and even from season to season one is compelled to form fresh opinions respecting many varieties. For instance, during the past three or four years Latest-of-All has been grand, and (although it is not one of the latest, by the way) it has been greatly in demand and a general favourite; this year, in spite of our having had a genial rain prior to their ripening, the fruits were many of them hollow and insipid. Royal Sovereign was A1, yielding an immense crop of good flavour; and amongst the earliest nothing came up to Scarlet Queen. I often wonder why this variety has not come more to the front. During the Strawberry season I generally have a walk round the beds before breakfast, when the fruit is at its best, and one can best appreciate its flavour, and I found my steps generally led me this season first to the Scarlet Queen beds, later to Royal Sovereign, and afterwards to Auguste Boisselot and President, my special favourite, Dr. Hogg, having failed to crop this year.

Speaking of the joy of eating these delicious fruits in perfection, is it not lamentable to see the stuff set before the general public for consumption? I live now in the city of Nottingham, a place with 260,000 inhabitants, many of whom are quite willing to pay a good price for a fair article, and yet I never once saw a nice punnet of clean fresh fruit which one would take a pleasure in eating, but only heaps of fruit which, however nice when first turned out of the baskets, by repeated handling and weighing, soon look as if the proprietor had made his bed upon them overnight.

SMALL FRUITS.

But to turn from this somewhat unsavoury subject, I may say that in the Midlands, despite the harsh spring, the crops

of Gooseberries and Currants have been excellent, although in some localities the Black Currants suffered from lack of moisture. Speaking of these fruits reminds me of the boom which was made some years ago over Berry's Early Keat Gooseberry, which turned out to be an extremely old friend—Keepsake—under another name; and this year we have fruited the new Comet Currant, which we are unable to distinguish in any way from La Versailles. There is a difference between the two, but it consists in the fact that the first-named cost us 2s. 6d. a plant, and the others did not.

Whilst we are thinking about small fruits I should like to ask if anyone has fruited Japanese Mayberry? I have asked many, but cannot hear of anyone succeeding with it. With us it has been cut each year by the spring frosts, and although in America it withstands a very low temperature with a dry atmosphere, I fear it is useless in this country. The Strawberry-Raspberry we have most of us fruited, and I presume that you will agree with me that although it may be considered as an interesting and somewhat striking addition to our mixed border, it has scant claim to a position in the fruit garden. The Loganberry has, I think, come to stay—it has a flavour quite of its own, a mixture of Blackberry, Raspberry, and a decided dash of Mulberry; it is by no means to be despised as a dessert fruit when fully ripe, and it is really excellent when preserved. Speaking of preserves, some of those present will possibly remember having tasted that most delicious Medlar jelly which our friend the late Mr. Rivers brought up some years ago to the Fruit Committee. I was privileged in my school days to be the recipient of divers boxes of Guava jelly, which a relative sent from Brazil, and I used to think that nothing could ever equal it in my estimation; but Mr. Rivers' Medlar jelly would, I think, run it very close. Alas! I have tasted neither of late, so cannot well compare their merits, but I feel sure that Medlar jelly would find a ready sale if it were cunningly prepared, and as the Medlars can be worked on any hedgerow there need be no difficulty about providing ground for them. I throw this hint out to any who wish to make a fortune, and trust that when the money comes rolling in they will remember me substantially. I am not supposed to be writing about new fruits, but I may mention incidentally that two new Black Currants carried crops of fruit this season with me; the first, called Early Black, had a large crop of very small fruit, which dropped off as soon as ripe; the second, Golden Black, was a very sweet Currant of a dirty, muddy-brown colour and most unattractive appearance.

PLUMS.

Passing on to Plums, those were somewhat patchy in the Midlands, some localities having practically no fruit at all, whilst others had a very fair crop. It is, I know, the custom to lay the blame of all failures upon spring frosts, but mischievous as these undoubtedly are, I think that much loss is charged to them of which they are in a great measure guiltless. What I mean is this, when trees are suffering from an overcrop the previous season, and oftentimes also from a lack of manure, the blossom is more easily damaged by spring frost than would have been the case had the trees been in more robust health. I noticed particularly this year that the Plum and Damson bloom at Chilwell was almost entirely destroyed; whilst at Lowdham, 13 miles away, in the same valley, with the same climatic conditions and what seems an exactly similar soil, the trees were well loaded—in fact, many Victorias had to be supported with props, to prevent the trees being broken. I have purposely said, "what seems to be an exactly similar soil," for although the soil is on the same geological formation, and to all appearance is as much alike as possible, I believe that some difference exists (which possibly a chemical analysis would show), and that this difference in the constituents of the soil is the main cause why one village is essentially a Plum district whilst the other cannot lay claim to be anything more than a fair-weather locality for Plums. It may illustrate this point more clearly if I state that for twenty years we never saw fruit upon young nursery trees of Pond's Seedling at Chilwell, whilst this year at Lowdham, although an unfavourable spring, three-year feathered standards were roped with fruit; also untrimmed standards of Brussels and Brompton Plums, used for stocks, carried fruit, which I have never seen any but old-established trees do at Chilwell.

MEASURES.

Our neighbours made an excellent price of their Plums and Damsons, the latter realising the comfortable price of 8s. per peck of 18 lb.—in 1877 we sold Damsons at 11s. 6d. per peck, but the crop was so thin that they did not pay very well.

Speaking of pecks, is it not absurd that although these measures are supposed to be abolished, each local market, not to leave out London, which heads the list in these absurdities, has its own terms of pecks, bushels, baskets, sieves, pots, and whatnot, the meaning, or rather weight, of which not one person in a dozen living in the district understands, and still fewer out of it? For example, a housekeeper in Notting-ham buys a peck of Potatoes and receives 20 lb. If she weighs her purchase and subsequently buys a peck of Peas or Plums she thinks they are short weight because they only weigh 18 lb. a peck, Apples 16 lb., Black Currants 14 lb., Beans 9 lb., Peas 8 lb. What idea do these quotations of pecks, pots, and others, convey to the intelligent grower in another county who is trying to study our market's prices? Our old-fashioned tons, hundredweights, quarters, and pounds, are somewhat cumbersome as compared to the metric system of our continental neighbours, but these local measures and weights for fruits, corn, and other things, are "confusion confounded."

PEARS.

Pears this season were generally a failure, and the French producers must have had a good time if they received anything like a share of the 2½d. each for which very ordinary Williams' Bon Chrétiens were retailed in our shops. Strange to say, as soon as home-grown fruit came in (certainly within a fortnight) better Williams' Bon Chrétiens could be bought at 3d. per lb.; what a profit to the grower would have resulted from the use of a tiny bit of thin blue paper wrapped around each fruit!

APPLES.

Apples in the Midlands have been almost an average crop; some varieties, indeed, have produced a heavy crop. I wish someone who has the time to study such things would tell us why certain varieties almost always pull through the worst of spring weather, whilst others alongside, in bloom at the same time, quite as constantly succumb. One of our leading nurserymen once told us that the hardy varieties were those in which the petals incurved, but the little observation I have given to this point does not quite bear this out, and I think the reason is still to seek.

PROGRESS.

If there is one fact which stands out more prominently than another in respect to the fruit-crop of 1899, it is that the British gardener can, despite the weather, produce a sample of hardy fruits, which it would puzzle any other portion of the world to excel. Every visitor to the Crystal Palace Show must have been amazed to find that, with all the talk of failure of crops, cold, ungenial spring, and burning, droughty summer the fruit exhibited was really splendid. When one tries calmly to carry one's mind back to the Apple and Pear Conference of 1888, and the samples of Apples and Pears which were then exhibited and considered good, one cannot but marvel at the enormous progress which has been made in the production of fine fruit. I venture to say that many market samples from young and well cared for orchards of to-day, are far superior to the picked fruit which was exhibited at the Conference in 1888.

It would be difficult to exaggerate the value of the Apple and Pear Congress, the great Guildhall Show, and the subsequent Crystal Palace Shows from an educational point of view, and I am sure you will agree that the effect they have had in stimulating growers to produce better fruit has been simply marvellous. To many visitors at the earlier shows the fruit exhibited was a revelation; they had no idea such fruits could be produced in the open, still less had they any thought that such fruits could be grown anywhere except in favoured Kent and Devon; and yet to-day the Midland exhibitors stage fruits superior to the best seen in 1888, whilst our friends from Maidstone, Exmouth, Basingstoke, Hereford, and other places have made still further progress in excellence.

This march of progress is a matter of congratulation to all, for it is undoubtedly only by the production of fine fruit of high quality that we can hope to command our home markets, or to make fruit-growing a commercial success. That our exhibitors can much improve upon the results already attained with our present varieties of fruits we can scarcely hope, nor can we expect that market-growers can quite attain the high level at which our friend Mr. Woodward, of Barham Court, stands; but some of them are close upon his heels, and when one looks back upon the market samples of fifteen years ago, and tries to compare them with the best of to-day, one can but rejoice. I say the best of to-day, for unfortunately there is still a fearful amount of rubbish sent to market, but its day is over, and it must soon be a thing of the past, from the simple fact that the public will not buy it at any price, and the only market open for it is the "smasher," by which term I suppose you will recognise the jam-maker, who uses these small fruits as a basis upon which to make several kinds of jam, which are not always sold under the name of Apples. Our local growers have been making from 40s. to 55s. per ton of small Apples sent to the jam-factory, but they do not like the price, and many of them are now planting orchards of bush-fruits on cultivated land, and intend shortly to lay to the axe in the old orchards to provide some Christmas fuel.

I must apologise for having wandered somewhat from my subject, but I have been preaching improvement in fruit-growing for so many years now, that I find it difficult to keep away from a matter which is, after all, slightly connected with the fruit crop of 1899, nor can one help rejoicing when one sees the improvement which has been already effected, for the question is one of no mean importance or narrow bounds.

Seeing that during the past fourteen years we have imported no less than 55,737,756 bushels of Apples, valued at £15,795,476, the question is of some importance financially, especially when we see that the imports are rapidly increasing, and that the average price is higher during the latter half of the period than it was during the first seven years. This shows that the taste for fruit is increasing; a fact that is hopeful for the grower, and of great importance to the health of our people, for all medical authorities are agreed that fresh fruit is most beneficial to health, and is especially needed by the dwellers in towns and cities.

But the question of improved fruit-culture does not end here, for if the industry of fruit-growing can be made to pay in the future, as it most undoubtedly has done in the past, I know of nothing which will help to solve the difficulty of making the land reproductive to the capital and labour bestowed upon it, and of inducing men to live upon it and make their homes in the rural districts like this same fruit-culture. I find nowhere such thriving villages in districts not dependent upon manufactures as those in which fruit-growing is extensively carried on, and if only for this reason

this matter is of national importance. We see tracts of land in the highlands of Scotland which once maintained a sturdy race of cottars, nearly all of whom sent a member to our highland regiments, now, alas! cleared of human habitations and sacred to the grouse or red deer; we see thousands of acres of land which in our younger days was in cultivation and maintaining a contented and healthy population, now laid down to grass, and we ask ourselves the question, Whence are our great towns and cities to receive fresh blood and sinew, whence shall come our future stalwart soldiers? I know not, unless it be by the help of fruit-growing, market gardening, and all kinds of small culture, and this is why I say this is a question of national importance. Paper read at the Horticultural Club by Mr. A. H. Pearson, Chilwell.

LINNEAN SOCIETY OF LONDON.

NOVEMBER 16.—Mr. G. R. MURRAY, F.R.S., in the Chair. Mr. J. E. HARTING, F.L.S., communicated particulars of several cases in which parrots had been poisoned by eating Parsley. After commenting on instances in which plants that were innocuous to man had proved fatal to some of the lower animals, he mentioned in support of the converse case that the berries of the Yew and Privet, which are generally considered to be poisonous to man, were greedily eaten by blackbirds, thrushes, bullfinches, and other birds; while, on the other hand, several cases were on record of pheasants having been poisoned by eating Yew-leaves. The immunity of goats from Yew poisoning was remarkable in view of the fact that deer and cattle died after eating the leaves of that tree, although it had been stated that the ill effects were due to the leaves having been eaten in a desiccated state, and not while growing on the tree.

Mr. W. C. WORSDELL, F.L.S., read a paper on "The Comparative Anatomy of certain Species of Encephalartos."

The chief features of the anatomy were shown to be the presence of several vascular cylinders in the stem, a character found also in Cycas and Macrocarpia; and the medullary system of vascular bundles, forming, as in Macrocarpia Fraseri, Miq., a complex network, intimately united with a corresponding network of mucilage-canals. The system of mucilage-canals in the pith is continuous with that of the cortex, but the medullary bundles form an independent primary system. The mucilage-canal-system is probably of use as a storehouse of moisture during the dry season, when the roots and foliage die away.

A younger seedling plant of E. horridus, Lehm., exhibited in the hypocotyledonary region, the transitional region between stem and root, at one point a curious large cauline, and partially concentric strand, and several smaller strands or bundles lying farther out in the cortex. These, according to the author, represented the rudiments of the outer vascular cylinders. The character of these strands and the region in which they occur (which is that where the first-formed tissues are located, and where, therefore, ancestral characters would be sure to preponderate) tend to show that the collaterally-constructed vascular cylinders were originally derived from vascular cylinders possessing a concentric type of structure such as is met with in the stems of such fossil plants as the Medullosae. In the opinion of the author the ancestry of modern Cycads must be looked for in that fossil group.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

NOVEMBER 23.—On this occasion G. SHORLAND BALL, Esq., Wilslow (gr., Mr. Gibbons), exhibited the handsome Cyrtopodium × Fowlerianum Harrisonianum superbum and bellatulum, which, in its way, is one of the finest of the bellatulum hybrids, of a rich colour, fine size and substance, and a perfect flower from a florist's standpoint (First-class Certificate).

G. W. LAW SCHOFIELD, Esq., Rawtenstall (gr., Mr. Shill), exhibited a hybrid Cyrtopodium called C. × "Sir George White" = C. Leeanum giganteum × concolor; the flower is of middling size, and somewhat resembles C. Concolor-Laurae, the effect of the Leeanum influence not being perceptible.

W. THOMPSON, Esq., Stone, Staffs (gr., Mr. Stevens), staged a choice group of Odontoglossums, the more remarkable of which was the hybrid O. × Loochristiense var. "Canary Bird" (see last issue), which, as the plant strengthens, will prove to be of great excellence. A First-class Certificate was granted. Odontoglossum Ruckerianum, Thompson's var., is one of the finest varieties extant, the richness of the colouring being striking. The plant was greatly admired (First-class Certificate). Odontoglossum crispum var. Meteor, from the same collection, is another instance of the great variation met with in this species, nothing precisely like it having been previously observed. The flowers are circular, and the peculiarity of the marking is as though it was just beginning to develop or to fade (Award of Merit; and a vote of thanks for the group).

T. STATTER, Esq., Whitefield (gr., Mr. Johnson), staged a plant of L. Cattleya × Ingrami suberba, which received an Award of Merit. Cattleya × Hardyana magnifica, shown out of the same collection, is a very distinct form, with sepals and petals unusually pale.

J. LEEHMAN, Esq., Heaton Mersey (gr., Mr. Edge), staged a beautiful group of Orchids, amongst which were Cyrtopodium insigne var. Sandersi (First-class Certificate); Lelio-Cattleya × "Captain Scott," a good hybrid between L. elegans grandiflora × C. labiata var. flammula (Award of Merit); Cattleya Mrs. Herbert Greaves, the result of crossing C. Harrisonae and

C. Gaskelliana is a good shapely flower (Award of Merit); Lelio-Cattleya "Yellow Prince," is another of Mr. LEEHMAN'S good things (L. xanthina × C. Gaskelliana), in form intermediate, but in colour a rich yellow (First-class Certificate); Cattleya × Maroni = C. velutina and C. aurea, bearing about nine flowers, was much admired, and received a First-class Certificate. A Silver-gilt Medal was awarded for the group.

S. GRATRIX, Esq., Whalley Range (gr., Mr. McLeod), gained an Award of Merit for his two plants, Cyrtopodium "Samuel Gratrix," C. Leeanum giganteum × nitens, and C. "J. Howes" (C. Salteri × villosum aureum). Cyrtopodium insigne "David McLeod" comes in the section of albinos, but is entirely distinct from the numerous named forms, and of a very fine, rich greenish-yellow colour. The Committee desired to see the plant again. Mrs. GRATRIX received an award of Merit for Cyrtopodium insigne var. "Perfection."

T. BAXTER, Esq., Morecambe (gr., Mr. Roberts), staged a few well-grown Odontoglossums.

A. WARBURTON, Esq., Haslingden (gr., Mr. Lofthouse), showed Cyrtopodium insigne Sandersi. "Peeter's var." which is the true and only acceptable form, and just the same as Mr. Measures' or Baron Schroder's plants, the name "Peeter's var." was therefore erased.

O. O. WRIGHT, Esq., Bury (gr., Mr. Rogers), staged a charming group of Cyrtopodiums, showing unmistakable signs of good cultivation. An Award of Merit was given to his plants of Cyrtopodium × Tityus, C. Spicerianum, and crenatum superbum.

Mrs. BRIGGS-BURY, Accrington (gr., Mr. Wilkinson), staged a few good Orchids, among which were Cyrtopodium × triumphans, First-class Certificate; Cattleya labiata "White Queen," the latter did not show to advantage.

RICH'D. ASHWORTH, Esq., Newchurch (gr., Mr. Pidsley), gained an unanimous First-class Certificate for his Cattleya labiata Gilmourae, a fine white form with a pretty violet-purple marked labellum.

R. LE DUX, Esq., West Derby, Liverpool (gr., Mr. Archer), sent Cyrtopodium × Olga Bagehaw (crenatum superbum × callosum).

H. PARTINGTON, Esq., Talbot House, Glossop, sent a few good plants of Cattleya labiata autumnalis, one of which was a fine specimen, and gained Cultural Commendation.

Mr. J. CYPRUS, Cheltenham, staged a small group of Orchids, Dendrobium Phalaenopsis var. atropurpureum, and was given an Award of Merit; and for the group, a Vote of Thanks.

Mr. A. J. KEELING, Bingley, again exhibited Cyrtopodium and Magnificum (C. Pollettianum × insigne giganteum). P. W.

DUNDEE CHRYSANTHEMUM.

NOVEMBER 23.—The annual show took place at the Drill Hall, and so far as regards the number of exhibits, was equal to those of former years, but in artistic grouping and arrangement, and as regards general quality, the collection showed a distinct advance.

The blue ribbon of the show—the Challenge Cup presented by Mr. J. M. WHITE, of Balruderry—was won by Mr. J. BRISANT, gr., Castle Huntly, in the cut flower section (open), thirty-six blooms, Japanese, not fewer than eighteen varieties. The winning collection was a magnificent one, including, among other splendid examples, blooms of such varieties as Mrs. Weeks, Edith Tabor, Mrs. Barclay, and white and yellow Madame Carnot. Mr. T. LUNT, gr., Dunblane, who at the Edinburgh show overcame the Castle Huntly gardener, had to content himself with the 2nd place. There was, however, very little difference between the two collections, the 2nd lot containing some very choice specimens.

The Challenge Cup presented by Mrs. GEORGE ARMISTEAD, Castle Huntly, for excellence in the class of thirty-six Japanese blooms, distinct, was won by Mr. D. NICOLL, Rosie, who showed a splendid collection, including very fine specimens of G. J. Warren, George Seward, and Georgina Pitcher. So close did the 2nd prize-winner (Mr. Lunt) approach in general excellence, that the judges had considerable difficulty in coming to a decision.

For twenty-four Japanese blooms, in not fewer than twelve varieties, the winner to take the Cup presented by Mr. J. J. WATSON, Mr. BRISANT again beat Mr. Lunt, the collections in each case being quite up to the high standard shown in the preceding class. Mr. JOHN BELL, who last year won and obtained possession of the Cup, was awarded a 3rd place for a highly meritorious exhibit.

Mr. T. LUNT secured premier honours, and the Cup presented by Mr. J. W. BELL, in the competition for eighteen Japanese blooms.

The Cup presented by Mrs. ARMISTEAD for excellence in twelve blooms, of Japanese incurved, was won by Mr. J. BELL; Mr. JOHN H. CUMMING won 2nd prize.

Mr. BELL won 1st prize for twelve Japanese blooms, having very fine specimens of Sunstone, Mrs. Mease, Master H. Tucker, and Nellie Pockett.

For six vases of blooms, attached to which is Mr. J. M. BRISANT'S Cup, Mr. DAVID NICOLL won for the third year in succession, and the Cup has now become his property.

There was only one competitor in the class for a display of Chrysanthemums. Mr. R. CAIRNS, Balruderry, who sent a collection which gave a magnificent mass of colour. In the amateur section competition was keen in all classes. The Challenge Cup presented by Mr. J. C. LAWSON for twelve Japanese blooms, went to Mr. JOHN HIGGINS, Anstruther, who showed several magnificent flowers, including such varieties as Simplicity and G. J. Warren. Mr. W. S. MCLVILL, the President of the Society, was 2nd, but only one-and-a-half points divided his collection from that of the 1st prizeman.

For plants grown in 6-inch pots, Mr. JAMES BEATTIE took premier honours in both classes. For the Challenge Cup presented by Mrs. Mudie, Corona, for four pot plants, there were only two aspirants, but the plants shown were of the highest order. The judges awarded the 1st position to Mr. JOHN MATHERS. Among the winning collection was a very fine plant of Niveum, which secured for him the Certificate of the National Chrysanthemum Society, for the best plant in the show. Mr. DUTHIE, Loches, showed an excellent collection of Leeks, Carrots, and Onions, well worthy of the 1st prize which was allotted to him.

NON-COMPETITIVE EXHIBITS.

Mr. NORMAN DAVIS, Framfield Nurseries, Sussex, had a display best characterised by the adjective "magnificent." The table measured 24 feet by 10 feet. It was a perfect blaze of colour, including hundreds of Chrysanthemums varying from the large and massive blooms to the small decorative varieties. The arrangement was such as to show to the best advantage the many-tinted flowers. Placed in a prominent position and being one of the principal sights of the show, it naturally attracted a large amount of attention. A Gold Medal was awarded to Mr. DAVIS for his exhibit.

Messrs. LAIRD & SINCLAIR had a highly attractive and from the spectacular point of view a highly effective display. Tastefully arranged in front of a background of foliage was a choice collection of wreaths, crosses, and decorative floral designs. Mr. ROBERT GROSSART, Clarendon Park Nurseries, showed a collection of floral designs. Messrs. W. WELLS & Co., Ltd., Redhill, Surrey, had an exhibit of Chrysanthemums. Messrs. STORR & STORR exhibited a collection of Apples. Mr. DINGWALL, gr. to Sir HENRY CAMPBELL BANNERMAN, at Belmont, had a fine collection of Apples, including thirty-six varieties. Mr. D. P. SCOTT sent six varieties of seedling Apples. Messrs. SINCLAIR & EWING displayed lawn mowers and other gardening tools. *Extract from the Dundee Advertiser.*

ROYAL BOTANIC.

NOVEMBER 25.—A meeting of the Fellows of the Royal Botanic Society was held on Saturday at the Museum in the Royal Botanic Gardens, Regent's Park, Dr. ST. GEORGE MIVART, F.R.S., presiding. Dr. ROBERT BOXALL delivered a lecture on "Bulb Culture in England."

Having briefly recapitulated the main points of his previous lecture on "Bulb Culture in Holland," Dr. Boxall proceeded to show how the growing of bulbs in this country might be made a source of much profit to anyone possessed of sufficient ground, and prepared to give to the work the same care and attention to detail that was bestowed by the Dutch people, in whose hands was at present the bulk of the trade in bulbs. He laid stress upon the fact that bulbs could be cultivated better in this country than in Holland, because the soil here was better suited to the culture, and did not require such tedious preparation. He explained at length the various requisites for the successful culture of bulbs, and exhibited slides illustrating the method by which the superintendent of Regent's Park cultivates the bulbs which produce so brilliant a show of flowers each spring. *Times.*

NATIONAL CHRYSANTHEMUM. ANNUAL DINNER.

NOVEMBER 20.—The annual dinner of the members and friends of this Society took place in the Venetian Room of the Holborn Restaurant on Wednesday evening last. The chair was taken by PERCY WATERER, Esq., and there was present a company of about 130 persons, including a large proportion of ladies.

Following directly upon the loyal toasts, the Chairman proposed the toast of the evening, that of the "National Chrysanthemum Society," and alluded with satisfaction to the fact that the number of colonial and continental societies seeking affiliation with the Society continues to increase. Denmark afforded the most recent illustration, being admitted to affiliation on Wednesday, November 22.

Feeling reference was made to the decease of M. H. L. de Vilmerin, and a tribute paid to the hospitality of the French and Belgian horticulturists on occasions when representatives from England have visited them.

It is intended that a large Chrysanthemum Exhibition and Conference shall be held in Paris next year, and English cultivators are strongly invited to exhibit and attend at that Conference. There had been some complaints from allied societies in England, but steps have been taken which it is to be hoped will meet these. The exhibitions this year had been in every way satisfactory, and the large "vase" class was referred to with pride. The Chairman thought that beginners should cultivate for exhibition some of the decorative varieties rather than the big Japanese blooms, and to encourage this, he generously offered a special prize for flowers of this class, and another for competition by the wives and sisters of exhibitors, who are to stage a "display" of these flowers.

Mr. R. Fyfe proposed "The Donors of Special Prizes," in the absence, through illness, of the treasurer, Mr. C. E. Wilkins, and this was responded to by Mr. H. J. Jones, Mr. Wood (a member of the firm of Messrs. Wood & Sons, Wood-Green), and Mr. J. T. Simpson.

Mr. Jones has promised to repeat his first prize of £20 for the best collection of Chrysanthemum blooms in vases. The presentation was made by the Chairman of the Holmes Memorial Trophies, the National Challenge Trophy, and other special prizes won at the recent exhibition.

The officials of the society were toasted by V. B. M. Z. uo'ie, Esq., and the replies of Mr. T. Bevan and Mr. J. R. CHOLMELEY (Auditor) were of the most sanguine character. Other toasts included "The Ladies," "The Chairman," "Visitors," and "The Press."

MISCELLANEOUS SOCIETIES.

Aberdeen Chrysanthemum.—The annual exhibition of this society was held on the 24th and 25th ult. at Aberdeen. The number of entries was 550 against 360 last year. The attention of the visitor on entering the Art Gallery was immediately attracted by the semi-circular groups of Chrysanthemums and foliage plants, each group 10 feet in diameter. The variety and brilliancy of colour in these groups were superb. Mr. PROCTOR, gr. to Sir WILLIAM HENDERSON, Devanha House, Aberdeen, worthily carried off the premier honours in the first group, while the 1st prize in the secondary groups was awarded to Mr. MASON, gr. to Mr. BISSET, Albany Place, Aberdeen. The show of cut blooms was splendid, and formed one of the finest exhibitions ever witnessed in the north of Scotland. The principal prizes were won as follows:—For the best group of Chrysanthemums, Silver Medal, Mr. JOHN PROCTOR, gr. to Devanha House. For six Chrysanthemum plants in pots, 1st, ALEXANDER GRIGOR, Fairfield Gardens. For twelve Chrysanthemum blooms, 1st, Mr. JOHN PIRIE, gr. to Strichen House. For twelve incurved blooms, 1st, Mr. JOHN GRIGOR, gr. to Maryhill, Elgin. For six blooms in two varieties, 1st, Mr. EDWARD NOONAN, gr. to Stoneywood House. The Gold Medal for best blooms of varieties introduced by Messrs. WELLS was won by Mr. JAMES ELDER, Banchory House. An interesting feature of the show, was the exhibition by local florists, Messrs. SMITH & SONS, Aberdeen; Messrs. BEN REID & Co., Aberdeen; and Messrs. COCKER & SONS, Aberdeen. Messrs. WELLS & Co., Limited, Earlwood Nurseries, Surrey, had a collection of decorative Chrysanthemums. The promoters of the exhibition, and not the least their secretary, Mr. SINCLAIR, are to be heartily congratulated on the result of their work.

MARKETS.

COVENT GARDEN, NOVEMBER 30.

[We cannot accept any responsibility for the unquoted reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	5 0-7 0	Ferns, in variety,	s. d. s. d.
Arbor-vitæ, var. doz.	6 0-36 0	per dozen	4 0-18 0
Aspidistra, p. doz.	18 0-36 0	Ficus elastica, each	1 6-7 6
— specimen, each	5 0-10 6	Foliage plants, var.,	
Croton, per doz.	18 0-30 0	each	1 0-5 0
Dracena, var., doz.	12 0-30 0	Lycopodium, doz.	8 0-4 0
— viridis, per doz.	9 0-18 0	Marguerite Daisy,	
Erica, var., per doz.	18 0-36 0	per dozen	8 0-12 0
Eunymus, various,		Myrtles, per dozen	6 0-9 0
per dozen	6 0-18 0	Palms, various, ea.	1 0-15 0
Evergreens, var.,		— specimen, each	21 0-68 0
per dozen	4 0-18 0	Pelargonium, scar-	
Ferns, small, per 100	4 0-6 0	let, per dozen	6 0-8 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, per bushel:		Lemons, Naples,	
— Kings ...	8 0-5 0	per case of 420	25 0 —
— Ribston ...	4 0-6 0	— Malaga,	
— Blenheim ...	4 0-6 0	chest ...	16 0 —
— Nova Scotia,		— Messina ...	16 0 —
various, barrel	12 0-17 0	Lycopers, Chinese,	
— Californian,		new, pkt., 1 lb.	1 0 —
cases, New		Medlars, English, in	
Town ...	12 0 —	sieves ...	4 0 —
— Canadian New		Oranges, Teneriffe,	
town Pippins,		case of 80 to	
barrel ...	24 0-30 0	100 ...	5 0-6 0
— Cox's Orange		— Jaffa, case of	
Pippin, bushel	8 0-14 0	144 ...	10 0 —
— Wellingtons, beh.	4 0-7 0	— Murcia, case of	
— Various Cooking,		210 ...	6 0 —
per bushel	1 0-8 6	— Tangerine boxes	1 0 —
Bananas, per bunch	7 0-10 0	— Valencia, case	
Chestnuts, per bag	7 6-12 6	of 714 ...	18 0 —
— in sacks, Italian	17 6-20 0	— case of 420 ...	4 6 —
Cobnuts, per lb.	0 7 —	Pears, stewing, per	
Cranberries, case ...	11 0 —	sieve ...	3 0-8 6
— American, per		— French Duchesse,	
qt.	0 5-0 6	case of 28 or 36	4 6-5 6
— qt. (Russian)	2 0 —	— Glout Morocco,	
Grapes, English,		crates of 18, 21	
Alicante, per lb.	0 9-1 3	or 15 fruits ...	6 0-7 6
— Belgian ...	0 8 —	Pines, each	1 6-5 0
— Gros Colmar,		Capucine Nuts, per	
per lb. ...	0 10-1 6	lb.	1 8 —
— Muscat, A.,		Walnuts, Grenoble,	
per lb. ...	2 0-3 0	shelled, p. bag	7 6 —
— Almeida, bla.	12 6-25 0	— French, per bag	10 0-12 0

POTATOES.

Puritan, Snowdrop, Main Crop, Up-to-Date, &c., 60s. to 90s.; Dunbar Main Crop, 100s. John Bath, 22 & 24, Wellington St.

REMARKS.—The season for forced Rhubarb from Yorkshire has now commenced; Branched Chicory (Monk's Beard) comes well bleached, and makes an excellent salad. There are numbers of Savoy, small and coarse-looking, which are of little value; the Cauliflowers now coming are not so fine, which shows that their season is waning. Parsley is plentiful and cheap. There are yet a few Quinces obtainable from the dealers.

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arum Lilies, dozen		Maidenhair Fern,	
blooms ...	8 0-10 0	per doz. bunches	4 0-6 0
Asparagus "Fern,"		Marguerites, p. doz.	
bunch ...	2 0 2 6	bunches ...	8 0-4 0
Carnations, per doz.		Mignonette, dozen	
blooms ...	2 6-5 0	bunches ...	4 0-6 0
Cattleyas, per dozen	15 0-18 0	Oleontoplosoma, per	
Sucharia, per dozen	6 0-8 0	dozen ...	4 6-9 6
Gardenias, per doz.	2 6-5 0	Roses indoor, per	
Lilac, white, bunch	5 0-7 0	dozen ...	3 6-7 6
Lilium Harrisoni, per		— Tea, white, per	
dozen blooms	9 0-10 0	dozen ...	8 6-7 6
Lilium longiflorum,		— Yellow, Perles,	
per dozen	5 0-8 0	per doz.	8 6-7 6
— laetifolium al-		— Safrano, per	
bum, per dozen	6 0-4 0	doz. ...	2 6-3 6
— laetifolium ru-		Smilax, per bunch	8 0-4 6
brum, per doz.	8 0-4 0	Tuberose, per doz.	
Narcissus, white, doz.	3 0-4 0	blooms ...	0 8-0 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Leeks, per dozen	
per doz.	3 0 —	bunches	1 6 —
— Jerusalem, per		Lettuce, French,	
sieve ...	1 6-2 0	Cabbage, per	
Asparagus, Sprue,		dozen ...	0 8-1 6
per bundle	0 6 —	Mint, new, Ch. la.,	
— Giant ...	15 0 —	p. 40s. bunches	6 0 —
— Paris, Green,		Monks' beard (Barb	
per bundle	5 0 —	de Capucine), p.	
Beans, Channel		bunch ...	0 4 —
Islands, Dwarf,		Mushrooms, house,	
per lb. ...	0 10-1 0	per lb. ...	1 3 —
— Madeira, p. bkt.	2 0-3 9	Onions, bags	4 6-5 0
— French, lb. pkt.	0 4-0 5	— picklers, in	
— French, in		bags ...	2 6-3 0
sieves, per lb. ...	0 4 —	— Valencia, cases	5 0-5 6
Beetroots, new, doz.	0 6-0 9	Parsley, per dozen	
— in bush	1 6 —	bunches	1 0-1 6
Brussels Sprouts, p.		— per sieve	0 9-1 0
sieve ...	0 9-1 3	Parasiti, per dozen	0 6-0 9
— per bushel	1 6-2 0	— bag ...	3 0 —
Cabbages, taily	3 0-3 6	Potatoes, Hebron,	
— dozen ...	1 0-1 6	Snowdrop, &c.	
— Savoy, p. tally	4 0-7 0	per ton ...	60 0-90 0
Cardoons, each	1 3 —	— Dunbar Main	
Carrots, English, p.		Crop, per ton ...	100 0 —
dozen bunches	2 0 —	Radishes, round,	
— good, cwt. bags,		breakfast, per	
washed	2 6-3 6	dozen bunches	1 6 —
Cauliflowers, dozen	1 0-2 0	Rhubarb, Yorks, pr.	
— taily ...	8 6-8 0	dozen bunches	3 6-4 0
Celeriac, per dozen	1 6 —	Saled, small, pun-	
Celery, red, p. roll	10 0-1 4	nets, per dozen	1 8 —
— white, do.	0 8-0 10	Salsify, bundle	0 4 —
Chicory, per lb.	0 4 —	Seakale, per dozen	
Colewort, p. bush	0 9-1 0	punnets	15 0-18 0
Cress, per dozen		Shallots, per lb.	0 3-0 3½
punnets	1 6 —	Spinach, Winter, per	
Cucumbers, doz.	3 0-6 0	bushel ...	2 6 —
Endive, new French,		Tomatoes, English,	
per dozen	1 6 —	per lb. ...	0 5 —
— English, p.		— Channel Islands,	
score ...	1 3-1 6	p. lb. ...	0 2½-0 3½
— Batavian, doz.	1 6 —	— Canary, deeps.	1 6-3 0
Garlic, new, per lb.	0 2 —	Turnips, per dozen	
— per cwt.	14 0 —	bunches	1 6-2 0
Horseradish, Eng-		— cwt. bags	1 8-2 6
lish, bundle	1 6-2 0	Watercress, p. doz.	
— foreign, p. balls	1 0-1 8	bunches	0 6-6 6

SEEDS.

LONDON: November 29.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E. write that there were but few buyers on to-day's market, and as is usual at this season, but little business was doing. As regards Clover-seeds, notwithstanding their inactivity, values for same keep steady. Rye-grass, meantime, is also firm, but Tares favour the buyers. Full prices are asked for Mustard and Rape-seed. There is no quotable variation this week in either Blue Peas or Haricot Beans, and not much attention for the moment is being given to Bird-seeds.

FRUIT AND VEGETABLES.

GLASGOW: November 29.—The following are the prices realised since our last:—Canadian Apples, King, 16s. to 22s. per barrel; Baldwin, Greening, Spy, &c., 14s. to 18s.; American Apples: Baldwin, 8s. to 10s. per barrel; Northern Spy, 10s. to 12s. do.; various other sorts, 8s. to 14s. do. Grapes, English, 9d. to 1s. 9d. per lb.; Almeida, common, 7d. to 10s. per barrel; medium, 10s. to 16s. do.; best, 20s. to 25s. do.; Bananas, extras, 9s. to 10s. per case; No. 1, 7s. to 8s. do.; No. 2, 5s. to 6s. do.; Oranges, Valencia, ordinary 420's, 8s. to 9s. per box; large and extra large 420's, 11s. to 12s. do.; large 714's, 8s. 6d. to 9s. do.; Lemons, Malaga, 16s. to 18s. per half chest; Palermo do., 4s. to 5s. per box; Messina, do. new, 10s. to 12s. per case; Pears, French, Easter Bourré, 6s. to 6s. 6d. per case; Californian, Bourré Clairgrou and Winter Nellis, 10s. to 14s. per box; Tomatoes, English, 5d. per lb.; Scotch, do., 4d. to 8d. do.; Mushrooms, 1s. 6d. to 1s. 9d. per lb.; Onions, Valencias, 5 in a row, 5s. per box; do., 4 in a row, 4s. 6d. do.; Turnips, 8d. to 10d. per dozen bunches; Carrots, 6d. to 8d. do.; Parsley, 6d. to 9d. do.; Cauliflowers, 10d. to 2s. 6d. dozen; Cabbages, 7d. to 1s. 2d. do.; Celery, 10d. to 1s. 9d. do.

LIVERPOOL: November 29.—Wholesale Vegetable Market.—Potatoes, per cwt.: Lynn Gray, 2s. 8d. to 3s. 3d. Glan 2s. 8d. to 3s.; Main Crop, 2s. 6d. to 4s.; Bruce, 2s. 6d. to 4s.; Turnips, 8d. to 10d. per dozen bunches; 1s. 4d. to 1s. 6d. do.; Carrots, 6d. to 8d. per dozen bunches.

and 3s. 3d. to 3s. 9d. per cwt.; Parsley, 6d. to 8d. per dozen bunches; Onions, 6s. 6d. to 8s. per cwt.; Cauliflowers, 10d. to 2s. 6d. per dozen; Cabbages, 8d. to 1s. 2d. do.; Celery, 10d. to 1s. 9d. do.—*St. John's*.—Potatoes, 10d. to 1s. per peck; Grapes, English, 1s. 6d. to 3s. per lb.; do., foreign, 4d. to 8d. do.; Pines, English, 4s. to 6s. each; Cabbages, 10d. per lb.; Mushrooms, 1s. 6d. per lb. and basket; Cucumbers, 6d. to 8d. each. *Birkenhead*.—Potatoes, 10d. to 1s. per peck; Cucumbers, 6d. to 1s. each; Filberts, 10d. per lb.; Grapes, English, 1s. 6d. to 3s. 6d. do.; do., foreign, 4d. to 8d. do.; Mushrooms, 1s. to 1s. 6d. do.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending November 25, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.		1899.		Difference.
	s.	d.	s.	d.	
Wheat	27	9	25	8	- 1 11
Barley	28	4	26	2	- 2 2
Oats	17	1	16	7	- 0 6

THE WEATHER.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (-) the Mean for the week ending November 25.	ACCUMULATED.				More (+) or less (-) than Mean for the Week.	No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 1, 1899.
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 1, 1899.	Below 42°, difference from Mean since January 1, 1899.					
0	6 +	34	1	+ 333	- 61	6 +	208	47.4	5	28
1	7 +	35	2	+ 223	- 26	5 -	181	29.6	11	32
2	8 +	35	1	+ 335	- 131	5 -	155	21.3	17	33
3	2 +	29	9	+ 409	- 222	6 -	140	20.8	9	42
4	3 +	29	11	+ 404	- 160	6 -	138	23.4	7	40
5	2 +	29	2	+ 563	- 214	7 -	121	22.9	3	46
6	7 +	44	0	+ 250	- 102	6 -	199	46.1	13	32
7	5 +	42	0	+ 412	- 179	8 -	171	32.4	6	38
8	2 +	31	1	+ 617	- 142	10 -	155	34.3	10	45
9	6 +	43	0	+ 350	- 121	7 -	203	32.9	11	33
10	4 +	45	0	+ 486	- 92	8 -	166	35.4	13	38
a	2 +	59	0	+ 877	- 69	9 -	148	24.7	13	52

The districts indicated by number in the first column are the following:—

- 0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London. Principal Grains, &c. Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

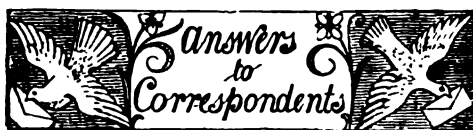
The following summary record of the weather throughout the British Islands for the week ending November 25, is furnished from the Meteorological Office:—

"The weather continued dry over the greater part of our islands, but rain was very frequent in the extreme north of Scotland, and falls were experienced occasionally in the 'N. and N.W.' generally. Much cloud prevailed in all parts of the kingdom, and mist and fog were not uncommon in the S.E. and S."

"The temperature was again above the mean, the excess ranging from 2° in 'England, E., S., and S.W.', and in the 'Channel Islands,' to as much as 6° in 'Scotland, N.' and 'Ireland, N.', and to 7° in 'Scotland, E. and W.' The highest of the maxima were recorded on rather variable dates, and varied from 58° in 'Scotland, N.' and 'Ireland, N.', to 55° in 'England, S.W.', and 'N.W.', as well as in 'Scotland, W.' The lowest of the minima, which were registered during the earlier days of the week, ranged from 23° in the 'Midland Counties' and 'England, S.W.', to 33° in 'Scotland, N.', and to 30° in the 'Channel Islands.'"

"The rainfall was considerably more than the mean in 'Scotland, N.', but less elsewhere. Over the greater part of England and Ireland the fall was again scarcely appreciable."

"The bright sunshine was less than the mean in all districts. The percentage of the possible duration ranged from 17 in 'England, N.E.' to 6 in 'England, N.W.', 5 in 'Scotland, N.', and 3 in 'England, S.'"



BIRD THISTLE: J. B. S. *Carduus lanceolatus*, so called because goldfinches and other birds feed on the seeds; or perhaps a form of Bur Thistle, a name given to this species in Cumberland and Northumberland.

CORRECTION: THE LATE CHRYSANTHEMUM SHOW IN THE WAVERLEY MARKET, EDINBURGH. Class 7, six Japanese blooms, any variety; 1st prize, Mr. T. Lunt, instead of Mr. J. Shearer. Mr. T. Lunt took also the Wells Gold Medal for the best exhibit of Chrysanthemums, namely, twenty vases of three blooms each. Mr. Lunt had the best Japanese bloom in Pride of Madford.

CYMBIDIUM LOWIANUM FLOWERS FAILING: B. B. E. It is probable that your plant may have been kept too cold at times, or in a cold current of air. By the remarks in your letter also we infer that not sufficient water has been afforded, and that the pot being full of roots, the plant has not had enough water given to develop the flowers fully. Let it be afforded a thorough soaking with rain-water, and then apply water thoroughly occasionally.

FLOWERS BY POST: Cut Flower. Pack in small layers, with clean, fresh-picked moss between. Never use wadding, for it spoils all flowers. Large blooms may have the butt end of the stalk stuck into a damp ball of moss wrapped in waterproof paper, or oiled silk, or even into small Potatoes or pieces of Carrot or Turnip. A moderate amount of pressure is desirable. Hot-house Fern fronds should, previously to packing them be steeped in water for an hour. Blooms of half-opened Roses and Camellias, &c., should be wrapped in soft paper, and tied with a strip of bast.

"GLASWELLYN" FLOWER: D. H. D. Kindly send a bit of the plant for identification.

KALOSANTHES COCCINEA GOING OFF: F. F. R. You evidently do not understand the proper methods of cultivation. The plants should now be resting. We will give directions for growing these plants in an early issue.

LARGE-FLOWERED SPECIMEN CHRYSANTHEMUM: W. H. We take it to mean that the specimen-plant must be of a large-flowered variety, in contradistinction to small-flowered. The word "specimen" also means a plant of large size.

NAMES OF FRUITS: W. W., *Aberfeldy*. Beurré Clairgeau.—R. H. W. 1, Eyewood; 2, Beurré Dumont; 3, Angélique Leclerc; others over-ripe.—J. W. 1, Not known; 2, Hoary Morning; 3, Golden Winter Pearmain; 4, Wickham's Pearmain; 5, Not received; 6, Hawthornden.—F. R., *Herne Hill*. 1, Beai Vaet; 2, Brown Beurré; 3, Rotten.—F. Bowdick. Pear, Summer Doyenné; Apple, Scarlet Nonpareil.—P. A. J. Norfolk Beefing.—W. H. S. 1, Worcester Pearmain; 2, Harvey's Wiltshire Defiance.—G. B., *Glamorgan-shire*. 1, Scarlet Nonpareil; 2, Melrose; 3, Caroline; 4, Durondeau.—Don. Hanwell Souring attacked by *Fusicladium dendriticum*: see recent reply in these columns as to treatment.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—Major B. A. *Bidens pilosa*; B. B. *leucantha*.—H. D. W., *Edinburgh*. *Peziza aurantia*; 1, *Collybia fusipes*; 2, *Panus conchatus*; 3, *Hypholoma fascicularis*. Very much dried up, and almost beyond identification. M. C. Cooke.—Notts. 1, *Ruellia Portellæ*; 2, *Apelandra Portellæ*; 3, *Crassula* species, send in flower; 4, *Panicum plicatum*; 5, Of no horticultural value; 6, *Eleodendron orientale*, see *Gardeners' Chronicle*, Dec. 18, 1886, p. 790. First known in gardens as *Aralia Chabrieri*.—H. F. W. 1, *Polypodium aureum*; 2, *Asclepias curassavica*; 3, *Adhatoda cydoniifolia*; 4, *Pellionia Daveauiana*; 5, *Sansiveria zeylanica* (Bow-tring Hemp); 6, one of the garden varieties of *Caladium*.—S. No numbers; the yellow is *Oncidium flexuosum*; the

other, *Celogyne* (Pleione) *Wallichiana*.—W. G. *Asclepias curassavica*.—A. L. 1, *Salvia splendens* Bruniati; 2, *S. pseudo-coccinea*; there are several varieties of *S. splendens*.

NUMBER OF CHRYSANTHEMUM PLANTS GROWING IN ONE POT: W. H. To show as "a specimen," two or more plants growing together in one flower-pot would be a risky proceeding, even should there be no rule in the schedule forbidding it.

OLD VINES DIFFICULT TO BREAK: Young Gardener. Cut a notch in the old stems and rods just above the point at which a shoot is desired, doing this forthwith, and cut-back all or most of the old, long fruit-spurs. When starting the Vines in the spring, bring them as nearly as may be to a horizontal position, i.e., the ends of the rods should be brought down near to the ground-level, and kept there till shoots form all along them. When a few inches of growth have been made, suspend them in the usual manner. The vinery on being shut up should be kept moist, and the Vines syringed twice or thrice daily; and if you could place a bed of fermenting dung and tree-leaves on a platform formed of boards, tiles, or bricks, it would greatly help the Vines to break regularly and well.

POLYGONUM BALDSCHUANICUM: H. N. Figure and notice in the *Gardeners' Chronicle*, p. 17, January 9, 1897.

"QUEENSLAND AGRICULTURAL JOURNAL": A. P. It is published, by authority, by Edmund Gregory, William Street, Brisbane.

RATING GLASSHOUSES: Lady Smith. The assessors may estimate the area of land covered with glass, but they will not measure the roof, as that would give a figure much in excess of the actual area. They will endeavour to arrive at the letting value of the glasshouses, and to enable them to do that you may have to let them inspect your account books, in order that they may estimate roughly the yearly value of the produce sold out of them. Nurseries do not now benefit under the new Rating Act, these holdings not being accounted agricultural land.

SODA AND CRUDE POTASH: E. Whiteway. The mixture, if made of the strength recommended by the writer of the Hardy Fruit Calendar, is not injurious to Cabbages, Coleworts, and similar vegetables, which may be growing underneath the fruit-trees. If used stronger, for which there is no necessity, it will not injure these plants, but will slightly injure Celery.

SPAN-ROOFED HEATED GLASSHOUSE: E. L. C. Your best paying crop would be another of Tomatoes, fruiting early in the spring; but if the necessary number of plants are not in your possession, you might take a catch crop of French Beans, and these being over, clear away plants and soil, and plant with Tomatoes sown soon after the New Year has begun. Good forcing varieties are Dwarf Canadian Wonder, Sir Joseph Paxton, Newton Wonder, and Osborne's Forcing, the first-named being probably the best. Sow at the end of December or in January; and as a saving of labour, sow on the beds in patches of half a dozen seeds together. The space between the rows may range from 2½ feet for Canadian Wonder to 1½ feet for the others. You must begin with a temperature of, at the least, 60°.

"SWISS ASTERS": G. W. Michaelmas Daisy is the popular name for various species of perennial Asters. We do not preserve specimens sent for naming, unless desired to do so at the time.

COMMUNICATIONS RECEIVED.—C. W. D.—J. I.—G. B. M.—M. J.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—A. & Co.—J. B.—H. D. N.—J. W. S.—G. W. N.—F. F. R.—E. L.—B. H. & Son.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE Gardeners' Chronicle

No. 676.—SATURDAY, DEC. 9, 1899.

favoured by Sir Trevor Lawrence, who also sent us the photograph from which the accompanying illustration (fig. 135) was taken.

"The enclosed are the photographs of *Solanum Wendlandi* as growing here out of doors. The plant was put out as soon as we were safe from frosts, and from the end of June until well into October it has been covered with fine trusses of bloom. It is still out, and none the worse for such frosts as we have had. It requires a warm and sheltered corner, and to be housed in winter. I may mention that it was almost as fine last year as this, and that by its side *Aristolochia elegans* did well and flowered freely. TREVOR LAWRENCE."

not become fully available until a year or two after its application.

This same land, after taking off the above three crops of Turnips, has grown twenty-five crops of Swedish Turnips, five crops of Sugar-Beet, and twenty-four crops of Mangel Wurzel, both without manure, with farmyard manure, and with various artificial manures.

Another fact, according to the Rothamsted experiments, is, that crop the same soil successively with the same crops, without manure, as long as you may, there is a limit below which you cannot exhaust it, and after which limit it will continue to bear crops of an average weight and quality that show but little average diminution, season being an important factor in the case. Sir J. B. Lawes experimented [and does so still. Ed.] with Wheat, Beans, and Turnips, and found that without manure the weight of crop decreased greatly, but when a certain limit was reached the decrease ceased. Ground cropped fifty-six years in succession with Wheat, for example, has given an average crop without manure of 12½ bushels of grain, and 10½ cwt. of straw. The first half of the period yielded 14½ bushels of grain, and 12½ cwt. of straw; while the second half yielded 11½ bushels of grain, and 8½ cwt. of straw per acre.

Turnips are so dependent upon a full supply of manure, that even in rotation, when grown without manure, they dropped to the size of Radishes; but this same land grew excellent crops of Barley and Wheat in the following seasons, although no manure had been applied.

ROTATION PLANTS.

The foregoing remarks show that we have a good deal to learn on this subject. Jethro Tull, one of the first experimenters in this direction, was of opinion that a rotation of different successive crops was quite unnecessary, and Sir J. B. Lawes followed in his footsteps. The market gardeners round London are said to quite disregard the practice of rotation, and prefer to dig deep, manure well, and plant whatever crop is ready. The Paris market-gardeners do the same for the reason, chiefly, that with the few varieties that they grow in their small gardens rotation would be difficult. Yet we are told by the best authorities that "there are few agricultural facts better ascertained than this, that the growth, year after year, on the same soil, of one kind of plants, or family of plants, and the removal from it, either of the entire produce, or at least of the ripened seeds of such plants, rapidly impairs the general fertility of the soil, and, in particular cases, unfits it for bearing further crops of the kind by which it has been exhausted." *Encyclopædia Britannica*.

It is in the vegetable garden and flower garden where the results of successive cropping is best exhibited, and practice there certainly does not corroborate the views of the agriculturist. The most exhaustive crops I have had any experience of were the bedding plants of the flower garden. I should be afraid to state how many years in succession beds and borders have been cropped by the same kinds of plants—Pelargoniums, Lobelia, Verbenas, Calceolarias, &c. The plants were put in thickly, too, and what agriculturists call the "crop," was entirely removed every autumn. Yet highly stimulating manures were seldom used, decayed compost of various kinds supplying the most of that. Yet no diminution of growth in the plants was noticeable. The display of flower was always good, and seemed to depend far more on the weather than on the soil.



FIG. 135.—*SOLANUM WENDLANDI*, GROWING IN SIR TREVOR LAWRENCE'S GARDEN, BIRFORD LODGE, DOB KING.

SOLANUM WENDLANDI.

THIS is one of the noblest creepers for the decoration of greenhouses that we possess, as all visitors to Kew must admit. At Kew it succeeds admirably in the Water-Lily-house, and it is equally at home in the Succulent-house, so that it is very accommodating as to its requirements—well adapted to varying conditions of environment, as the phrase of the day has it. This is still further exemplified in the following note with which we have been

A large illustration was given in our pages for September 16, 1893, where will be found a full description of the plant. The flowers are purplish-blue.

ROTATION OF CROPS IN TREES AND PLANTS.

THIS paper is suggested by an article in *Chambers' Journal*, on "Fruit Growing in Scotland," wherein it is stated that "it is an unfortunate fact, certainly true as regards reclaimed moorland, that when once a crop of Strawberries has been taken from the ground, it will never bear to much advantage again. Apparently they absorb some substance from the ground which cannot by any known process be replaced. Experiments have been tried by taking a five years' rotation of other crops off the ground, and then replanting it in Strawberries, but the result has never been satisfactory." This is a rather perplexing statement, for the experience of gardeners of the Strawberries is, that in gardens where the crops succeed each other often at short intervals, so long as you afford manure judiciously, good crops are obtained for an indefinite period. Strawberries may at any time be made to produce an abnormally heavy crop in pots by the application of manure in sufficient quantity at the right time [and fresh soil, too. Ed.]; and what can be done in pots can be done in the open ground. Still, there may be something in it, because the same thing has been asserted, on good authority, about other plants.

In Sir J. B. Lawes' experiments at Rothamsted with Norfolk White Turnips, grown with farmyard manure:—

Year	1843	...	...	9 tons 10 cwt. per acre.
"	1844	...	...	10 " 15 "
"	1845	...	...	17 " 1 "

This shows that the farmyard manure does

Verbenas were the only plants that seemed to deteriorate, and their decay was generally put down to their being "run out," as gardeners call it, but I suspect that in their case it was their being repeated too often on the same ground. For some twenty years I have known flower borders that never had anything in them but zonal Pelargoniums, Calceolarias, and Verbenas the most of that time, the same parts of the border being occupied by the same species, and the soil was of a light description. Doubtless my experience is shared by most gardeners, and may be set down as shaking the rotation theory to some extent. Sweet Peas are a very exhaustive crop, yet I have known exactly the same spot cropped successfully for many years in succession. The gardener has no choice. A row of Peas was desired at the back of a particular border, and the gardener's plan was to shift the row the space of one foot or thereabout annually to one side and back again, and add a little dissolved bones periodically. I cannot say that the row ever showed any difference year after year. Many examples of this kind could be given.

In the kitchen garden, rotation to some extent can be followed, but few gardens allow of a five years' rotation; and as for Strawberries, good crops are the rule so long as manure is applied and the plants are kept clean, and well managed otherwise. I certainly know gardens where, owing to the breadth of Strawberries laid down, a long rotation was out of the question, and yet the Strawberry crop has always been of a good average kind for over thirty years, and how long before that I cannot say, but probably for 100 years. The rotation has been something as follows:—First, Strawberries on trenched or double-dug ground, where they remained for three or four years; then the crop was dug down, and followed by Winter Spinach; that probably by some of the Cabbage tribe or late Peas; and these by Potatos or Onions, or some other main crop, and then Strawberries again. There was no space for more before the land was wanted for the latter. Then there was double-digging, manuring, and mulching again; and if the Strawberries did not respond, the gardeners wondered. [This can be greatly remedied by a sufficient application of lime to the soil. Ed.]

Next take Turnips. The "finger-and-toe" disease is now becoming so disastrous and so general, that some fear the extinction of the Turnip crop altogether as an agricultural crop. In some of the very best farmed districts in Scotland, it seems impossible to get rid of the disease in a destructive form, and farmers have sustained great losses of late years. Rotation was considered the chief preventative of the disease, but that seems now to have failed to restore the root to its normal state, and agricultural chemists are almost at their wits' end what to do about it. Yet I would like to ask your gardening readers if they ever had any serious trouble with finger-and-toe in garden crops where the culture was fairly good? I never had a badly affected crop, such as one sees on farms where the crop is sometimes quite worthless. Occasional examples in dry seasons are found, but the general crop is always good enough where the ground has been deeply dug or trenched, and well manured for the previous crop. I suppose garden varieties of the Turnip are not different from field varieties, and that they suffer from the same maladies. The Turnip-fly is, at any rate, a pest both in the garden and field, but like finger-and-toe, the fly is never so bad in the

garden as in the field, deeper and better culture probably helping the crop through the critical stage sooner. In a garden where a good crop of a late, hardy, kitchen Turnip was wanted just off the ground, a north border was always sown in June with the Black Chirk Castle variety, and for about fifteen years this crop was repeated with only one year between the crops. One half of the border was planted with greens and allied species, and when these were over by the end of May, all the stumps were trenched down and Turnips sown. The greens were manured with any old potting-shed or other compost going, but the Turnips were not. From facts like these, I have long drawn the conclusion that "finger-and-toe" was caused principally by drought and shallow culture, and that deep ploughing or digging are the surest means of preventing it. Why the disease has appeared in such an aggravated form, as it is said to have done, I cannot tell.

Potatos have puzzled the rotationist a good deal, as there does not seem to be any limit to the period that the ground will go on producing Potatos with even a moderate supply of manure. I have had to do, sometimes, with a large number of allotments and cottage-gardens, and for over thirty years these have been devoted principally to Potatos, and during that time the Potatos have necessarily always occupied the same piece of ground. Yet the crops have been good, or at the worst very fair, considering that the owners of the gardens do not spend much on manure. Last year, however, I advised some of them to apply a mixture of kainite and some other artificials, and the crop at once responded and turned out a very heavy one. None of these gardens have ever been trenched, and are not more than a spade deep, the soil being thin.

The Cabbage is a plant I do not care to follow in quick succession on any kind of soil, because it seems to suffer not from lack of nutriment, but from grubs and insects on oft-cropped soil, more than is the case on fresh ground. Carrots and Onions are the same, and they do not like fresh manure, but always do best after some other crop that has been manured. For these and other crops it is the practice to trench, and turn the manure into the bottom of the trench in the expectation that the roots, if they reach so far down, may need it. I never could see the utility of burying manure in that way; we know from experience with well drained Vine-borders, for example, that of the manure put on the surface of the border, a great deal of it gets washed into the drains and lost; and how much would be lost if the manure was buried at the bottom of the border to begin with? Yet that is what is often done in kitchen-gardens. In one large and extravagantly-conducted garden in Scotland that I once knew, all the stable-litter and dung was sent to the garden, and was regularly buried, every winter, in the trenched part, about 2 feet deep. We have seen this manure turned up again several years after, and it was found lying at the bottom of the trench in a thin black layer, about half an inch thick, evidently inert, and much reduced in quality, no doubt, by the 50 inches of rain that fell annually and washed through into the drains. That is by the way.

What seem to be the conclusions to be drawn from farm and garden experience in regard to rotation is, that the practice may, to a very large extent, be dispensed with in any soil that can be deeply ploughed or dug and fairly well manured, and probably the

difference between the results in farming and garden practice may be accounted for by the difference of culture in these respects. It is not practicable for the farmer to till and dig his land in the way the gardener does, and as a rule farm-lands are shallow. There are great tracts in Yorkshire where the plough can hardly be entered without turning up a poor, bad subsoil; on such soils, in dry seasons, all kinds of crops are light or bad—Turnips particularly so, for they are almost a certain failure in dry summers from finger-and-toe or fly.

Rotation in relation to forest trees is a very interesting subject, but must be left to another chapter. J. Simpson, Studfield House, near Sheffield.

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM × PURPURATO-CURTISII.

THIS cross appeared in a group of seedlings raised by the late William Robinson, the first flower opening in July, 1899, on a plant in the collection of Mrs. F. L. Ames, at North Easton, Mass., U.S.A. The upper sepal is nearly orbicular, white, reflexed at the base; nerves of a dull purple tint, with green branches, eleven in number; the lower sepal narrowly ovate, with green nerves; petals spreading, slightly deflexed, greenish at the base, otherwise pale mauve, with numerous dots; labellum resembling that of *C. Curtisii*, but paler in colour; staminode crescent-shaped; ovary subtended by a small green bract; scape slender, pubescent; foliage intermediate, and in some plants being more glaucous than in others. (Oakes Ames, in *American Gardening*, for November 4, 1899.) J. O'B.

KEW NOTES.

AGAVE WOODROW.—A very pretty little variegated Agave has been grown at Kew for the last four years under the name of *A. vivipara* variegata, but as there is another older and quite distinct plant to which this name has been given, it is proposed to name this new one in compliment to Mr. Marshall Woodrow, late Professor of Botany at Poona, Bombay, to whom Kew is indebted for the plant. He wrote: "This is a new variety of *Agave vivipara*, a sport which originated in the Botanical Garden of the College of Science, Poona, from the variegated form, of which I previously sent you plants. The new sport is of remarkable beauty, the white part being broad and of a pure ivory colour, with sufficient green to maintain vigorous growth." It differs from typical *A. vivipara* and the variety known as *variegata* in its habit of growth, the leaves being horizontal or recurved, whilst in them they are sub-erect. It is also slower in growth, and evidently more delicate under cultivation here, the leaves being in some cases almost wholly white and consequently apt to suffer in winter.

ALOE SOMALIENSIS.

This is a new species of Aloe, which was introduced by means of seeds collected in Somaliland, in 1895, by Miss Edith Cole. Plants of it were raised at Kew, and one is now flowering in the Mexican house. A description of it by Mr. Wright will shortly appear in the *Kew Bulletin*. It has short thick fleshy leaves, 2 to 3 inches wide at the base, 5 to 6 inches long, narrowed gradually to a long point, the margins clothed with strong red-tipped spines, one-eighth of an inch long; upper-surface dark green, marbled with a paler green, under-surface thickly spotted with grey-green. The spike is erect, branched, 18 inches high, bearing numerous dull-red flowers over an inch long. It differs from all other cultivated Aloes in the rigidity of its leaves, which are also remarkable in their glossiness and conspicuous mottling. W. W.

ODONTOGLOSSUM CRISPUM MOORTEBEEKIENSE.

THE illustration (fig. 136) shows the exact size and blotching of this fine form of *Odontoglossum crispum*. The sepals and petals are of a pure crystalline-white, heavily blotched, as shown in the drawing, with brilliant purple-brown or deep chestnut-brown, which on the lip is very glossy. The sepals are just faintly tinged with rose-purple towards the tips, while the crest, teeth, and surrounding ground is of a soft bright yellow, very conspicuous in the midst of the white. The denticulate edges of the lip are here and there dotted with crimson-purple. The plant which produced the flowers was shown at a recent meeting of the Manchester and North of England Orchid Society, and "created a great sensation" at the meeting. It not only received a First-class Certificate, but

many Palms and Tree-Ferns resemble each other strongly, and pinnate, bipinnate, and even tripinnate leaves and fronds ape each other markedly, as do the simple fronds and leaves of other species. This resemblance is very extraordinary when we consider the very different genesis and functions of the two kinds of foliage, and affords a marked example of how exposure to similar conditions of life can in time produce similarity of structure. The foliage of flowering plants represents a larger or smaller community of separate individuals, who work jointly together to build up a support, by which the community may not only benefit by an ample supply of light and air, constituting vital stimuli and food, but also derive other supplies from a root-system, which serves the double purpose of anchorage to the soil and provision of water, and certain salts needed by the aerial community above. The tree or the plant is

in the oldest coal formations we find the Fern fronds grandly developed, and differing in no essential degree from those of to-day. The Lichens and Marchantias have progressed but little from the small and creeping scale formation. Some imitate the true Mosses, which have taken a line of their own; some throw up beautiful structures, stalked stars and tablets for the same objects as fronds, i.e., spore-bearers and spore-scatterers; but none form a crown and central axis of growth at all comparable to Ferns; despite which, they have held their own, and thrive in damp soil, as every gardener will attest who keeps his plants over-wet.

What, then, induced the Fern tribe to develop as it has done, until finally its chief essential stage, the scale or prothallus, is but a brief episode at the outset of a life-career which lasts for an indefinitely long period?

This is one of the biologist's puzzles, for there is a distinct difference between the cell-formation of the prothallus and that of the frond, and although we can conceive that in the struggle for existence in primeval days, which meant in dense forests a struggle for the light, the frond was evolved as a necessity for survival, enabling the Fern to share the light of day with its many competitors; the beginning of such evolution is a mystery. Is it possible that we have a clue in the Aposporous Ferns, in which the frond-tissues merge at their tips and edges into the prothallus-tissue, reassuming the reproductive functions at all points, and, what is more essential, producing in the process, not the usual primary fronds of normal frond-texture, but long-stalked prothalli, with an axis of growth at their bases which subsequently throws up larger and larger fronds, each one with more of the frond proper in it, and less of the prothallal character, until finally true fronds are arrived at, save and except the aforesaid capacity of prothallus formation at the edges and tips?

The prothallus is the child of shade and moisture, the frond the tenant of the air and drier conditions, and certainly in these half-and-half beginnings of the frond stage we have a very plausible-looking commencement of frond evolution, which, once so commenced, would lead on and on to larger and diversely-shaped fronds, to which, as a correlated advantage as regards scattering, the formation of spores would become delegated. The sporangia so far found on prothalli are on short projections, presumably incipient fronds, and as it appears that the prothallus is capable of producing all its organs practically from any part of it, we have in these two cases of Aposporous primary fronds and sporiferous projections, evidence of first steps in the evolutionary process which merit careful study. Chas. T. Drury, F.L.S., V.M.H.

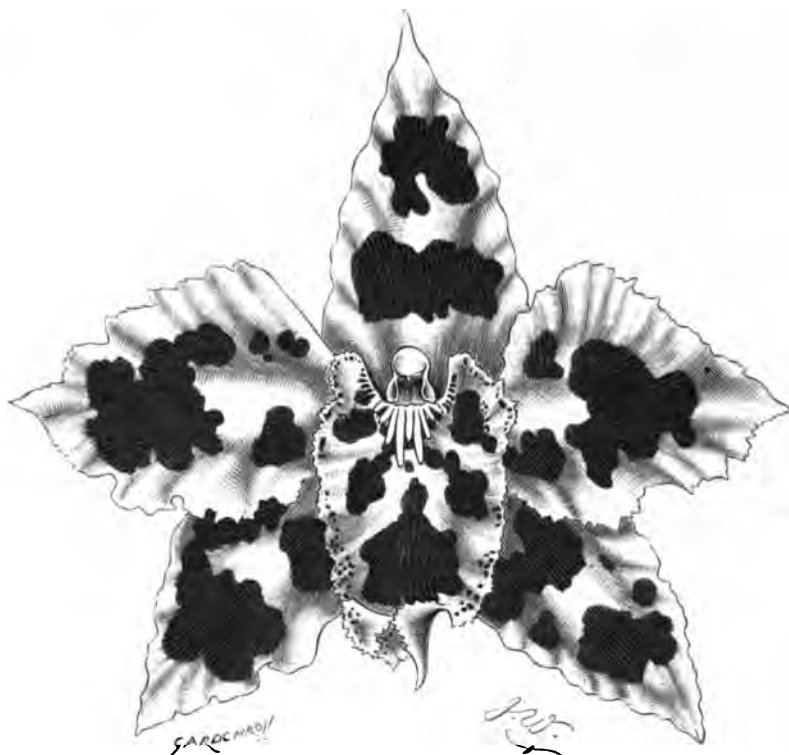


FIG. 136.—ODONTOGLOSSUM CRISPUM MOORTEBEEKIENSE.

was awarded a Silver-gilt Medal. The plant is the property of A. Warburton, Esq., Vine House, Haslingden, near Manchester, who has been kind enough to send me a flower. John Weathers, Isleworth, November 15, 1899.

THE EVOLUTION OF FERN FRONDS.

GLANCING through a general collection of Ferns, native and exotic, we cannot fail to be struck by the many resemblances presented by the fronds of some species to the proper leaves of flowering plants; the finer cut *Adiantums* on the one hand, and massive *Platyceriums* on the other, alone displaying strong distinctive characteristic differences. True it is, that no Fern-specialist requires to look twice before determining the frond from the leaf, but as a humble, familiar instance of deceiving similarity, we may mention that on more than one occasion the common Cow Parsley has been sent to us as a pretty Fern; while an amateur might well be pardoned for mistaking *Asplenium septentrionale* for a tuft of stunted grass. Superficially

nothing without its leaves and branches, and the main object of such community of leaves is the reproduction of the species through flowers and seed. This main object, therefore, failing to be effected by the community of Fern fronds, though essential to the continuity of the race, we are induced to make a further examination, and find, to our surprise, that really and truly Ferns, from the smallest to the largest species, might exist and reproduce themselves without any fronds at all, and in such a lowly form as to be utterly unworthy of horticultural care. For all essential purposes, the tiny little green leaves [the prothallus], no larger than herring-scales, which we often see in the soil of pots and pans in which Ferns are grown, is the Fern proper, and all the lovely panoply of frondage the mere spore-bearers, a function which it has been found the tiny scale aforesaid is occasionally capable of fulfilling for itself. Ferns consequently present a more interesting example of the production by evolution of large, conspicuous, and ornate foliage from originally very inconspicuous plants closely allied, and possibly derived from primeval *Marchantias* or *Liverworts*; and yet

FOREIGN CORRESPONDENCE.

LILIUM RUBELLUM.

THIS beautiful Lily is the most recently introduced, and without exception the loveliest of Japanese Lilies for pot culture. During the last two years it has been sent to the European and American markets in large quantities, but, unfortunately for the shippers, at a considerable pecuniary loss, through their not sufficiently appreciating the requirements for the packing of the bulb. The buyers, on the other hand, have not been successful in their cultivation. The blame for this is due to the exporters not giving their clients a description of the conditions which surround this Lily in its native habitat. It grows in the northern part of Japan, and is therefore quite hardy. It is found in Pine forests with a dense undergrowth of Bamboo, &c., the soil being dry and poor. It follows that success is likely to attend its culture only by keeping the above information in mind. It is therefore suggested that a poor stony loam be used with 2 inches of drainage, and three bulbs to a 5-inch pot, keeping the soil slightly moist. Over-watering is sure to be disastrous. The pots should

be kept in the shade, but not such as would naturally draw the plants. The Lily attains a height of 1 foot, and is compact and sturdy in growth. This character should be maintained. It may safely be said of this pretty Lily, which blooms in April, or earlier, that it will prove to be the gem of the greenhouse, conservatory, or sitting-room. In Yokohama, out-of-doors, it flowers at the end of April and beginning of May. It should be grown on a raised bed of poor, dry soil, and out of the sun's rays, or plant on a dry bank, facing east or north. We in Yokohama grow it under deciduous shrubs, close into the roots, where the condition of dryness is natural, and protection is secured from the sun's rays. *L. Krameri* grows in the south of Japan under the same conditions as *L. rubellum*. It flowers one month later, takes the same cultural treatment, and attains a height of 3 feet. *G. W. Rogers, Yokohama.*

EUCALYPTUS IN THE TRANSVAAL.

IN following up the hint indicated in some remarks of mine earlier in the year on the growth of the Eucalyptus in South Africa, I take the liberty of communicating the result of my observations on the rearing and planting of them in the Transvaal, &c. The rearing and planting of exotics take more care and skill than are required for indigenous plants, as a knowledge of the conditions of their native habitat and climate are essential to success. Like the home country, South Africa has been fortunate in having several enterprising nurserymen, who early grasped the situation, and have done much to encourage planting by the introduction of many varieties of forest-trees, which will do much, if extensively planted, to very materially ameliorate the climate, and increase the agricultural value of the land. To the Nelsons of Johannesburg and King Williams-town, the Gowers of Grahamstown, and Smith of Port Elizabeth, all correspondents of the *Gardeners' Chronicle*, are due the credit of giving an impetus to tree-planting, and spreading a knowledge of the suitability of Australian sylvia for the wants of South Africa.

With, possibly, three or four exceptions, no genus seems to fulfil all the necessary requirements more than the Eucalyptus. It is quick-growing, attains to a useful size as timber in a short time, and, so far as is known, the quality of the timber of many of the more easily grown varieties is good, and suitable for general economic purposes, while it seems to be admirably suited to the climate and soil of a very large portion of that part of the African continent. From observations made over a wide area, I am convinced that in conjunction with a few other species afterwards mentioned, it will, in the near future, be the predominant tree grown south of the twentieth degree of south latitude. But I must now advert to the real object of this notice, viz., the rearing and planting as adopted generally in the Transvaal.

The seed of the Eucalyptus is very small, and requires considerable care in sowing and watering. The general practice is to sow in boxes thinly, and in a fine shallow mixture of sand and loam with that of leaf-mould. After germination, care is taken to prevent drawing and damping-off by giving plenty of air. Whenever the plants are strong enough to be handled they are pricked out in rows into beds or frames, half an inch apart and 6 inches between the rows, carefully shaded until they are established. Whenever they get crowded they are again transplanted into another bed, made up of good free soil, with plenty of vegetable fibre, laid at 2½ or 3 inches apart, and 8 to 10 inches between the rows, where they can remain until finally planted out. In some cases, in order to facilitate removal, they are planted in small tins or zinc square pots, with a movable side; at this stage much may be said in favour of this, but if not finally transplanted from these pots at the proper time they are liable to become pot-bound, and the roots take a spiral form, and necessitate

the breaking up of the ball in final planting, which as much as possible ought to be avoided, both for prudential and economic reasons.

The system adopted by Mr. Nelson, of Boysun's Nursery, Johannesburg, and which struck me as most to be commended, was the following. In lifting the plants out of the beds for final planting, each was lifted with a ball; there was a tub of alluvial clay-mud handy, and each ball was dipped into this and made firm with the hand. Then each was surrounded with some coarse grass, and tied with a piece of matting; the mud on the outside hardens and acts as a pot, keeping the ball together. In this way plants can be taken any distance, the dampness of the clay-mud outside being absorbed by the less tenacious soil round the roots, thereby keeping them fresh. In transplanting, all that requires to be done is to cut the enclosing matting, break the crust of the mud, and put it into the hole or pot prepared; the hard mud is soon dissolved with the surrounding moisture, and the grass acts as food to the young roots.

The next step is to prepare the ground for planting. The greater part of the country is bare grassy veldt. The surface is very hard, so much so that it can only be ploughed after the early rains have come. The first stage is to plough the ground, say, 6 to 8 inches deep in the month of October, sow a crop of Mealies (Maize), which will be reached in April. The following September or October, or whenever it can be done, plough again, and level with a harrow; cut any drains or water-courses necessary, then proceed to plant. The plants are brought on to the ground in the condition already indicated, and placed on the ground 5 to 5½ feet apart; a boy goes in front and cuts the matting, and the planter comes behind with a strong garden trowel and makes the hole, and plants. In this way one man and a boy can plant from 1200 to 1500 plants per day, or about an imperial acre. The next care is to see that the plants are not overtopped, and shocked by the coarse grass that is liable to rise. Of course, the ground must be enclosed from cattle.

Large areas have been planted in this way in several parts of the Transvaal during the last twelve years, and, as I have already said in a former communication, with very surprising results.

It is to be hoped, in the future development of South Africa, that due attention will be paid to the encouragement of afforestation, as a means to equalise the rainfall over the different seasons of the year and improve the agricultural capabilities of the country.

In addition to the Eucalyptus and the Acacias referred to in my former notice, it may not be out of place to state the other varieties of exotic forest-trees which seem to do very well, although perhaps not so rapid growers.

The first, in point of importance and beauty, is *Pinus insignis*; it is a quick grower, and so far as known the timber is fairly good and suitable for building and other purposes. This Pine has been extensively planted by Mr. Sam Marks at his lovely residence, Zwartkoppie, near Pretoria, where I had the pleasure of seeing some of his extensive plantations, and where the *Pinus insignis* was much in evidence, almost equalling the Gum-trees in growth. *Pinus Pinaster*, *P. pinea*, *P. halepensis*, *P. canariensis*, all do well, although slower growing.

Casuarina tenuissima, *equisetifolia* and *leptoclada* all do well and are most handsome trees. Several varieties of *Cupressus*, notably *macrocarpa*, are also useful trees; these, with the three Acacias, *dealbata*, *mollissima*, and *melanoxylon*, are the principal exotic varieties generally planted, in addition to the Eucalypti, and all of which are likely to be good timber trees.

From what has been said, I venture to hope that someone may give the Gum trees a more extensive trial in the British Isles than has been done yet, as I feel pretty certain, taking into consideration the evidence of the existence of several good specimens having in a measure withstood some of our most

severe winters, if suitable localities were selected, that they may become one of our useful timber trees. *Chas. S. France, Aberdeen.*

SEASIDE PLANTING OF TREES AND SHRUBS.

(Continued from p. 394.)

AMONG evergreens of somewhat recent introduction there is *Griselinia littoralis*, a small shrub with leathery, pale-green foliage, which thrives when planted among rocks or on a bank. There is a variety of *Griselinia* with nobler appearance, larger in all its parts, called *G. macrophylla*; but I am bound to say that it has proved tender and untrustworthy in Kent. Either is useful as a contrast to shrubs with dark-green leaves. For planting on sandy banks and knolls such as we find on the Norfolk coast, the Sea Buckthorn (*Hippophae rhamnoides*) is invaluable, as it not only decorates such spots, but also, when planted in close proximity and in quantity, prevents sand being drifted by the wind; moreover, wind and salt-spray do it no harm once the plant is established. Its small, axillary flowers are produced in profusion, and are greenish-yellow in colour; the female flowers, which are on separate bushes, are followed by bright, reddish, orange-coloured berries, which remain a long time on the branches, rendering the shrub very ornamental and attractive in autumn and early winter. There is a robust variety, a native of northern India and China, with lance-shaped leaves, like the Goat Willow, and flowers and fruits similar to the commoner species, but lacking its silvery sheen. It is a plant worth trying in suitable situations on the south or south-west and west coasts of this country, and in Ireland and south-west Scotland. Rabbits will not interfere with *Hippophae*, which is a great advantage when sandy banks have to be planted.

St. John's Wort, especially that strongly odorous species *Hypericum hircinum*, seem to rejoice in the sea breezes, most of the species flowering freely, giving a succession of amber-coloured fruits, which gives it its common name, "Amber-tree;" while the free-growing species called *Rose of Sharon* (*H. patulum*), may be used with advantage when the trees and shrubs which are first planted begin to afford a certain amount of shade. The Japanese shrubby kinds I have little doubt would thrive at the sea-side, as for example, *H. patulum* and *H. Moerianum*. *H. patulum* is able by means of its widely creeping roots to bind sandy soil, and afford stability to any banks and borders where it is used.

The *Kerria*, single and double forms, and the elegant, low-growing sort with small acute leaves, and abundance of single flowers, called in the trade *Kerria elegantissima*, may be used on the rockery with good effect; and a member of the genus called *Rhodotypos*, which is merely a white, single-flowered *Kerria*, having a more stiff, shrubby habit, may be used as a counterfoil to the yellow-flowered kinds, and, berrying freely, it looks pretty when its leaves have fallen.

Olearia.—The singular looking shrubby Composite, *Olearia Haastii*, with its dark-green, leathery foliage and masses of hawthorn-scented flowers which appear in early spring, is a shrub very suitable for seaside planting.

Veronicas, the shrubby New Zealand Speedwells, especially the smaller-leaved species—*buxifolia*, *incana*, and *Traversii*—succeed very well, and grow into bushes of large size, flowering almost the whole year where the climate is mild and the position sheltered. A useful hybrid form is named "Blue Gem." The downy-leaved Jerusalem Sage (*Phlomis fruticosa*), grows fairly well on sandy banks near the sea, and when covered with dense whorls of bright yellow flowers in June and July a bush of it forms an attractive object. Why called Jerusalem Sage I cannot imagine, as it is a plant of Spanish origin, and may be planted safely therefore in hot, dry positions.

The Oleasters (*Eleagnus*), grown in a sheltered position, will also succeed, and give variety to the shrubbery; and some of the species of late introduction from Japan, notably, *Eleagnus reflexa*, and its handsome varieties *Simoni* and *tricolor*, as well as a variety called *Frederica*, with highly-ornamental variegated leaves, if tried, and left to grow

make handsome single specimens along the coast, as does also the winter-flowering *Jasminum nudiflorum* treated as a bush—or, if possible, helped by the support of a wall or a fence.

Those who have been along the coast of Devon and Cornwall, or across the Solent to the Isle of Wight have, no doubt, noticed the size and luxu-

F. gracilis, though I have seen the old-fashioned florists' variety, named *Souvenir de Chiswick*, at least 8 feet high, and forming a dense elegant pyramid when supported by a stout central pole. Nor is this the sole florist's flower that will thrive in the open "by the sad sea wave," for I have seen two varieties of *Camellia japonica*, the old double white and the semi-double red, making large and very handsome shrubs on an open lawn sloping to the sea, and in mild winters flowering freely. In the same favoured spot, planted on southern and western slopes and sheltered from the north by a belt of trees and Firs, I have seen the white Indian Azalea and *I. alba* covered with flowers and looking quite at home. I scarcely dare to say plant these, as I fear it is only on a few favoured coasts that they will answer.

Then there are the common, the broad-leaved, and box-leaved Myrtles, varieties which will weather the storm and the winter's cold if afforded the shelter of a wall or fence, and flower freely. I have known the New Zealand *Metrosideros semperflorens*, the Bottle-brush plant, and yet another Myrtaceous plant, the *Lithospermum bullatum*, quite hardy on the Kentish coast, and even in sheltered places inland. *Philadelphus* (vernacular Syringa, or Mock Orange), grows strongly and flowers freely at the coast; the most hardy species being *P. coronarius*, though this is greatly surpassed by an improved form called *speciosissimus*, which being more robust, and larger both in foliage and flowers, should have a trial.

While we are with the Myrtles, we must not pass over the noblest members of the tribe, the Pomegranates, which will do quite well with a little shelter, or against a wall or fence, where it will flower freely, one called *Punica Legrelli* being the freest doer and bloomer I know. Although the double- and single-flowered scarlet forms will answer well enough they do not set their fruits. There is yet one more among tender shrubs which should not be omitted, I allude to the elegant Heath-like *Fabiana imbricata*, the growth and foliage of which resembles the *Tamarix africana*, but it produces dense spikes of small Heath-like white flowers in June and July. Loudon mentions it in his *Arboretum*, but has a singular error as regards its blossoms, which he says resemble those of a Peach. *Experience*.

(To be continued.)

MR. MILLER'S LILY-TANK AT BERKSWELL

WITH some few exceptions the plan is my own. A grass path skirts the pond, intended for the culture of Marliac's hardy Water-Lilies; this is bounded by a Yew-hedge, which will finish with a golden Yew at each end. I formed the plan (fig. 137) and did the work with the help of one man. *W. Miller, Berkswell.*

THE COMMON BEECH AND ITS VARIETIES.

THE common Beech, *Fagus sylvatica*, is well known as a useful and ornamental tree, and is also prized for its timber-producing qualities. Its area of distribution is somewhat wide, being found as a native in Britain, Spain, and various other parts of Europe, as far east as Asia Minor, while one of its varieties is indigenous to North America. In its young state it is useful as a hedge plant, its dead leaves clinging to the branches during the winter till the young leaves appear, affording shelter and protection in exposed situations. For timber purposes it has small value till it attains the age of from fifty to sixty years, and owing to its dense shade and the immense size of the crown it should be grown in plantations by itself. Several of great size are to be found in this country as specimen trees. Sir J. Hooker, in his *Students' Flora of the British Islands*, mentions a magnificent specimen at Ashbridge, Herts, Earl Brownlow's seat, known as the "King's Beech," with a trunk 118 feet high; and there are many other magnificent Beeches at this place. There is another at Bicton, in Devon,

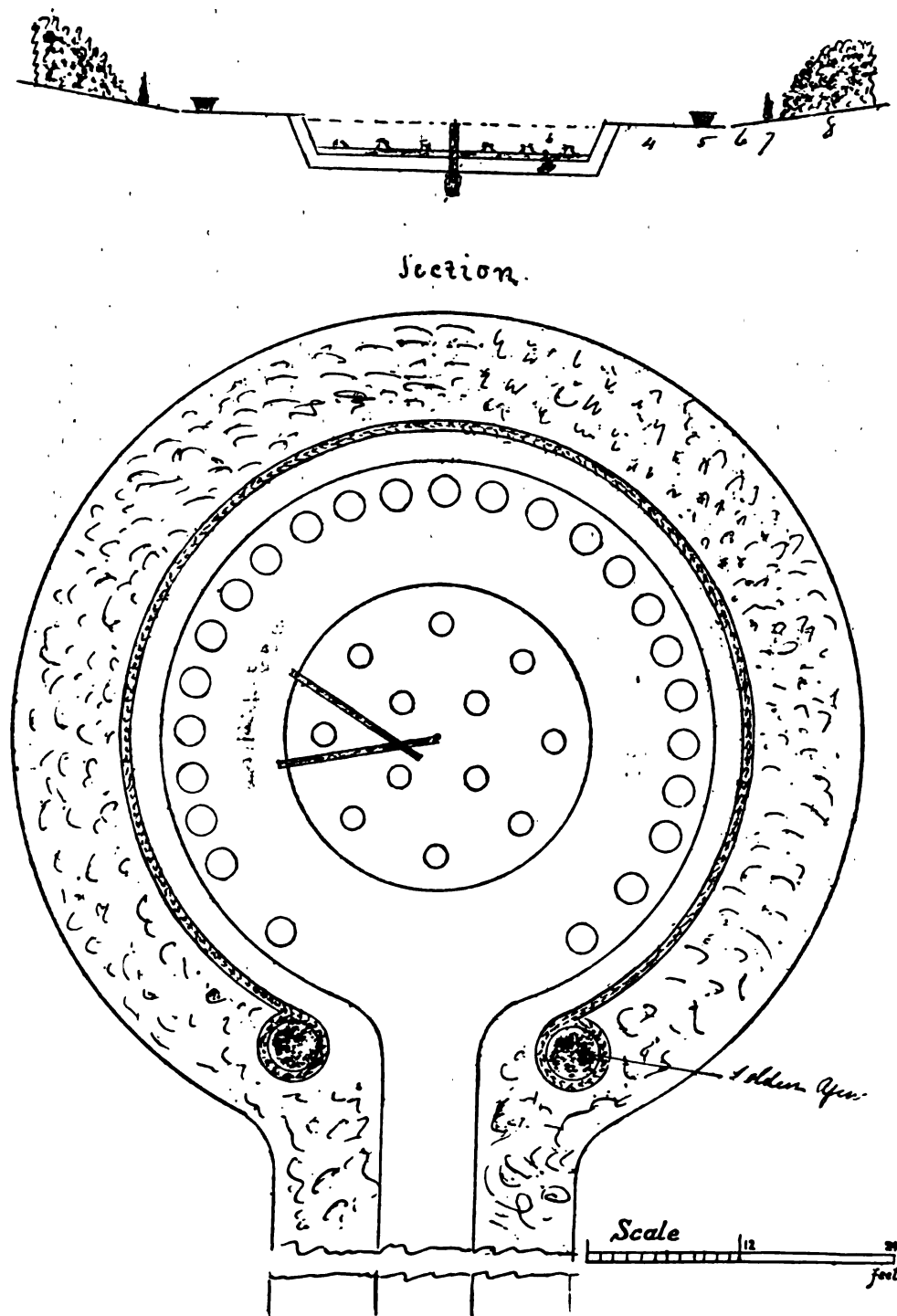


FIG. 137.—MR. MILLER'S LILY-TANK, BERKSWELL.

(Showing a Yew-hedge and an outer belt of shrubbery. The small circles represent earthenware pans, intended for the cultivation of aquatic plants.)

naturally, would make quite distinct and pretty shrubs. As a neat and pretty contrast to these, the golden *Diplopappus* (*Cassinia fulvida*) may be used. This plant forms a close-growing erect bush, and its peculiarly yellow *Erica*-like foliage, showing quite golden in certain lights, makes it an acquisition.

The winter-flowering *Forsythia viridissima* and the more elegant spring-blossoming *F. suspensa*

riance of the hardy *Fuchsias*, which not only grow in gardens but form hedgerows there. Not here alone will they thus flourish, for all along the south coast they make goodly bushes, and flower freely through the summer; even though in some severe winters they may be killed to the ground, it is very rare that they do not send up some strong growth in the spring, and quickly recover themselves. The two best are the *Riccourt Fuchsia* and

also very large; while it is not at all unusual to find noble trees in various other parts of the country. This species possesses several varieties, most of which are probably more ornamental than the type, and all of them are well worth growing. Of the lesser known forms the following are worthy of notice, as being distinct and useful, and but little known in gardens at present.

F. s. rotundifolia.—This variety originated at Woking some years ago. It was discovered, growing naturally, in a wood near St. John's, and owing to its distinct and handsome appearance is well worth growing as a decorative tree. The leaves are small and almost round, and very closely arranged on short branches. They are slightly toothed, with ciliate margins, and in colour are dark glaucous-green above, with a paler green beneath. In growth it is very robust, soon forming a large tree, and in habit it is very erect.

F. sylvatica aurea variegata.—This is the finest of all the variegated forms. Its leaves are not so round in shape as in the type, and are also slightly serrated. They are in colour bright-green, splashed and streaked with golden-yellow. The variegation is more constant, and far more effective, than in any of the other varieties, and when grown as a specimen tree it is an object of great beauty. Its habit is erect, while its growth is also vigorous.

F. s. pendula is a highly ornamental form, with leaves similar in appearance, as well as shape and size, to those of the type, but differing in habit by reason of its weeping character. It is generally grafted standard-high on the common variety, and when seen in good condition is an object of great beauty. Several good specimens occur in this neighbourhood. The finest I have ever heard of, and the most interesting, is that one noted by London in his *Encyclopædia of Trees and Shrubs*, published in 1842, viz., the fine natural specimen that existed in a plantation at Milton Park, Northampton. [Can any of your readers say if this tree is still growing?]

F. s. albo-marginata.—As a variegated form this is very effective for a contrast, but the leaves are more conspicuous in the spring and earlier summer, as later they are apt to become brown and lose this character. The silvery variegation is generally prominent on the margins of the leaf, but some leaves have blotches and streaks of the same colour. It was introduced to our gardens about 1836 by Messrs. Loddiges, of Hackney, who at that time were famous for their collection of trees and shrubs. It is not so robust in growth as some varieties, and its habit is more spreading.

F. s. americana.—Under this name is known the American form, which is distinct in appearance from the typical species, although regarded by some authorities as identical with it. Its leaves are ovate glabrous, and toothed and ciliate on the margins. In its native home it grows considerably over 100 feet in height, but in this country is rarely seen growing beyond 60 to 70 feet. Few specimens exist in this country, but young trees are to be met with in nurseries and botanic gardens.

F. s. macrophylla.—This variety is very distinct in character. The leaves are very large and noticeable for their conspicuous ribs, which are disposed obliquely. In colour they are glaucous-green, and borne in clusters on short stems. It is very vigorous in growth, erect in habit, and soon attains a large tree.

F. s. cristata.—Although this can only be regarded as a monstrosity, it is well worth growing on account of its singular and quaint appearance. Its leaves are very small, and almost stemless, and produced in such a manner as to resemble small tufts, occurring along the branches at various intervals. In height it rarely exceeds 40 feet, but is deserving of culture as a very distinct and ornamental variety. Several fine trees are to be found in this neighbourhood, but I have never seen a large specimen of this kind.

F. s. asplenifolia.—As an ornamental variety

this is well worth growing, and is now easily obtainable. Its leaves are distinct in character from the type; in some cases they are long, and are deeply cut or serrated in narrow segments. At first sight they bear a marked resemblance to the fronds of an *Asplenium*. Its growth differs from the type, the branches being more closely set, and the leaves disposed to a great extent in bunches. It possesses numerous synonyms, adopted by various authorities, such as *F. s. heterophylla*, *F. s. incisa*, *F. s. salicifolia*. Of this variety I noticed recently a remarkably fine specimen in the pleasure-grounds at West Dean Park, Chichester, and this is the largest of this kind I have yet seen. From the mere glance which I had of it, it was about 15 feet high, and the head several yards in diameter.

Of the better known forms, which are now well known in our gardens, the following are worthy of notice:—

F. s. purpurea.—The Purple Beech is probably the best known variety of any of the forms. In the young state the leaves are in colour a bright red, but when fully developed they become of a deep purple tint, shading off to black. Its stems and shoots also exhibit to a great extent the same colour as its leaves. When associated with other trees or shrubs, more or less of an evergreen nature, it stands almost unrivalled for beauty and gracefulness. Its growth is very robust, and soon attains a large size. A fine specimen of this variety was illustrated in *Gardeners' Chronicle* of October 22, 1898. A weeping form, known as *F. s. purpurea pendula*, is also in cultivation, which differs only in its drooping character, and which will, when better known, become a welcome addition; while *F. s. purpurea roseo-marginata* is another useful form, whose leaves in the young state are purple, edged with pink, but when fully grown lose this distinctive feature and shade to dark purple.

F. s. cuprea, the Copper Beech.—The true variety is distinct from the purple-leaved Beech, in that the young shoots and leaves are not so highly coloured, and are in tint a deep copper, and they are generally rounder in shape. It was introduced by Messrs. Loddiges about the year 1836; as a specimen it is well worth planting.

The Beech prefers, as a rule, dry calcareous soils and sandy loam, with a substratum of chalk, but it sometimes thrives on heavier soils of a different character. [It does well on soils overlying lime stone and basaltic rock. Ed.] Its roots mostly keep near the surface, never descending deeply into the ground. It is increased by seeds, and seldom by layers, while its varieties are increased by grafting and inarching on the type, operations generally performed in the spring. *E. S., Woking.*

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORMAN, Esq., Drogheda, Maidenhead.

Pruning Plum-trees.—The pruning and fastening of trees of the Plum on walls should be undertaken when the Pear and Cherry-trees are finished. Old trees having numerous and long fruit-spurs should have a few of the longer and worse placed ones removed, which, if carried out at this season will allow the dormant buds at the base of the spurs to start in good time in the spring. The spurs of Plums should stand out only an inch or two from the wall, otherwise much of the shelter provided by the latter is lost when the trees are in bloom. Old trees that may have been neglected, and on which the fruit-spurs are from 1 to 2 feet long, may require several years before these are brought to a reasonable length. This applies only to such trees as are in perfect health, whereas unhealthy ones should be grubbed up and young ones planted. The leading shoots of young and fairly strong trees which have not filled their allotted space should not be severely pruned, but have the young growths shortened slightly to ensure an even break, 2 to 3 feet being allowed to remain

for nailing in. If scale insects be apparent on the branches, let the entire tree be unfastened and cleaned by an insecticide similar to that recommended for scale on the Pear, using a moderately stiff brush. After nailing or tying and training are finished, well syringe all of the trees with the soda and potash mixture mentioned in a previous calendar, which will destroy any green or black-fly that remain. It will be advisable to repeat this syringing in early spring, before the trees come into bloom.

Protecting Fig-trees.—As the embryo fruits of the Fig are liable to be damaged by hard frost, the branches should be unfastened and brought down in a horizontal position near the ground-level and protected with mats, or thatched with straw, or covered with thatched sheep-hurdles. When the Fig-trees are being loosened from the wall, barren branches should be removed low down, the aim of the pruner being the retention of as many young growths of the past season as possible, allowing a space of 10 to 12 inches between each shoot when again fastened to the wall. As long as the somewhat mild weather continues the Fig is the better for remaining uncovered, but keeping the covering handy in case of need. Fig-trees which have made rank growth should be entirely lifted and re-planted in a confined space; or a trench should be taken out about 4 feet distant from the stem, and the roots undermined and shortened back, a portion of the soil taken away, and a quantity of mortar-rubble incorporated with the remainder, which should be rammed in firmly under and around the roots. When planting young trees the space for the roots should be restricted to about 2 feet square and 2 deep, and after a few years it may be increased to 3 or 4 feet square, a solid brick or concrete wall enclosing the space, with rubble for drainage. But let the gardener do what he will, the roots of the Fig will stray beyond the boundary, and recourse must be had to root-pruning from time to time. A rich soil does not suit the Fig in this country, as it causes a too vigorous and too late a growth, with the result that the wood is late in ripening, when it ripens at all.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WYMAN, Bart., Clare Lawn, East Sheen.

Remarks on Miltonias.—Plants of *Miltonia vexillaria* are steadily developing new growths, and should be given a position near to the roof-glass. Although growth is being made, the rooting medium need not be saturated with water, but apply a small quantity at frequent intervals. It is necessary to avoid both extremes—saturation, and excessive dryness. Examine the young growths frequently, and relieve any of the central leaves that adhere to each other with an instrument that will not scratch or otherwise injure them. Failing this, crippled growths will result.

M. Rolzii is seldom inactive, even in the depth of winter, and it may therefore be repotted at any season of the year. Few Orchids recover so quickly and appreciate a removal from decayed material as *M. Rolzii*, provided the work is done when the roots are emerging from the base of the new growths. Evaporation being now less rapid much less water is needed, and it must be applied as far as possible without wetting the foliage of the plants. The species loves dense shade; and the growth made during autumn and winter is stronger, and the colour of the leaves a deeper green than that of growths made in lighter periods of the year.

M. Phalenopsis is a beautiful plant at its best, but the cultivation of this plant is seldom attended with satisfactory results. It is usually afforded too much heat, and in many collections is disturbed too often. The species is a difficult one to establish, but once this is effected little should be done beyond renewing annually the surface of the rooting material, when root action has commenced. The plants thrive best in suspended pans, in an intermediate house, and at this season they should be afforded very little water. The various members of the *M. spectabilis* group are now at rest, and will require little moisture at the base to keep their pseudo-bulbs firm. The same remark applies to *M. Bluntii*, *M. Lubbersiana*, *M. Clowesii*, *M. flavescens*, *M. candida*, *M. Regnelli*, &c., which at present are in the cool end of the Cattleya-house or the warm part of an intermediate one. *M. x*

Bleuana thrives in the warmer part of the *Cattleya*-house, and as it is growing now, the compost should be kept moist, but not saturated.

Sophronitis grandiflora and its varieties supply a much-needed glow of colour and warmth to our cool-houses in winter. As the flowers are produced whilst the growth is only partially completed, the compost should not be permitted to remain dry for long periods, but water should be applied frequently in small quantities. *S. cernua*, owing to its peculiar habit, is best grown on a round block. After it has completed its growth, a long rest is necessary, though to prevent it shrivelling to any great extent the block should occasionally be immersed in water.

Temperatures.—During this and the following month, temperatures should be lower than at any period of the year, though in ordinary fair weather they need differ little from those tabulated in these columns on September 30. During severe frosts, or when cold easterly winds prevail, the amount of heat in the various compartments should be determined more by the personal sensation felt upon entering a house than by the amount registered by the thermometer. The parching effects of excessive fire-heat is more detrimental to plant-life than a low temperature.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Lettuce and Endive.—The vacant spaces in frames and pits containing Lettuce and Endive should be filled up from outside. The stock of these plants must be kept perfectly free from decaying leaves, and the soil slightly stirred between them, and air admitted daily, the lights being removed in dry, bright weather. Successions of Cos Lettuce may be tied up at intervals, and but little water afforded the soil. Seeds of Lettuce may be sown thickly in boxes once a fortnight for cutting in the young state, which, if grown quickly, will be found useful as salad.

Cauliflower, &c.—The beds of Veitch's Self-protecting Cauliflower, now freely turning in, should be looked over weekly, and all plants with heads formed should be dug up and stored in pits, or placed together in trenches on a south border, to be protected with mats, bracken, or litter in the event of sharp frost occurring. Snow's Winter White Broccoli will follow this variety, and keep up a supply till the new year has somewhat advanced. Plants of the Walcheren Broccoli or Cauliflower under glass protection should be kept free of decayed leaves, and the ground freed of weeds. No protection is required in an average winter. Air must be afforded every day when there is no frost, and also by night, which will have the effect of making them sturdy and short-legged. A sprinkling of soot may be afforded as a deterrent to slugs.

Parsnips.—These roots may be left undisturbed if the ground be not wanted for other crops, the decayed tops being raked off. Parsnips grow best in a soil that is deeply worked, and a suitable plot of land should be selected for next year's crop and trenched, and be heavily manured if the land requires it, leaving the surface as thrown up by the spade.

Seakale.—Continue to put forcing-pots or boxes over the crowns in accordance with the demands of the establishment, making good any vacancies in the clumps with strong crowns. Having made the beds tidy, cover with fermenting leaves and stable-litter, as previously advised.

Mushrooms.—Those beds which are carrying a crop may need water, and in affording it remove the litter and replace it with fresh if mouldiness is likely to set in. Particular attention must be paid to the killing of wood-lice, by pouring boiling water round the sides of the beds, and setting traps of boiled Potatoes—an old remedy which is very effective.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener, North Myms Park, Hatfield.

Solanums.—When these plants are no longer fit for house or conservatory decoration they may be pruned back closely, and afforded a few weeks' rest in a cool greenhouse, preparatory to starting them into growth again.

Calla (*Richardia*) *africana*.—If the plants are wanted to be in spathe as early as possible, they

should be introduced into a temperature of from 55° to 60°, in which spathe will quickly appear. If the plants have been well cultivated, spathe will have been produced for the past month or longer. Plants which have been housed in cool vineries and Peach-houses will also be now showing their spathe, and it is such plants as these which may be the more readily hastened into flower. When only required for conservatory decoration, as a succession to *Chrysanthemums*, they may be allowed to come on slowly, and will be all the better for having been so grown.

Zonal *Pelargoniums*.—Any plants which have gone out of bloom may, if they are leggy, be cut closely back, if the shoots be not required for spring propagation. Other plants which are still shapely may, after flowering, be rested for a time, and then introduced into a house having a night temperature of 55°, where they will come into bloom again at a season when their flowers will be much valued. Weak manure, liquid or solid, may advantageously be applied to plants which are now coming into bloom. The conditions of the house containing these plants should be somewhat dry, and no decaying blooms or leaves should be left on them.

FRUITS UNDER GLASS.

By W. STRAUHILL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

The Early Vinery.—In order to have Grapes ripe in the month of May, the vinery should have been closed ere this. At the first, a higher degree of temperature than 50° by day should not be exceeded, and that much will be afforded by a heap of fermenting materials placed in the middle of the house on a platform, or in a brick pit, such as is found in vineries of old construction. This mass of fermenting material should be occasionally turned over, in order to let the vapour escape into the vinery. If no such bed can be made, reliance must be had on the heating apparatus. Afford a small quantity of fresh air when the day is bright, shutting off the heat from the latter at the same time. The Vines should be wetted once or twice a day, according to the state of the weather, until the buds burst. With fermenting dung and leaves in the vinery, less syringing becomes necessary than when heat is derived from a boiler or a flue. It is a common practice to tie the rods down to the front of the trellis, so as to facilitate the syringing, and cause the buds to break regularly. As the buds grow, allow the temperature to gradually rise by one degree week by week, admitting air in moderate amount during periods of bright sunshine. If the borders have been kept on the dry side for some weeks past, slight applications of water at a temperature of 70° or 75° will suffice to carry on the growth for some time, as the roots will not take up much moisture at the first.

Early Figs.—The earliest Figs are more readily obtained from trees in pots than from those planted in borders, although the latter, if treated similarly to the early Vines, will afford good crops of early fruit. The same attention must be paid them in regard to heat, ventilation, water, &c. Owing to the risk of the earliest formed fruits dropping off in the early stages from fluctuating temperatures, much attention must be paid to the degree of heat, so as to maintain a steady progress; neither should the soil become dry, nor, on the other hand, that the pots or border, too moist. Air, in the earlier stages of forcing should be afforded only by the upper ventilators—later on, when the crop of fruit may be ripening, it will be time enough to admit air at the front. Fig-trees in pots started a few weeks ago will probably need some slight addition made to the bed of fermenting materials in order to freshen up the declining warmth. This addition must be made with due carefulness, and only sweetened materials should be used, the object being the maintenance of a steady bottom-heat of 75°. If bottom-heat be derived from hot-water pipes, care should be taken that the Figs do not suffer from lack of water, or the pots stand in contact with them.

Strawberries.—If ripe fruits are looked for in February, selected plants may be forthwith introduced into a newly-started forcing-pit, preferably one furnished with a hot-bed of tree-leaves, and in which the top-heat can be kept below 50°. The plants may be stood on boards, not plunged. For very early fruiting, Royal Sovereign, or La Grosse Sucrée are

the best. [Do not omit Napier, Paxton, and Vicomtesse. Ed.] When the plants have been selected, the old half-decayed leaves should be cut off, and the surface soil removed to a very slight depth, a top-dressing of fresh soil, wood-ashes, and bone-meal taking its place. If red-spider be observed on the leaves, syringe the latter, and then apply flowers-of-sulphur to the under sides of the leaves, or dip them in a mixture of sulphide of potassium and water at the rate of half an ounce of the first to one gallon of the second. Whilst the plants remain in the hot-bed the tops should be kept cool till the flower-trusses appear, and until this stage is reached, very little water, if any, should be afforded. It is prudent to afford air in small volume night and day. The top-heat at night may range from 45° to 48°. If fine fruits are desired, plants with one crown should be chosen. When the flowers begin to show, shift the plants to a forcing-house.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Bulbs.—The planting of all spring-flowering bulbs, if not already completed, should now be hurried on. If space can be found for them, the May-flowering section of Tulips will be found very beautiful, and excellent for cutting purposes. When once planted, the bulbs may be permitted to remain in the same spots for several years. Ordinary garden-mould is the best soil for Tulips, and the bulbs should be placed deep enough that some flowering-annuals may be sown over the surface. Bouton d'Or, Golden Crown, Golden Eagle, persica, retroflexa, are the best of the yellows; Fulgens, Bridesmaid, macroseilla, Oculis Solis are rich crimson and scarlet in colour. The florist Tulips are very beautiful, have long stems, are quaint in appearance, and marbled in different shades of colour; while the Darwii Tulips (breeders), which are the latest to flower, are for the most part self-coloured. Beds recently planted with bulbs should be examined, to see that mice have not destroyed any of them. If they have done so, fresh ones may be inserted, and duplicate bulbs planted in any spare piece of ground for the purpose of filling up vacant places in the spring.

Plants in Cold Frames should be afforded abundance of air during mild weather, the lights, even, being tilted a little at night. Water should be applied only when signs of flagging are observed, the drier the soil and the air of the frames are kept the better will they withstand low temperature. The dead leaves should be removed from Carnations growing in pots, and the soil slightly stirred. Slugs and snails, particularly the smaller kinds, gnaw the rind of the stems, and need to be diligently sought after, or trapped by placing some Cabbage-leaves near the plants. As a means of preventing slugs from interfering with Carnations, fresh soot should be sprinkled between the pots, and if any fall on the leaves there will be nothing to fear, as it will not harm them. When Carnations are afforded insufficient air, they are apt to get infected with green-fly; and in the event of this having occurred, plants should be dipped into a vessel containing weak tobacco-water, or they should be removed to another frame, fumigated with tobacco, and afterwards be sponged clean.

Chrysanthemums.—Plants of early-flowering varieties that grow in the borders should be deprived of their flower-stems, cutting these to within 6 inches of the ground, and for safety sake the stools should be lifted, divided, potted, and wintered in a cold frame. Later, the plants will produce shoots for making cuttings. If cold frames are not available, lift the stools, and plant them at the foot of a wall with a warm aspect, and apply light protection applied in hard weather.

NOVELTIES.

MESSRS. THORBURN, of New York, invite attention to the sterling novelty *Salvia splendens* "Silver-spot." For many years they have grown *Salvia splendens* on a large scale, and have given much attention to its improvement. Its most distinctive feature is its strikingly handsome spotted foliage. The leaves are rich, soft dark-green with light-sulphur or cream-coloured spots of various size liberally sprinkled over them. A handsome-coloured plate well shows the character of the plant.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER**. Letters for Publication, as well as specimens and plants for naming, should be addressed to the **EDITOR**, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY, Dec. 11, and the following Tuesday and Wednesday, Dutch Bulbs, at Protheroe & Morris' Rooms.

WEDNESDAY, Dec. 13.—Great Sale of Japanese Lilies, Anasas, Roses, &c., at Protheroe & Morris' Rooms. English-grown Roses, Flowering Plants and Bulbs at Mr. Stevens' Rooms.

THURSDAY, Dec. 14.—Bulbs for late planting, at Mr. Stevens' Rooms.

FRIDAY, Dec. 15.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period November 26 to December 2, 1899. Height above sea-level 24 feet.

1899.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.			
		AT 9 A.M.		DAY.	NIGHT.	RAINFALL.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.
		Dry Bulb.	Wet Bulb.						
		Highest.	Lowest.						
NOVEMBER 26 TO DECEMBER 2.									LOWEST TEMPERATURE ON GRASS.
SUN. 26	S.W.	deg. 44°	deg. 44°	deg. 53°	deg. 42°	ins. ...	deg. 46°	deg. 50°	deg. 50°
MON. 27	S.W.	deg. 48°	deg. 47°	deg. 54°	deg. 42°	... 46°	deg. 45°	deg. 50°	deg. 40°
TUE. 28	S.W.	deg. 47°	deg. 45°	deg. 54°	deg. 46°	... 47°	deg. 46°	deg. 50°	deg. 42°
WED. 29	N.E.	deg. 53°	deg. 33°	deg. 47°	deg. 30°	... 44°	deg. 49°	deg. 50°	deg. 24°
THU. 30	N.W.	deg. 59°	deg. 29°	deg. 47°	deg. 28°	... 42°	deg. 49°	deg. 50°	deg. 23°
FRI. 1	S.W.	deg. 48°	deg. 44°	deg. 58°	deg. 32°	0.27	deg. 43°	deg. 50°	deg. 21°
SAT. 2	N.W.	deg. 55°	deg. 35°	deg. 41°	deg. 32°	... 44°	deg. 41°	deg. 50°	deg. 28°
MEANS...	...	41°	39°	50°	23°	Tot. 0.27	45°	50°	30°

Remarks.—The weather during the week has been dull, with much fog and frost on five mornings.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—40° F.

ACTUAL TEMPERATURES:—

LONDON.—December 6 (6 P.M.): Max. 57°; Min. 50°.

December 7: foggy; mild; slight rain.

PROVINCES.—December 6 (6 P.M.): Max. 55°, Southern Counties; Min. 45°, Shetland.

The Sale of Poisons.

THE prosecutions which the Pharmaceutical Society is instituting against those who sell poisonous substances without legal warrant or adequate precautions are no doubt irksome to the persons most concerned, but in the interests of the public they are amply justified. A seedsman may, and we believe too often does, sell across

the counter, without any precaution, a tin of Weed-killer containing enough arsenic to destroy the population of a large parish. Sheep-dip, vermin-killer, and various potent insecticides are disposed of in the same manner. The law, as it stands, prohibits the sale of certain well-known poisons, mentioned in a particular Act of Parliament, except under certain conditions which cannot, in the circumstances, be called unnecessary. If a particular poison is not mentioned in that schedule, then it may be sold by anyone.

There is an impression prevalent that the restrictions we have mentioned are maintained as a monopoly for the benefit of the Pharmaceutical Society or of its members. This is altogether a mistaken view. It is compulsory on the Society to take action in such matters, and we have no doubt that the Council of the Society would willingly be released from what must be an invidious and irksome task. But public safety overrides every other consideration, and no body is more fit to have control over these particular matters than the Pharmaceutical Society. It is exceedingly difficult to draw a line between what shall be considered a poison and what shall not. Tobacco in excess is poison, but many people seem to require large and long-continued doses before much visible harm is occasioned. A large dose of Epsom salts may prove fatal, but the ordinary quantities dispensed or sold over the counter are innocuous. Should the tobacconist or the druggist be compelled to affix a poison-label in such cases? Should the sale of poisons be confined to qualified druggists, educated men who have given a guarantee of their fitness? Or should the sale be also permitted without restriction to gardeners' sundriesmen, grocers' young men, oil-shop assistants, or employés at the stores, who have had no special training, and can offer no certificate of competence?

Certain substances taken in reasonable quantities are, as we have seen, hardly to be considered poisonous, whilst "preparations" from them may be highly so. Tobacco in an ordinary way is not poisonous; in excess it is so, and the substance "nicotin," which is prepared from it, is among the most violent poisons known. Are we then to label tobacco, and particular preparations therefrom, as poisons? These are the questions which arise out of the Pharmacy Act, and we cite them, not with any idea of answering them here, but as illustrations of the inherent difficulties of the subject.

In a case which came before the Lord Mayor on the 30th ult., a well-known firm of seed-merchants was summoned, at the instance of the Pharmaceutical Society, for selling, without adequate precautions, the substance known as "XL All." This is, as most gardeners know, a most efficient insecticide, and as it is used in the form of vapour, there is comparatively remote chance of its being taken by mistake, and its poisonous qualities are not much thought of. Nevertheless, if we may rely on the analyses submitted to the Lord Mayor, it is a poison of the most virulent description. If it were not so it would not be so efficacious as it is. Being so virulent it is reasonable, to say the least, that adequate precautions should be observed in its sale, as in its use; and the gardener has only to comply with a few reasonable requirements to get as much as he wants.

The word nicotine is often used in general language to denote the foul, greasy liquid that collects in the bowl of a pipe after smoking. It is necessary to point out that this not very

delectable stuff is not nicotine, though it may contain it. Nicotine is, in fact, the quintessence of tobacco-juice as morphine is of opium, or aconitin of aconite. It is necessary to bear this in mind when reading of the large proportion of pure nicotin, which the analysts find in "XL All." As the particular case, promoted by the Pharmaceutical Society, will have to be decided upon in another court, we abstain from any special comment, and content ourselves with generalities. We condense from the *Times*, the following account of the proceedings:—

The charge was that of unlawfully selling a certain poison, to wit, a poisonous vegetable alkaloid called "nicotine," being a poison within the meaning of Schedule A, Part 1, of the Pharmacy Act, 1868, which poison when sold was contained in a bottle which was not distinctly labelled with the name of the article and with the word "Poison," and with the name and address of the company, the sellers of such poison; for selling the poison to Mr. Harry Moon, he being a person unknown to the company, and not being introduced to the company by a person known to the company; and for not making or causing to be made an entry in a book to be kept for that purpose stating in the form set forth in Schedule F of the Act the date of the sale, the name and address of the purchaser, the name and quantity of the article sold, and the purpose for which it was stated by the purchaser to be required, and to which entry the signature of the purchaser was affixed.

Dr. Thomas Stevenson, analyst to the Home Office, deposed that he analysed the contents of the bottle sold to Mr. Moon on November 7. It was a solution of nicotine and camphor in diluted alcohol. It contained 37.3 per cent of the alkaloid nicotine, 34.5 per cent of camphor, and 15.1 per cent of alcohol, the balance being water. Nicotine was a highly poisonous vegetable alkaloid. A small drop from the bottle killed a rabbit in two-and-a-half minutes. The bottle contained enough to kill thousands of people if swallowed. The witness said that three, four, or five drops of the preparation would be fatal to human life if taken.

Mr. Whiffin, a Fellow of the Institute of Chemists, was called for the defence, and said that he was the manufacturer of the preparation. He considered that it was not within the schedule of the Pharmacy Act. It was a "preparation of nicotine." Some poisons and their preparations were scheduled in the Act, but with regard to poisonous vegetable alkaloids their preparations were not scheduled, and therefore this preparation of nicotine did not come within the Act.

Mr. Parry, who had analysed the preparation, said it was not pure nicotine, but a preparation of nicotine containing 35½ per cent.

Mr. Ivory, for the defence, said that the question which the Lord Mayor had to decide was whether the schedule to the Act included a preparation of nicotine. The Act made a distinction between certain poisons. In regard to some poisons, such as arsenic and aconite, not only the poisons themselves but their preparations also were included in the schedule, but as to others their preparations were not included. This was a "preparation of nicotine," and nicotine was not one of the poisons the "preparations" of which were included in the schedule, and consequently this did not come within the Act. A person who sold cigars sold a certain quantity of nicotine. He submitted that there was no difference between a man who sold tobacco and a man who sold nicotine mixed with other things as in this case. The label on the bottle stated clearly that it was only to be used for fumigating purposes.

The Lord Mayor said he was quite satisfied that this was a poison within the meaning of the schedule, and, while expressing his willingness to "state a case," imposed a penalty of £5 and £10 10s. costs on the first summons, and a nominal penalty of 10s. and the costs of the summonses on each of the other two summonses.

ACALYPHA HISPIDA (SANDER).—Those who have only seen small specimens of this interesting plant are usually disappointed; but a fine specimen like that illustrated (fig. 138), which was grown by the gardener to H. HAMMOND-SPENCER, Esq., of Glendarragh, Teignmouth, establishes its claim to

popularity. The gardener, Mr. GEO. FOSTER, who, by-the-way, is known as a successful Chrysanthemum cultivator at the Royal Aquarium and elsewhere, has a good many specimens of this plant, the three finest of which were growing in a temperate-house in baskets. They were raised from cuttings in

February last. The plant in the photograph was taken with two shoots, and when photographed it carried 103 pendulous racemes, the longest of which measured 28 inches. Another fine specimen with a single shoot had 50 racemes. These plants are suspended from the roof in 8-inch wire baskets, and their long, pendulous, and brightly coloured racemes are particularly attractive. Mr. FOSTER says he has no difficulty whatever in growing them to these dimensions. Whilst being brought on in the stove, abundance of water is required, and some liquid-manure is frequently applied.

GIRDLESTONE MEMORIAL.—It is proposed to form a fund to provide prizes for "garden" or decorative Roses, in the cultivation of which Mr. GIRDLESTONE always took a keen interest. Mr. GIRDLESTONE made so many friends among rosarians, that we have no doubt of the success of this attempt to hold his memory in honour. Subscriptions of any amount may be sent to EDWARD MAWLEY, Esq., Rose Bank, Berkhamsted, Herts.

"THE BOTANICAL MAGAZINE."—The current volume of this periodical is dedicated by its venerated Editor to the memory of HENRY LÉVÉQUE DE VILMORIN "as a feeble tribute to his worth and works."

THE HORTICULTURAL COLLEGE, SWANLEY, KENT.—There are, we are informed, now eighty-two students in all, and the two new boarding-houses which were opened in the summer have proved insufficient to accommodate the numerous applicants for next term. The premises are therefore again to be enlarged. In addition to the four County Councils already offering scholarships (free training, board and lodging for two years), Staffordshire has just made the fifth. Good posts await the students, and several of those of three and a half or four years' standing are now in receipt of £100 a year and board and lodging, or its equivalent. People are beginning to realise that there is a future for their sons and daughters as well-trained horticulturists and fruit-growers, both in England and the colonies. In addition to the Banksian Medal (for fruit) at the Temple Show, the College has, this month, gained the Silver Cup, two 1st, and three 2nd class prizes at Bromley for Chrysanthemums; and three 1st and four 2nd class at Woolwich for Japanese and incurved blooms.

ROYAL BOTANICAL SOCIETY OF BELGIUM.—M. COONIAUX, the distinguished orchidist, has been elected President of this Society.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, December 11, 1899, when the adjourned discussion on the paper read by Mr. PHILIP E. PILDITCH (Fellow) at the last meeting, entitled "Party Walls under the London Building Act, 1894," will be resumed. The chair will be taken at 8 o'clock. Definite notice is also given that the next Special-Certificate Examinations in Forestry and Sanitary Science will be held on Tuesday, Wednesday, and Thursday, June 12, 13, and 14. Particulars of these examinations can be obtained from the Secretary.

WEST AUSTRALIA.—We regret to hear of the death of Mr. J. EDNIE BROWN, the conservator of forests in that colony. Mr. BROWN was a son of Dr. JAMES BROWN, the author of *Brown's Forester*. We shall give an account of his career in our next issue.

"PUNCH'S ALMANAC."—Our evergreen contemporary, *Punch*, has again put forth fresh leaves for the coming year. The letter-press and illustrations are sure to find, as before, a large and appreciative public, for there is no falling off either in interest or amusement in the fare here provided for them.

ROSE SOILS.—The National Rose Society has obtained a series of analyses by Dr. BERNARD

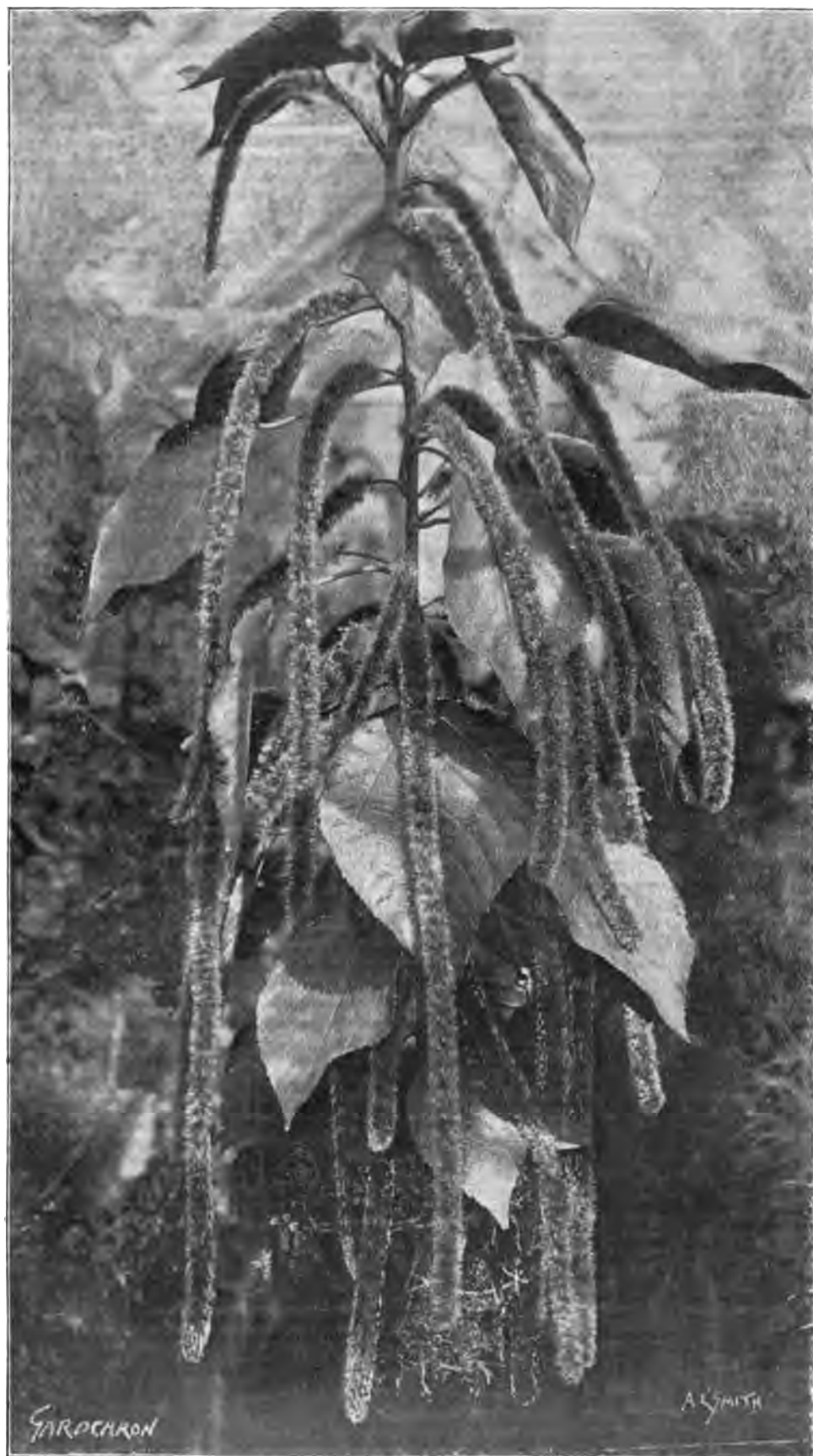


FIG. 138.—*ACALYPHA HISPIDA (SANDER)*, IN H. H. SPENCER'S CONSERVATORY, GLENDARRAGH, TEIGNMOUTH.

DYER, of certain selected soils on which Roses of exhibition quality have been grown for years past. The result, so far as the soil is concerned, is negative, and it is evident that the factors are numerous and complex, and do not permit anyone to say with accuracy—"Ah! so-and-so's soil is much better than mine; no wonder he can grow Roses." Whilst soil is not without its influence, it is evident that many other circumstances must be taken into consideration. We shall advert to the subject on another occasion.

"THE GARDEN."—We learn that this publication, which has rendered good service by the publication of its coloured plates, and the impetus it has given to the culture of hardy plants, has been disposed of to the manager of *Country Life*. The periodical will, we hear, in future be edited by Miss Jekyll and Mr. E. T. Cook, whose names offer a guarantee of success. Miss Jekyll has taken a very high place in horticultural literature; and Mr. Cook's career, first as a Chiswick student, and then as a member of the horticultural press, has been one of steady progress.

"THE ROSARIAN'S YEAR-BOOK FOR 1900."—Edited by the Rev. H. HONYWOOD D'OMBRAIN, V.M.H., Hon. Sec. of the National Rose Society, will be published early in January. It will contain articles on Mr. H. V. Machin (with photograph), by Mr. Charles J. Grahame; New Roses, by the Rev. Joseph H. Pemberton; Single Roses, Planting and Pruning, by Mr. George Paul, V.M.H.; The Rose and the National Rose Society in 1899, by the Editor; Amateur Rose Culture, by Mr. R. E. West; Standard Roses, by Mr. Cecil E. Cant; Rose Weather in 1899, by Mr. Ed. Mawley, F.R.M.S., Hon. Sec. N.R.S.

BURRS IN NATAL.—A correspondent sends from Natal specimens of "burrs," which by adhering to the fleeces of sheep or the clothes of the Boers, get disseminated over wide areas. The seeds were gathered at Elands Laagte, and belong to the genus *Bidens*, whose pappus scales are provided with recurved hooks.

LATE-FLOWERING CHRYSANTHEMUMS.—An inspection of the exhibition held by the National Chrysanthemum Society during the present week shows that the varieties upon the whole are the same as those displayed at the November show. It is doubtless the intention of the Society to encourage by these late shows the raising of later flowering varieties of sufficient size and good quality for exhibition in the competitive classes. If this be so, then the purpose has not in any degree been achieved. Take the classes for Japanese varieties, for instance, and it would seem that a December show is at present encouraging exhibitors to preserve in bloom as long as possible varieties that are seen at their best in November. If at the December exhibitions we are to continue to see the same varieties as in November, but in inferior condition, then it will be difficult to see what good is to be obtained by holding them. Unfortunately, the judges are in some measure, we think, responsible for this in part, as they are frequently disposed to award premier prizes to large, heavy blooms, although the older florets are considerably passed, and the colour of the flower is far from its best, in preference to fresher, brighter blooms that may be less in size. This is a pity, and it cannot be too often remembered that the first necessary qualities in a flower for exhibition should be its freshness and bright appearance. At the December show, whether the flowers be very large in size or not, let us have those that can be staged in as bright and perfect condition as the flowers that are staged in November, and not specimens that were perfectly developed a week or two previously. If this were done there would probably be found in the classes on future occasions a number of varieties that will naturally bloom at a later date than the second week in November. It can hardly be expected that a good exhibition bloom in December shall be

so large as those opening earlier. The heavier and larger the flower, so much the more difficult is it for the florets to expand perfectly; and as the days become shorter and less light, these varieties are the least successful. Of decorative Chrysanthemums there have been obtained during the past few years several very good later blooming varieties, but so far as the competitive classes at the exhibition is concerned, there is no evidence of this.

AGRICULTURAL CONFERENCE FOR THE WEST INDIES.—The invitations for the next Agricultural Conference for the West Indies have been issued by the Imperial Department of Agriculture. It is proposed to hold the conference as before, owing to its central position, at Barbados, and the dates fixed are Saturday, the 6th, and Monday the 8th of January next. The conference will meet in the Hall of the House of Assembly in Bridgetown. His Excellency, Sir JAMES HAY, K.C.M.G., the Governor of Barbados, has promised to meet the representatives in the hall on Saturday morning at 10.30 A.M., and offer them a welcome to the island. Immediately after, the President (Dr. D. MORRIS, C.M.G.), will deliver the opening address, and the business of the Conference will begin. A new feature in the coming Conference will be the presence of representatives of the leading Agricultural Societies in the West Indies. By this means, it is anticipated that the Conference will act as an educative agent of great value, and by enlisting the co-operation of those practically engaged in agriculture its deliberations will have wider scope, and the influence of the Conference will be more widely recognised. The list of subjects to be dealt with covers practically every branch of West Indian Agriculture. We understand the prospects of the Conference, so far, are very encouraging.

SILVER WEDDING PRESENTATION AT WORDSLEY.—The Silver Wedding of Colonel and Mrs. W. G. WEBB having occurred on October 14, the employees of Messrs. E. WEBB & SONS, the well-known seedsmen and nurserymen of that town were entertained to dinner at the Drill Hall, Wordsley, on the 28th ult., when the opportunity was taken advantage of to make a presentation to Colonel and Mrs. WEBB, of a massive silver Punch-bowl and a complete silver dessert-service. The utmost enthusiasm prevailed.

OSMUNDA REGALIS VAR. CRISTATA.

MR. BIRKENHEAD, of Sale, near Manchester, sends specimens of the fronds of this variety, in which the rachis is bent, and in the angle a bud is formed as shown in our illustration (fig. 139, p. 439). The bud, or bulbil, develops roots, and is capable of reproducing the plant, so that in this case the spore-bearing stage is not necessary.

HOME CORRESPONDENCE.

ODONTOGLOSSUM CRISPUM.—I am a large *Odontoglossum crispum* grower, and I have collected this species largely in its native habitat. What surprises me is the way in which Orchid growers pot these plants—they ram the compost so tightly. It seems to me that this gives the roots but little chance. Anyhow, I pot loosely, or comparatively so, and I grow them well. I should like to have your view of the matter. *Crispum*.

XL-ALL VAPORISER.—The seed and horticultural sundries-trades were severally affected some time since when the decision antagonistic to the sale of weed-killer liquid by non-certificated chemists was given in one of the law courts. These trades seem in danger of being much more seriously hit now that a decision has been given, although only at the Mansion House by the Lord Mayor, in relation to the XL-All Vaporiser, which, if supported on appeal, as most probably it will be, will render the sale of this compound by any other than a

duly certificated chemist illegal. But worse than that will be the fact that the thousands, if not tens of thousands of users of this most efficient of all insecticides will be greatly prevented from so doing because unable to obtain it except through the limited channels certificated chemists afford. Had there been from out of the vast usage of this compound which has grown up any case of harm to persons, then action might have been justified. But what we see is a privileged body, the Pharmaceutical Society, interfering with what had seemed to everyone hitherto to be a legitimate object of trade. Without doubt, as the analyst's evidence shows, the compound is a dangerous poison; but then how many other of the compounds, sold both as insecticides and fungicides, are not poisons also? Even paraffin-oil, sold by anyone, everywhere, is a poison if taken internally; and the greatest poison of all, alcohol, one that kills thousands of people every year, is sold everywhere by other than non-certificated chemists. After all, the point is, does all this professed anxiety for the public safety arise from generous motives, or from a desire to form a special trade privilege? and even if these potent insecticides be sold henceforth only by chemists, will they be less dangerous than now? Certainly, restricting the sale of alcohol to licensed premises has not rendered that less destructive to human life. A. D.

THE LOQUAT (*ERIOBOTRYA JAPONICA*) has been often fruited in England, but not, I feel sure, out-of-doors. Mine has bloomed beautifully this year in the conservatory. I suppose Mr. Dance knows there is a fruiting and a flowering Pomegranate, quite different? *Platanus Orientalis*.

PHYSALIS PUBESCENS.—In the *Gardener's Chronicle* of September 23 last, you commented favourably on the quality of some fruit of the Cape Gooseberry (*Physalis pubescens* vel *edulis*), which was grown and ripened in the open air at "Oaklands," Marchwood, Southampton. Soon after then, several nights of sharp frost set in, which cut off completely my Dahlias, Runner Beans, and Tomatos, but only the tender tips of the Cape Gooseberries. One night my thermometer on the ground registered 5° of frost. Since then the plants have gone on ripening fruit, and I now beg to send you some fruit gathered from the plants to-day (December 2), which, although lacking the rich lusciousness of fruit ripened under a hot sun are still very palatable, especially if kept in a warm room for a day or so. The plants have gone on bearing fruit in various stages (and flowers also) since early in September. I gathered the first ripe fruit about the end of the first week in September. Thinking it may interest you, I send you a photo of the plants taken in September last. These plants are only of this year's growth, and I have not before seen such good results from plants in their first year, even in the country where they are indigenous. I am planting a large number out in the open ground to test their capability of standing the winter here. J. A. Ross, Dec. 2, 1899. [The fruits were very palatable. Ed.]

BEST CROPPING POTATOS.—Mr. Joseph Leader asks for opinion as to which is the best Potato as a cropper, and for market, *Magnum Bonum*, *Maincrop*, or *Up-to-date*? The first I grew many years, and of its kind, it proved very satisfactory; the second I know nothing of. As to the third, well! this—I gave instructions for a piece of ground to be planted with Sharpe's yellow-fleshed Victor. While away from home, the gardener not having been able to get Sharpe's yellow-fleshed in the neighbourhood, bought and planted some of the variety called "Up-to-date," and as a tasteless, third-rate, fashionable Potato it justifies its name. In its growth it made a large quantity of top, and where it caught the full blaze of sunlight, this, coupled with the drought, punished it severely, the other part growing freely; while some Beauty of Hebron in the next piece were unhurt. On lifting both batches, the last far exceeded the former in crop. Out of each sack of the former, nearly one-third were small, while the whole produce was not to be compared with that which I got from the "Magnum Bonum" in bygone years. Again, the texture and flavour (?), what there was of the latter, was such that I directed all to be sold that were saleable, and the "little things" to be boiled for the fowls. This is my first experience of "Up-to-date," and—it will be the last. Of one thing I am resolved, and so have many of my friends, and that is, I nor they will either grow or buy any but

yellow-fleshed Potatoes if it is possible to get them. In point of fact, we will sooner go without than run the chance of being choked with tasteless "balls of flour." *Harrison Weir, Sevenoaks, Dec. 4, 1899.*

THE PHENOMENAL MILDNESS OF LAST NOVEMBER.—The following letter from Mr. R. C. Mossman to the *Scotsman* of December 2 will have an interest to your many readers in the south and north, the temperature of the air at Edinburgh having been so unusually high. We have available for comparison weather records for Edinburgh which extend without a break to the year 1764. An examination of these long continued observations shows that such a mild November as the one that has just closed has not been experienced in

that the maximum exceeded 50° on twenty-three days, while on no occasion was frost registered in the screen (4 feet from the ground above the grass). The other extreme for the month of November took place in the year 1807, when heavy snow fell on seven days, twenty-one frosts being recorded. With reference to this severe month, a local observer remarked, the quantity of snow fallen, and the number of frosty days, as also the circumstance of the Clyde being frozen at Glasgow, and the Tweed at Kelso, are said to be unprecedented in the memory of the oldest inhabitant so early as November. *D. T. F.*

MUSHROOM-GROWING IN OLD WINE-CELLARS, LEITH.—The impression seems to have got abroad

in underground cellars fetch from 6d. to 9d. per punnet more than those grown under the conditions "D. L. M." names. The trade must be very bad judges indeed according to his estimation. I think most of your readers who are interested in Mushroom-growing will say that they are quite at home in an underground cellar. *W. H. M.* [We have omitted some personal remarks as unnecessary to our correspondent's argument. *Ed.*]

— Unless we are prepared to see this profitable industry suppressed in and around London, and all our large towns throughout the three kingdoms, we had need beware of such wholesale and groundless condemnations as those contained in "D. L. M.'s" letter on p. 422. Notwithstanding the tenor of it, and some recent editorial comments in a similar sense, I am bold to affirm that Mushrooms may be grown either in town or country, on the surface or in cellars or caves, without creating or sustaining a legal nuisance, or any nuisance dangerous to health. More, Mushroom-growing from start to finish, is a cleansing—not a polluting process. The grower begins by blowing off the steam in which is most of the impurity, if any, and it is not until his material is rendered, what is technically and correctly termed "sweet," that it becomes fit for conversion into Mushrooms. And not only is Mushroom-manure sweet, but it is rendered doubly inodorous through its covering of fresh soil. By all means abate nuisances, but do not suppress or destroy profitable industries. I have known many such back sheds or cellars near bothies, as "D. L. M." describes [in the rural districts. *Ed.*], but I never remember hearing of any complaints about nuisances where prudent and cleanly management prevailed. A pot of Mushrooms in a window may be as sweet and cleanly as a window-box, or any other properly-managed plants. But it is not necessary to labour this point, as no one will be likely to object to Mushrooms themselves, and were these suppressed the nauseous business or accompaniments would become worse than before. Suppress Mushroom-growing by a general order to-morrow, you do nothing to abolish the nuisances, which may be found in every street, sewer, stable, or cow-house; and not a few bar a wine-cellar. The Mushroom-grower, on the contrary, begins by cleansing the manure, and ends by changing it into nutritious Mushrooms, and converting the residuum into new Potatoes and refreshing salad. To begin by suppressing Mushroom-growing is beginning to purify the earth at the wrong end. If this *dilettante* inspection and suppression of nuisances is allowed to spread, we shall be having new and expensive machinery set up for the forcible suppression of dung-hills on all our big farms and gardens. Mushroom-manure is the least offensive of any; in fact, through decomposition and mechanical manipulation, it becomes virtually inoffensive, and there seems no good or just cause why its conversion into sweet Mushrooms and other profitable products should be forcibly arrested without weightier reasons than have yet been advanced. *D. T. Fish.*

HIPPEASTRUM STYLOSUM, as far as I am aware, seems to centre round the east coast of S. America, from Brazil to French Guiana, and doubtless Mr. Im Thurn is correct in saying that it is abundant in British Guiana also. However, I think this must be about its N. and W. limits, as I found nothing of the kind in Venezuela. I have noted five varietal forms, and have under cultivation a form close to *Bot. Mag.*, 2278, from which I have raised hybrids. There is a species existing in the north of S. America resembling *stylosum* in some particulars (but more closely, I consider, allied to *rutilum*) which has puzzled botanists. This is the *H. prunum* of Koeh (in *Wochenschrift*, 1864, p. 37); compare *Bury. Bezan.*, 35. My own experience of *H. stylosum* is that it is delicate, never a strong grower, and requires more heat than any other species of *Hippeastrum*. It is also separated from *H. equestrum* by wide lines of divergence. *A. Worley, Isleworth.*

CEREUS CANDICANS, DUMESNILIANUS (see fig. 132, p. 415.)—This variety of *C. candicans* is much smaller in growth than the species, and smaller in its ridges also; spines thin. One prominent one in the bunch, about 3 ins. long in the specimen figured last week in this journal, and that in its last growth; the others are not so long. A plant has just flowered with me for the first time; it is somewhat over 2 ft. high. The flower near the top of the plant, a beautiful thing, is 9 inches in diameter, white; the outside

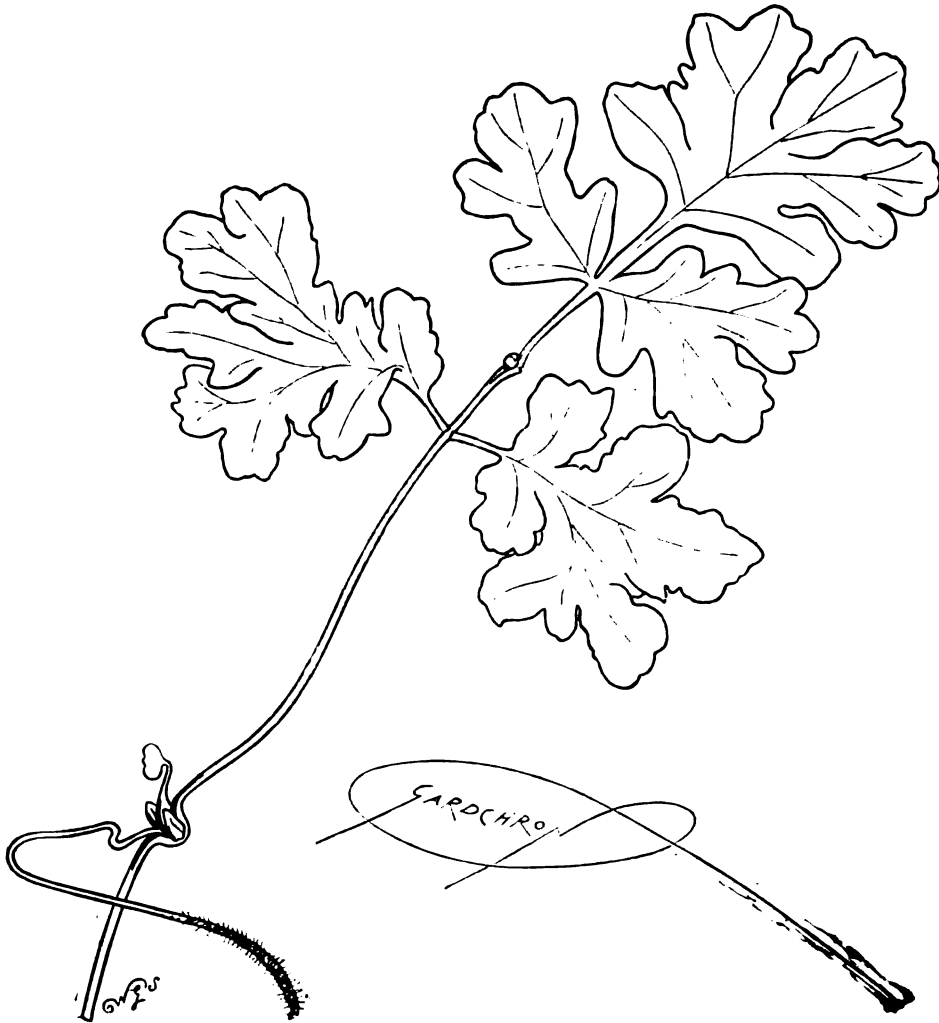


FIG. 139.—GEMMIPAROUS FROND OF *OSMUNDA REGALIS* VAR. *CRISTATA*. (SEE P. 433.)

the Edinburgh district for the last 135 years, and probably for a much longer period. The following are the mildest and coldest Novembers during the period under review:—

MILDEST.			COLDEST.		
Year.	Mean Temp.	deg.	Year.	Mean Temp.	deg.
1899	47.4	...	1807	34.0	...
1818	46.7	...	1782	35.6	...
1841	46.8	...	1802	36.4	...
1894	46.0	...	1785	37.1	...
1857	45.6	...	1851	37.3	...
1897	45.0	...	1819	37.5	...
1847	45.6	...	1815	37.6	...

The mean temperature of last month was 47.4°, or 5.5° in excess of the average November temperature deduced from the records of the last 135 years. The above mean temperature is slightly in excess of the average for October in this district; indeed, seventy of the last 135 Octobers were colder than the month under review. An examination of daily temperature, observations taken last month, show

that this industry is being carried on underneath dwelling-houses: such is far from being correct. As a matter of fact, some of them are situated where there is no dwelling-house in the whole street. The others are all in the immediate neighbourhood, and surrounded by grain-stores and lofts, dealers in artificial manure, cement, soot, slates, cork, also by stores and stables, &c. The nearest dwelling-house has a stable on the ground floor. If Mushroom-growing be a nauseous business, dwelling-houses over stables must be unsanitary also. The ammonia which stable-manure contains makes it a very strong disinfectant, and proves the opposite to what your correspondent says. I must admit plants in a bedroom would be more decorative than Mushroom-beds, but had he grasped "D. T. F.'s" article in its true meaning, viz., that the one would be as detrimental to health as the other, he would probably have come to a different conclusion. Seeing that he considers himself an authority, he will perhaps be able to explain how Mushrooms grown

petals (as I call them), of a brownish-pink, narrow, and turned back at the points: the tubes 7 inches long, clothed with dark woolly, hairy scaly-green: the tube at base, 1 inch in diameter: at the top, 2 inches. Anthers yellow, in a circle all round the inside of the flower, and in a thick bunch round the stigma, which is large; the petals are over 1 inch wide in the inside of the flower. The plant, I have no doubt, is very well known to succulent growers; but as for myself, I have never known it to flower before, neither *C. candicans*, and I have two specimens, one nearly 6 feet high, or *C. c. var. robustus*. I have not seen any offset on *C. candicans* or *Dumessilianus*; but *robustus* is branching from the base. *Justus Cordery*.

RECIPE FOR WIREWORM, ANTS, EELWORMS, ETC., IN BORDERS.—Let small holes, 8 to 12 inches deep, be dug in the infected soil at regular intervals of 2 feet, and pour 2 oz. of carbon bisulphide in liquid form into each hole, carefully closing the holes with earth. The vapour will permeate the soil and destroys all insect and parasitic life. *T. Spencer, Goodrich Court Gardens.*

Obituary.

W. H. PROTHEROE.—Our readers must be familiar enough with the name of the senior partner in the firm of Protheroe & Morris, and very many of them counted him among the most cherished of their friends and acquaintances. The son of a well-known nurseryman at Leytonstone, he was educated to the business, but circumstances led to his undertaking the conduct of a large auctioneering and estate agency, and his sales of Orchids and other plants soon became known far and wide. Mr. Protheroe may almost be said to have died in harness; for though he had been in failing health for some time past, he was at business till the day before his death, on the 2nd inst. By his friends and associates he was esteemed for his kindness and straightforwardness. He was a member of the Orchid Committee of the Royal Horticultural Society, and his knowledge of plants was more extensive than might have been supposed, his retiring nature forbidding all self-assertion; at the same time, his knowledge and experience were at the disposal of those who sought his aid.

Mr. William Henry Protheroe, was fifty-three years of age, having been born at Bourn House, Leytonstone, in 1846. He was the only son of Mr. Alexander Protheroe, of Leytonstone, who with Mr. Thomas Morris, founded the firm of Messrs. Protheroe & Morris, horticultural auctioneers, and nurserymen, about the year 1830, at Highbury. For some part of his early life he was educated privately, but at the age of sixteen he was sent to complete his technical education at the Government School of Horticulture, at Ghent.

After studying for three years at Ghent, Mr. Protheroe returned to this country armed with his diploma and the highest honours the college could bestow on him. At twenty years of age he took the first step in the career which he afterwards pursued, becoming connected in business with his father; and on that gentleman's retirement, after thirty-eight years of active life, he took his father's place in the firm. This event took place in the beginning of 1873. In 1869, Mr. Protheroe married the youngest daughter of Mr. John Sudbury, of Bois Hall, Halstead, by whom he had five children.

His business increased by leaps and bounds after he and Mr. George Field Morris became associated as partners. Increased business necessitated the acquisition of extensive premises for the exhibition and sale of horticultural produce, and in 1883 the firm acquired their present spacious rooms, situated at 67 and 68, Cheapside. The second sale-room, with an entrance from Queen Street, was secured in 1892. Orchid sales comprise one of the chief branches of the firm's business, and it was in the conduct of these that Mr. Protheroe was par-

ticularly successful, and secured the warm regard of his numerous clients.

As far back as 1840 the firm of Messrs. Protheroe & Morris acquired the American Nurseries at Leytonstone, then purely a rural locality. These nurseries were situated behind Bourn House, and for over forty years they occupied a prominent position. In 1885, on the death of Mr. Alexander Protheroe, the nurseries were, as we learn from the *Eastern Mercury*, broken up for building purposes, and the land they occupied is now covered with houses.

E. GRIFFITHS HUGHES.—The horticultural world will learn with deep regret of the decease of one of its leading lights, Mr. Evan Griffiths Hughes, on the 2nd inst. at Higher Broughton, at the age of sixty-four. As a Manchester man, Mr. Hughes was universally respected, and the entire community will deplore his loss. With horticulture Mr. Hughes had a very close relationship; by profession a chemist, he has for many years devoted his energies and researches to matters which were helpful to gardeners. By his invention of Fir-



THE LATE WILLIAM HENRY PROTHEROE.

Tree Oil he proved himself a benefactor to us all. In many other respects Mr. Hughes added materially to the gardeners' requirements.

His little work, *The Sources of Plant Food*, has proved of great value, inasmuch as the information contained therein is given as the results of experiments carried out by the author; natural and chemical manures being dealt with in a very simple and instructive way, and a good deal of attention is given to insect-pests, and the best methods of dealing with them. As one of the vice-presidents of the Manchester Horticultural Improvement Society, Mr. Hughes' presence always added interest to the meetings, and he was always able to impart useful scientific knowledge to the members—in fact, it may be said that he was the soul of the society, for a few years ago when it was in a languishing condition, Mr. Hughes practically took the reins, and the result of his work has been to establish the Society on a sound and go-ahead basis; he was indefatigable in organising summer visits to the various leading gardens within a

hundred mile radius of Manchester. He was a life member of the Royal Botanical and Horticultural Society of Manchester, the Council of which deeply mourn his loss. *P. Weathers.*

IRELAND.

UNDER the auspices of the Royal Dublin Society, a scientific meeting was held in the Leinster House on Wednesday, 29th ultimo. The chair was occupied by Dr. J. McWeeney (Professor of Bacteriology), the proceedings were mainly confined to a lecture by Professor Thomas Johnson, D.Sc., on "The Yellow Blight in the Potato Plant." His researches were based on the diseased crops in the west of Ireland. In July last he was asked on behalf of "The Congested Districts Board," to examine this question, and travelled down last August. He stayed more than six weeks, during which time he made several experiments in connection with this blight in the Potato plant, and the conclusions he arrived at were, that the fungus which attacked the stem and foliage was distinct from the fungus which had attacked the root, and although the disease was very prevalent in this locality, it was not limited to it, as he (the lecturer) had noticed in several other parts of Ireland, especially in the east of this country, also in close proximity to the metropolis, namely, in the neighbourhood of Greystones. The lecture was illustrated with lime-light views, illustrative of the developments of this fungus.

The chairman referred to Professor Johnson's paper as a very complete and highly instructive one on this dread disease; he alluded to his own researches on this topic, and he urged that it should be impressed upon the people the necessity that after the plant had been dug, they should immediately burn the Potato haulm, by which means the germs of disease which they (Potato stalks) contained would be destroyed; and if this practice was persisted in it would go a very long way to lessen the ravages caused yearly by this disease.

Mr. Moore (Curator, Glasnevin Botanic Gardens) complimented Professor Johnson on his very valuable paper, and he agreed thoroughly in what the chairman had just said, but he would desire to have legislative enactments, which would empower the authorities to punish severely any farmer who should utilise his diseased Potato-tops, either as manure or as a protection for the tubers when they were carted to the farmyard or to the market—local or otherwise.

SOCIETIES.

ROYAL HORTICULTURAL

DECEMBER 5.—The usual fortnightly meeting of the Committee of this Society was held on Tuesday last in the Drill Hall, James-street, Westminster. The weather was most unpropitious, and in London it was so dark that it was impossible to see the exhibits in the Hall so perfectly as could be wished—in fact, there would have been excuse for the use of artificial light during the whole day. Excellent Calanthes were shown by Sir Trevor Lawrence, Bart., and the Hon. Mrs. A. BRASSEY, Heythrop Park, Chipping Sodbury. The Orchid Committee awarded First-class Certificates to *Cypripedium* × *Hera* var. *Euryades*, and to *Cattleya* *Maggie Raphael*. Also Awards of Merit to *Oncidium* *Forbesii* var., and to *varicosum* *Lindleyi*; also to *Cymbidium longifolium* and *Sophro-Cattleya Chamberlainianum*.

The Floral Committee recommended Awards of Merit to two varieties of *Caryanthemum*, one of these to a Japanese named Mme. R. Cadbury, and the other to a single flowered variety *Oscar*. No award to novelties was made by the Fruit and Vegetable Committee, who had few exhibits before them. The lecture in the afternoon was by the Rev. Geo. HENSLOW, upon some of the plants exhibited.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. C. T. Drury, H. B. May, E. Moynaux, J. Hudson, J. Jennings, Thos. Peed, C. J. Salter, J. D. Pawle, Chas. E. Pearson, N. F. Barnes, Geo. Gordon, C. E. Shea, H. J. Jones, E. B. Jenkins, E. Beckett, Geo. Paul, and Chas. Jeffries.

Messrs. T. CRIPPS & SON, Tunbridge Wells, Kent, showed a group of well-grown, very freely-flowered Bouvardias. A good number of varieties were represented, and included singles and doubles (Bronze Banksian Medal).

Messrs. JNO. FEED & SONS, Roupell Park Nurseries, Norwood Road, London, S.E., had a large group of plants of Begonia Gloire de Lorraine. The plants were dwarfer in habit than we are accustomed to see. Another collection of very finely-flowered plants of this Begonia was shown by Messrs. B. S. WILLIAMS & SON, Upper Holloway, London, N.

Messrs. HUGH LOW & CO., Bush Hill Park Nurseries, Enfield, again showed a group of Cyclamens in flower. The plants were more developed and bore a greater number of blooms than on the last occasion. The Bush Hill Pioneer, or crested strain, and the Papilio, or Butterfly strain, were finely illustrated. The crest is now obtained in several pretty colours (Silver Flora Medal).

Excellent Violets of the variety Marie Louise were shown by Mr. D. ALLAN, gr. to Lady ASHBURTON, Grange Park, Alresford, Hants. Upwards of a score of glasses were furnished with blooms, which in size were extremely unusual, and in colour most satisfactory.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, again showed flowers of their Rhododendron Jasminiflorum x Javanicum hybrids and varieties. These were beautiful and bright, and are indeed invaluable during the "short day" season when brightly coloured flowers are by no means plentiful.

Messrs. W. WELLS & CO., Ltd., Earlswood Nurseries, Redhill, Surrey, made a fine display with Chrysanthemum blooms. The exhibit was particularly rich in decorative varieties. Mrs. O. Brown (white with pale green shade, of which a number of well-flowered plants was shown) is a capital late-flowering decorative variety. There were many good singles, also varieties with rolled petals, some with thread-like petals, and other types (Silver Banksian Medal).

A grand show of single-flowered Chrysanthemums was made by Messrs. W. CLIBBON & SON, Oldfield Nurseries, Altrincham. They had upwards of sixty bunches of blooms each in one of the Society's earthenware vases. Only one variety, Oscar, was given an Award of Merit, but a few other seedlings were noteworthy. Lord Methuen, large white; Oldfield Surprise, also white; and Miss B. Moffat, crimson, were amongst these (Silver Banksian Medal).

An extensive collection of Conifers lifted from the open ground in the nurseries at Brentwood and Richmond was shown by Mr. J. RUSSELL. The specimens were from 2 feet to about 8 feet high, and in most cases were excellent representatives of the numerous varieties, showing how well most Conifers will succeed in the outer suburbs of London.

Of Retinoporas so-called, but which are mostly forms of Japanese Cypress, were remarked such varieties as R. filifera very distinct by reason of its pretty drooping habit; R. platifera aurea, R. plumosa, and R. p. aurea, R. Hookeriana, R. squarrosa, R. obtusa nana and R. ericoides, a very pretty little plant. Cryptomeria elegans, beautifully tinted, was shown; Cedrus Deodara and C. atlantica, also the glaucous variety of the latter the most distinct and affective of Cedars.

Of Yews there were Taxus japonica and T. fastigiata aurea. Several of the more effective varieties of Cupressus Lawsoni were shown, and some nice plants of Picea pungens glauca (Picea Parryana glauca), Pinus Cembra, and others were noticed; and of Junipers, J. sibirica aurea, J. virginiana, and J. japonica aurea.

Mr. JOHN RUSSELL also showed a fine collection of Yuccas, which numbered about fifty specimens. These well-grown plants in pots represented such species as Y. striata, gloriosa, flaccida longifolia, aloefolia variegata, a. tricolor, stricta, marginata elegantissima, monticola, and recurva (Silver-gilt Flora Medal).

Awards.

Chrysanthemum Oscar.—A single variety, pale red, with yellow band around a rather prominent disc. Flower of good form and symmetry, but there are several rows of florets in place of the one only, as preferable in singles. From Messrs. W. CLIBBON & SON, Oldfield Nurseries, Altrincham (Award of Merit).

Chrysanthemum Madame R. Cadbury.—A large white Japanese, with lemon shaded florets, often 2-in. wide, of much substance, fairly long, and very numerous, making a very deep, good flower. From Mr. WEEKS, Thrumpton Hall Gardens, Derby (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. JAS. O'BRIEN (Hon. Sec.), De B. Crawshaw, H. Little, A. H. Smee, W. H. White, H. J. Chapman, W. H. Young, E. Hill, J. Jacques, T. W. Bond, C. Winn, T. B. Haywood, and J. Gurney-Fowler.

As usual at this season, Sir Trevor LAWRENCE, Bart., the President of the Royal Horticultural Society (gr. Mr. W. H. White), brightened the Hall with a good group of winter-flowering Orchids, consisting principally of hybrid Calanthes, among which those raised at Burford were conspicuous. Some sixty plants of these Calanthes were staged, each kind grouped together, and the effect was excellent. Of the brightly-coloured dark forms noted were C. x Veitchi splendens, of a rich carmine-rose with white eye. C. x Burfordensis, similar in colour, but with a rose-crimson centre; and C. x revertens in several forms; of the lighter forms C. x Bryan, white, with claret eye; C. x Wylamense, white, with purplish-rose centre; C. x Olive, of a purplish-rose tint; three of Mr. NORMAN C. COOKSON's hybrids were fine; and C. x nives and C. x Veitchi lactea, two good whites. Others noted were

C. x amabilis, C. x Victoria Regina, C. x versicolor, and C. x labrador. At one end were grouped grand specimens of Cypripedium Spicerianum, the one with ten, and the other fifteen flowers; C. x Statterianum, with three spikes, two of them twin-flowered; C. x Juvos, C. x Fowlerianum, C. x microchilum, C. x Hera var. Euryades; the rare Dendrobium cymbidifolium, with six spikes of white flowers; the singular D. Hughii, Maxillaria elegantula, Masdevallia hieroglyphica, Odontoglossum blandum, and Oncidium cucullatum (Silver Flora Medal).

The Right Hon. JOSEPH CHAMBERLAIN, Highbury, Moor Green, Birmingham (gr. Mr. J. Smith), again sent the pretty Cattleya x Mrs. Endicott (maxima x Loddigesii), a very delicate rose-coloured flower with the labellum finely veined with purple; and Sophro-Cattleya x Chamberlainiana var. triumphans (see list of Awards).

M. LINDEN, l'Horticole Coloniale, Parc Leopold, Brussels, showed several forms of a grand type of Oncidium Forbesii, that named nigricans being of a very dark chocolate-brown with yellow margin; and O. F. castanea being of a light chestnut colour. The largest O. F. Moortebeekense secured an Award of Merit; and so also did O. varicosum Lindenii, a very remarkable variety.

The Hon. Mrs. ALBERT BRASSER, Heythrop Park, Chipping Norton (gr. Mr. H. Downing), sent an effective group of well-grown Calanthes, chiefly C. x Veitchi and the yellow and crimson-centred types of C. vestita.

Messrs. F. SANDER & CO., St. Albans, showed a small group, the best plant in which was Laelia-Cattleya x Wilsoniae (C. labiata x L. Dayana), a large and well-formed flower, having the sepals and petals bright light-rose, the front of the lip claret-purple, and the rose-coloured tube striped with dark-purple. Also in the group were a singular Dendrobium allied to D. spectabile, Laelia-Cattleya x intermedia flava; Phalaenopsis Sanderiana, Angreum Humboldtii, A. polystachyum, Cypripedium x Bakerianum and C. x purum.

M. OHAAS VUYLSTEKE, Loochristy, Ghent, sent fine plants of Odontoglossum x Harryano-crispum, and O. x crispum-Harryanum, being the result of crossing O. Harryanum and O. crispum both ways. Each partook much of O. Harryanum in form and colour, but the flowers were more flat, and the ground colour whiter. The first-named was the darker, and the other the larger flower. Both had been previously certificated.

T. W. THORNTON, Esq., Brockhall, Weedon, sent a spike of a form of Cattleya x Euphrasia (superba x Warscewiczii Sanderiana). The cross was made August 4, 1899, sown May 7, 1890, and now the plant flowers. In general appearance it resembles C. x Wm. Murray, but the front of the lip is in form like O. Warscewiczii. It differs but slightly from the original, exhibited by Messrs. Veitch, September 7, 1897.

J. S. MOSS, Esq., Wintershall Hall, Bishop's Waltham, showed a fine variety of Cymbidium Tracyanum and C. longifolium.

Mr. H. A. TRACY, Amyand Park Road, Twickenham, showed flowers of Cymbidium Tracyanum, with but slight marking on the greenish sepals.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr. Mr. Hudson), showed the white Cattleya Harrisoniana candida, and the old form of Laelia autumnalis.

R. I. MEANINGS, Esq., Cambridge Lodge, Camberwell, showed a fine plant of Cypripedium x Loezanum giganteum, Cambridge Lodge variety, of a darker colour than the original.

Messrs. McBEAN & SONS, Cookbridge, Sussex, showed Odontoglossum x Andersonianum, McBean's variety, a very large, broad petalled, heavily blotched flower.

Messrs. JAS. VEITCH & SONS, Chelsea, showed Cypripedium x Minos magnificum (Arthurianum x Spicerianum).

Awards.

Cattleya x Maggie Raphael (aurea ♀, Trianel ♂). From H. S. LEON, Esq., Bletchley Park (gr. Mr. Hishop). A fine, distinct flower, equal in size to C. Trianel. Sepals of an Indian-yellow tint; petals yellow, tinged and veined towards the margin with purple; lip almost entirely of a rich purple colour, lighter towards the sides and apex (First-class Certificate).

Cypripedium x Hera var. Euryades (Loezanum x Boxalli), from Sir Trevor LAWRENCE, Bart. (gr. Mr. W. H. White). A fine flower with shining purple-tinted lip, and the usual characters of the many varieties obtained from the same cross, the distinguishing feature in this being its finely-rounded dorsal sepal, which is emerald-green in the lower half, and snow-white in the upper, the base and middle portion being heavily blotched with purple (First-class Certificate).

Sophro-Cattleya x Chamberlaini var. triumphans (O. Harrisoniana, ♀ S. grandiflora ♂).—This is the reverse cross to S. C. x Calypso, and distinct enough to warrant the name of the raiser being attached, it being different in shape and brighter in colour than S. C. x Calypso. Flowers large, equal in size to S. C. x Calypso. Sepals and petals reddish-crimson, with darker veining. Lip chrome-yellow, with the tip of the front lobe and edges of the side lobes purplish-crimson (Award of Merit).

Cymbidium longifolium, from J. S. MOSS, Esq., Wintershall Hall, Bishop's Waltham. An elegant Himalayan species of the C. cyperifolium class. Sepals and petals greenish-yellow streaked with red-brown; lip, white with some dark markings at the base (Award of Merit).

Oncidium varicosum Lindenii, from l'HORTICOLE COLONIALE, Brussels. A fine advance on the O. v. insignis, noted recently in the *Gardeners' Chronicle*. The labellum of a rich chrome-yellow with large chestnut-brown mark around the crest, the colour spreading into the side lobes, which have only the tips yellow (Award of Merit).

Oncidium Forbesii Moortebeekense, from l'HORTICOLE COLONIALE, Brussels. Flowers very large and of a rich-brown colour, the broad margins being decorated with bright-yellow, irregular blotches (Award of Merit).

Fruit and Vegetable Committee.

Present: Philip Crowley, Esq., in the Chair, and Messrs. W. Poupard, W. Wilks, Jas. H. Veitch, W. Pope, Alex. Dean, S. Mortimer, W. Bates, C. Herrin, Geo. Wythes, F. Q. Lane, Jas. Smith, Geo. Reynolds, J. Willard, H. Balderson, and Jos. Cheal.

A very nice collection of Grapes was exhibited by Mr. J. Ryder, gr. to the Countess of LIMERICK, Hawkhurst. There were twelve bunches in three varieties; Black Alicante, Mrs. Pearson (white), and Gros Colmar. The variety Mrs. Pearson was shown as well as it is often seen (Silver Banksian Medal).

Messrs. BURTON & SONS, Reading, showed upwards of a hundred nice fruits, and a fruiting-plant of the Tomato Winter Beauty, which gained an Award of Merit when exhibited by Mr. MORTIMER in the spring of the present year. The fruits, as shown, were of moderate size, rather flat than globular, and very deep in colour, and free from corrugation except a little on the under surface. It is said to be a first-class winter bearer.

Mr. R. O. NORMAN, Wood's Nursery, Woodbridge, showed some nice samples of Winter Orange Stewing Pear, which gained an Award of Merit in March last. It is said, however to be deficient in flavour when cooked.

NATIONAL FORESTRY.*

SOME years ago, when last on leave in England, I climbed one of the highest of the Welsh mountains, and gazed with sorrow on the prospect around. Barren heather-clad hills bounded the view on every side, affording, I was told, but a scant pasturage for the few lean flocks of sheep I had seen on its slopes. It was an ideal forest country. Old records and names indicate more or less exactly where the forest once stood. The climate is a superb one for forests. I can readily imagine the close, clean, mast-like stems it must have produced. What would we not do with such a range of country in South Africa?

Now it pastures a few sheep! Sheep that could be pastured better in Australia or in South Africa, where it is too dry or hot to grow Coniferous timber. When the old forest was cut down, the usual soil deterioration followed. What was once a rich forest soil is now barren moorland. The contrast was all the greater as I had come straight from a tour in the Black Forest in Germany, where the reverse side of the picture is strikingly presented. There almost every square yard is utilised. In the fertile bottom lands of the valleys, sheltered and enriched by the forest, are villages, hamlets, cultivated lands, and factories. Factories, worked by water from forest streams, where the air seems as clear and pure as on the Alps. Above and all around, stretching over an apparently limitless expanse of rolling hills, lies the glorious forest, natural in its beauty, artificial in its productiveness. In the valleys are the spas, whither flees the German in summer as the Englishman to his seaside watering place. Few would hesitate which to choose if there were forests in England. Surely the aesthetic side of forests would have some influence on a not too artistic national character! I know of no reason why there should not be another "Black" forest on Dartmoor or Exmoor. Nor why we should not see in England that fair landscape of sea and forest that has rendered Kynsna famous throughout South Africa. Is there any valid reason why many as fair a scene should not be reproduced in England to-day?

A quarter of a century spent in the administration of national forest estates in India and the Colonies enables me to affirm the proposition with some confidence, that the great want of England at the close of this nineteenth century is National Forestry.

Let me at the outset clear the ground by saying that the forestry for which I plead is not the necessarily futile efforts of a few private landowners, nor the founding of quasi-chairs of forestry at certain agricultural schools; but the national forestry of a powerful Government department, properly manned and officered with scientific men; a department which, with a million pounds sterling to spend yearly, should work steadily at the formation of national forests, in the sense in which this term is understood in most other civilised countries, but especially on the continent of Europe.

There seems to be a consensus of scientific opinion in England now that national forestry should be taken in hand as a national work, and prosecuted as a sacred obligation to posterity, as far above party politics as is the national credit and payment of interest on the public debt.

The way to this end is perfectly clear. Of all the means that have been tried in various countries, but one has given permanent results. A distinct branch of the public service must be formed. It must be gradually built up of professional forest men, specially trained and educated to their work at schools and universities, such as the Government of India now maintains at Cooper's Hill and Dehra Dun. Forestry would have to be added to the curriculum at every technical school; then the spread of education would rapidly put an end to such a sad farce as the present state of the historical New Forest in Hampshire. There one sees nearly 100 square miles in the heart of fertile England solemnly condemned by a special Act of Parliament to perpetual waste and mismanagement.

To the average Englishman a forest is simply a collection of trees, at best badly-grown trees. The English parks throw

* Condensed extracts from a paper presented to the Society of Arts by D. E. Hutchins, Conservator of Forests, Cape Town.

him off the scent. Speak to him of a forest officer, his mind runs to a park-keeper or gardener. Of all that is meant by a close, clean, high timber forest—of its peculiar condition of soil and climate, its varied requirements and skilled treatment—he is as ignorant as is a Chinaman of electricity.

In spite of the protests of an enlightened and far-seeing few, little is thought of but forest destruction, with or without some return in money. The wanton destruction of the unique Kauri forest in New Zealand is one of the saddest spectacles on this fair globe of ours. Kauri is a class of tree that will never be replanted; while the forest, as a whole, could be worked conservatively nearly as profitably as it is now being destroyed. Broadly speaking, when as a colonist the Englishman goes abroad, he proceeds, like the Spaniard in Mexico, to destroy as a nuisance the forest that he encounters. He calls the forest "bush" in Australia and South Africa, and "jungle" in India. Timber was expressively christened "lumber" in America. As was justly observed by a recent eminent writer:—"In not one of the English colonies is the forest question seriously considered, if we except India and Cape Colony." A variety of circumstances led up to the conservation of the forests of India; the genius of one German (Sir Dietrich Brandis) founded the Indian Forest Department, the only complete organisation of its kind amongst English-speaking people. (The Cape Forest Department owes its formation and usefulness mainly (I fear it must be confessed) to the fact that half of the European colonists at the Cape are not of English extraction. The neighbouring colony of Natal, the "English Colony" of South Africa, after the temporary employment of an able forest officer from the Cape, and an exceptionally good professional man from Germany, has now gone the way of other English colonies. Three-quarters of its rare indigenous forest is hopelessly destroyed, and the remainder, now under only nominal conservation, is fast disappearing.

Along with the training of a body of professional English forest men, there would, of course, be required an annual vote for the formation and tending of the national forests. For many years the largest portion of this vote would be expended on formation, i.e., in the planting and acquisition of suitably situated forest lands as these came into the market. In this way the national forest estates, the glory of generations of Englishmen yet unborn, would be gradually built up. The present low price of land in the British Isles offers exceptional advantages for the early initiation of such a scheme. France spends yearly somewhat over £500,000 sterling on its forests. Of this, about one-half is expended on forest officials and their education. In Germany relatively more is spent on forest work, as the wood is there felled by departmental agency and brought to the roadside. The total value of the German forests is reckoned at £900,000,000 sterling, capitalising at 2½ per cent. on an annual out-turn of 60,000,000 cubic metres, valued at from £20,000,000 to £12,500,000 (Prof. Gayer).

Coming to a British colony, the yearly budget provision for forest-work at the Cape amounts to upwards of £80,000, which is somewhat over 1 per cent. of the total yearly expenditure of the colony.

If England were to re-forest at the same rate proportionately, 1 per cent. of the national expenditure would represent an amount of about £1,000,000 sterling as the annual forest budget. If this sum were voted annually by Parliament it would suffice for re-foresting yearly about 140 square miles, or say the present area of the New Forest in Hampshire, taking planting and fencing at £5 per acre, and the average cost of the land purchased at £10 per acre. While much of the land required for re-foresting—sand, mountain, and moor—could be obtained at very low rates, other land that it is desirable to re-forest would cost £15 or £20 per acre. This is a work to be undertaken in the prosperous days of a country's history. The report of the recent Recesse Committee on the establishment of a Department of Agriculture and Industries for Ireland estimated that to re-forest 3,000,000 acres in Ireland would cost £20,000,000 sterling. No doubt Ireland alone is capable of producing one-half the present importation of wood from abroad into the British Isles. The present percentage of woodland in Great Britain and Ireland is 4 per cent.; while in Cape Colony, with its wide, treeless plains, forests cover only ½ per cent. of the whole area. While some of the colonies are in the position of having more forest than they want, or than is desirable, the proportion of woodlands to open country represents in the mother country a miserably deficient quantum. If we look at the position of Great Britain and Ireland among the States of Europe, it will be seen that in forestry it occupies the lowest place, standing below all the European States. It is even 1 per cent. worse off than Portugal. In Germany 25 per cent. of the country is wooded. This is the proportion that is considered usually desirable in a well-regulated country. The percentage of woodlands in the British Isles would be raised by 7 if there were planted the 10,000 square miles or thereabouts required to produce at home the present importation of wood and forest produce from abroad. The following is the proportion of woodland in some of the more important European States:—

	Percentage of Woodlands.	
Russia in Europe	50	Scientifically conserved and permanent.
Austria	36	
Germany	26	
Switzerland	19	
France	17	
Portugal	5	
Great Britain and Ireland	4	Parks, small plantations, &c.

* Schlich and Nisbet.

It is a curious reflection that if a like sum were spent yearly in reforesting in Britain, the desecrated land would be restored to its former glory in three generations. Take one item—the rubbish-heaps from the mines in Cornwall and the Black Country. A distinguished forest officer lately formulated a perfectly feasible scheme for afforesting these. I have not heard that any mining owner, wealthy though they mostly are, has yet planted an acre. A mine owner expects some better return than a doubtful 2½ per cent. on his outlay. Nor is he usually content to wait till his grandson's time for this poor and uncertain return. There is too often an element of uncertainty in the return from small private plantations. The State should do this work. Some one will object that the rubbish-heaps are private property, and as such are sacred. Doubtless; but they are also a national eyesore. The Legislature should deal with them as the French do with their sand-drifts. If the owners cannot or will not afforest, let the State do it, retaining always the management by its own forest officers, but paying to the owner the difference between revenue and cost of management.

Similarly with municipal or other forests owned by any public corporation such as a County Council. These must be managed by the Government forest officers to ensure the requisite continuity and stability in the operations. This proposition may sound bureaucratic and repugnant to English ideas of local self-government; but it is a matter that has been thoroughly threshed out on the continent of Europe, and the same conclusion arrived at by such differently complexioned States as Germany, Austria, France, and Switzerland. Corporate forests thus managed are but little inferior in condition and yield to those owned by the State. All net revenue is of course paid to the corporate owner.

Forests in Europe fall into three classes:—

- (1) Those owned and managed by the State.
- (2) Those owned by corporations, but managed by the State.
- (3) Those owned by private individuals.

Forestry in England is in the peculiarly unfortunate position of only being represented by usually ill-managed woods of the third class. No useful purpose would be served by attempting to palliate this fact, or by citing brilliant exceptions to the contrary. The planting in the Scotch Highlands should receive public recognition. I have heard of a landowner in South Wales who has planted 10,000 acres of Larch, and of a large English landowner who has obtained the services of a German expert to draw up a scientific working plan for his woodlands. Such exceptions cannot in the nature of things last long. There is rarely a guarantee that they will last beyond one lifetime. It would be one of the functions of national forestry to assist private forest enterprise in every way; not to supplant or forestall it. State forests worked at long rotations would supply the large clean timber now imported from abroad. Private forests, on account of the necessary length of rotations, cannot do this; they would continue to supply pit-props, poles, sleepers, and special timber, such as figured Ash, hedgerow Elm, &c.

Compared with State forests, private forests are at a disadvantage on these three points:—

- (1) *Changing Ownership.*—The careful landowner may have a spendthrift son, or one of different tastes. The estate may have to be sold for various reasons. This usually entails a rupture of the working plan, together with the scientific working of the woodlands.
- (2) *Interest on Borrowed Capital.*—The State can raise loans at 2 per cent. interest. The private forest owner would have to pay double this, or more, on the uncertain security of a private forest.
- (3) *Cost of Management.*—A large forest estate can be more economically managed than a small one.

Thus we arrive at the curious fact (in sharp contrast to the general position) that forests are better and more profitably worked in the hands of Government than by private owners.

The assistance rendered by Government to private forest owners in Europe (and latterly America) takes the form of grants of young trees free, or at cheap rates; advice in drawing up working plans; and last, but not least, the example, which is better than precept, of scientifically managed forests yielding good returns dotted throughout the country.

BRISTOL AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

NOVEMBER 30.—The fortnightly meeting was held on the above date at St. John's Pariah Room, Redland, Bristol, Mr. Lock presiding over a large attendance.

Hardy fruit was the subject for discussion, introduced by Mr. Hockey, of Yatton. He stated that the cultivation of fruit was becoming more popular each year, though to enable British cultivators to successfully meet foreign competition, our land laws required alteration. Dealing with the subject in detail, he gave clear instructions as to the soil and situation best suited to fruit culture, method of planting, pruning, and pests to which fruit-trees were most liable, and the directions given, referring to the culture of Apples, Pears, Plums, Cherries, Currants, Gooseberries, Strawberries, and Raspberries. Mr. Hockey was heartily thanked for his lecture. A good discussion followed, taken part in by several members.

THE ROYAL HORTICULTURAL OF IRELAND.

NOVEMBER 21.—The usual meeting of the above society was held at their headquarters, 61, Dawson Street, on the above date. GREENWOOD PIM, Esq., occupied the Chair. There was

a large attendance of the Council present. The Secretary (Mr. W. H. HILLIARD), submitted a report of the recent winter show, which entailed a deficit of close on £100, attributable to the unfavourable condition of the weather, &c.

The Council awarded a Gold Medal to Messrs. C. RAMSAY & SONS, Balls Bridge, for their magnificent group of foliage and flowering plants, likewise floral designs, at the Chrysanthemum Show. The Secretary was authorised to thank Lord IVEAGH for his cheque for £10 towards the prizes for the ensuing year.

The expenses incurred for the recent show, and including prize-money, amounted to £292, and cheques to this amount were ordered to be drawn in payment of the same; whilst the arrangements in connection with the annual meeting, to be held on the 10th inst., in the Central Lecture Hall, Westmoreland Street, were completed. A. O'N.

SMITHFIELD CLUB.

DECEMBER 4 to 8.—The Smithfield Club has held its usual exhibition of fat cattle, sheep, and pigs, in the Agricultural Hall, Islington, during the present week.

The scene presented the same appearance of excessive development and completeness as formerly, and those of us who are not "at the front" just now may be assured that the supply of Christmas fare, in the shape of fat animals, will be as plentiful as formerly. We are in the habit of referring to our Chrysanthemum shows as exhibitions of monstrous flowers, but it is at Islington that monstrosity is really worshipped, and there it constitutes the main feature of the event. The cattle, sheep, and pigs, are by no means more monstrous than the roots that are displayed to the uttermost extent upon the stands of various seedsmen in the galleries. When three Mangolds weigh together near upon one hundredweight, it can hardly be said that such roots do not bear some proportion to the cattle they are required to feed. All of the leading seedsmen seek to display the biggest produce, and such is intended as a recommendation of their particular seed. They do not pretend to have cultivated the crops themselves—enough for them that they are from their seeds; and so it is stated that this or that lot of roots was grown upon a farm belonging to Her Majesty the Queen, the Prince of Wales, or other notable agriculturists. Some of them, too, are doubtless the result of cultivation upon sewage farms. Many of the firms represented are also well known to our readers as horticultural seedsmen, as the following remarks will show:—

Messrs. SUTTON & SONS, Reading, had a capital display of roots in the North Gallery. Among the Mangolds considerable prominence was given to the variety *Prisewinner*, a very heavy Globe-shaped root, said to have given a crop of more than 75 tons to the acre. Golden Tankard and Mammoth Long Red, and a lesser-growing root, *Intermediate*. Some of the best Swedes were *Magnum Bonum* and *Champion*. Of Turnips, a new one, named *Centenary*, at once arrested attention on account of its size and attractive appearance. Excellent roots of *Kohl Rabi* were shown, and samples of the firm's best Potatoes, besides grass-seeds and other agriculturists' requisites.

The well-known firm of Messrs. JAS. CARTER & CO., High Holborn, London, did not lack representatives in the shape of huge roots. Their Holborn Elephant and Kangaroo varieties of Swedes, Goldfinder, Golden Tankard, Mangolds, and Turnips made a grand display. This exhibition of monstrosity was relieved by a miniature lawn, very green, that ran along part of the edge of the base of the exhibit. The seeds had been sown in boxes, and the grass had been given its first "cut." There were fine tubers of Potatoes, and grand Onions, especially of the variety *Record*. Carrots, Parsnips, the usual "Seed Corn," &c., were also included in the garniture of the stand.

Messrs. GARTONS, Ltd., Newton-le-Willows, Lancashire, a firm that has conducted considerable experiments with a view to obtaining new breeds of corn by cross-breeding, rather than by a process of selection, showed dried specimens and seeds of some of their new varieties. It is claimed that varieties of Oats and Barley have been thus obtained that have cropping qualities that very greatly exceed that of any varieties previously existing. It is a praiseworthy work by whomsoever conducted, and constitutes one attempt to solve Sir W. Crookes' "Wheat Problem."

Messrs. E. WEBB & SONS, Wordsley, Stourbridge, had a very attractive exhibit, illuminated by the three large Silver Challenge Cups offered by the firm at the Birmingham and London Cattle Shows, and the Gloucester Root Show. Prominence was given to Imperial Swede, Green Globe Turnip, Mammoth Long Red, Lion Intermediate, Smithfield Yellow Globe, and Yellow-fleshed Tankard Mangolds. About a score of varieties of Potatoes, including several good new ones, introduced by the firm, including *Commonwealth*, *New Motor*, and *Pride of Britain*, were arranged as a collection in the centre of the stand. They were a very clean lot of tubers. Wheats and Barleys, grain, seeds, and vegetable root crops, completed the imposing exhibit from Wordsley.

Messrs. W. & J. BROWN, Peterborough, had a collection of Apples, including specimens of the variety *Bramley's Seedling*, weighing 22 oz.; also good *Mère de Ménage*, and others. Samples of trained trees were also exhibited on the stand.

Mr. B. WELLS, Crawley, showed Apples and a few trees, specially intended for farmers.

Mr. J. K. KING, Coggeshall, Essex, had a fine lot of agricultural roots; also some Onions, Potatoes, Parsnips, Carrots, &c. A grand lot of "Kohl Rabi" was shown, the variety being "Defiance Short Top." It is a grand plant to withstand drought.

Messrs. HARRISON & SONS, Leicester, in addition to the inevitable display of Mangolds and Turnips, made a good show of Potatoes, Carrots, Parsnips, and Onions. A fine lot of seed Peas was shown also.

Messrs. DICKSONS, LTD., Chester, showed a few Apples and agricultural seeds.

Messrs. E. W. KING & CO., Coggeshall, had a stand of the usual products, and noteworthy samples of Prizewinner Onions. Messrs. JARMAN & JARMAN, Chard, Somerset; and Mr. ALEX. SLATCHFORD, Coventry, were also represented by similar stands.

Messrs. CUTBUSH & SON, Highgate, London, exhibited about sixty dishes of Apples, &c., also trained fruit-trees. Potatoes were capitally shown by Mr. A. FINDLAY, Markinch, N.B.; and Messrs. FIDLER & SONS, Reading. Mr. FINDLAY had tubers of several excellent varieties raised by himself, including that of Up-to-date. Messrs. FIDLER, who had about sixty varieties of different raisers on view, included a new variety which they call New Maincrop, and another novelty, Fidler's Favourite, said to be a heavy cropper that matures as early as Ashleaf.

We would recommend anyone who wishes to see a representative collection of the newest and best agricultural and horticultural time-saving implements and machines to make a visit to this annual Show. We have a list of these important helps to the modern farmer that were noticed there, but it is much too long to reproduce here.

We could not leave this exhibition without viewing Her Majesty's splendid two years old Hereford that was adjudged the premier beast in the Show, as it was also at Birmingham and Norwich. It weighed about 17½ cwt., and was a very good-looking beast. The Prince of Wales, the Duke of York and Lord Rosebery were among the prizewinners.

NATIONAL CHRYSANTHEMUM.

DECEMBER 5, 6, 7.—The last of the three exhibitions arranged by this society for the present season was held in the Royal Aquarium, Westminster, on the above dates. In conjunction with this event also took place the last meeting for the season of the Floral Committee, and this body awarded on the occasion two First-class Certificates to varieties, of which description will be found below.

The exhibition was quite as large as usual, and was characterised by quality equal to the average at these mid-winter shows, but no more than this could be said of it. The holding of such shows has, so far, had little effect in producing essentially late-flowering varieties of exhibition size and quality. This is regrettable from several standpoints. It is worthy of remark that at this exhibition an increased proportion of the Japanese blooms were presented to the visitors' inspection in vases, and not upon boxes; many of the cut blooms lacked freshness. Several of the trade exhibits were of conspicuous quality, and a non-competitive exhibit of miscellaneous flowering and foliage plants from the garden of Sir CHAS. PIGOTT was a feature of the show, well deserving the Gold Medal awarded the same. Mr. PERKINS, gr. to the Hon. W. F. D. SMITH, was a very successful exhibitor.

CUT BLOOMS.

Mr. R. KENYON, gr. to A. F. HILLS, Esq., Monkham, Woodford Green, Essex, had the best exhibit in the principal class for cut blooms. His collection of twenty-four specimens of Japanese in not fewer than eighteen varieties, was not lacking in size, nor particularly in colour; but several of the specimens had not so fresh an appearance as is desirable. The varieties Matthew Hodgson, Mrs. Barkley, Julia Scaramanga, and Wattleblossom, had the best effect of any staged. There were as many as six exhibits in the class; and the winner of the 2nd prize was Mr. D. WILLIAMS, gr. to the Earl of Faversham, Duncombe Park, Helmsley, York.

The best collection of twelve Japanese blooms, distinct, also exhibited on boards, was shown by Mr. R. C. NORCUT, and was remarkable for a very large bloom of the variety G. J. WARREN, and a brightly-coloured specimen of Admiral Avellan. Mr. J. SANDFORD, gr. to G. W. WRIGHT-INSULZ, Esq., Woodhouse, North Finchley, was 2nd.

The best collection of twelve bunches of Japanese blooms in vases, not fewer than six varieties, was one from Mr. KENYON. There were some well-coloured blooms of the variety Matthew Hodgson, but all of the blooms were of varieties that were seen in the November show, none of them being peculiarly late-flowering ones. Mr. R. C. NORCUT, Broughton Road Nursery, Ipswich, had smaller, but for the most part fresher blooms, and was 2nd.

The 1st prize exhibit in the class for six Japanese blooms, distinct, was a remarkable one. The specimens of G. J. WARREN, Mrs. Mease, and Mrs. Compton, the latter a white Japanese, were exceptionally heavy and deep. The other varieties were Australia, Mary Molyneux, and a promising yellow incurved Japanese seedling. Mr. R. KENYON was 2nd.

In the class for six bunches of Japanese blooms, the best exhibit was again one from Mr. PERKINS; the quality of most of the blooms was satisfactory, but too many whites and yellows were included. Mr. TULLETT was the best of three other exhibitors.

In a class for twenty-four bunches of Chrysanthemum blooms, any varieties allowed, including Pompons, the winner of the 1st prize, Mr. Henry Perkins, gr. to Hon. W. F. D. SMITH, Greenlands, Henley-on-Thames, elected to stage Japanese blooms which were arranged in vases three in each; collectively these were a good exhibit, many of the blooms being most commendable for December specimens, a few only showing signs of being unduly kept.

Incurveds.—The largest class for incurved blooms at this December Show is one of twelve specimens in not fewer than six varieties. There were as many as five collections exhibited, and that from Mr. H. PERKINS was composed of blooms of very satisfactory quality: all of them were fresh in appearance, and most of them of good colour. There were the following eight varieties:—Chrysanthemum Brunt, Miss L. D. Black, The Egyptian, Mrs. J. Harvey, Mr. J. Gardiner, Miss P. Fowler, Bonnie Dundee, and C. B. Whitnall. The 2nd prize was won by Mr. THOS. ROBINSON, gr. to Mrs. LAWRENCE, Elfield House, Hollingbourne, Kent.

Single-flowered Varieties.—The best collection of six bunches of large-flowered single varieties was shown by Mr. T. TULLETT. There were three collections staged, and they were of moderate quality. The florets of these large-flowered single varieties soon show signs of drooping. That of Earlewood Beauty (white) stood much the best of any.

The best exhibit of six vases of small-flowered single Chrysanthemums was one from Mr. T. TULLETT, gr. to G. ALEXANDER, Esq., Warley Lodge, Brentwood. The colours shown were hardly representative, as four of the varieties were shades of rose or red, one was white (Miss M. Anderson), and the other yellow (Golden Sunset). Bronzes and crimson had not a representative. The 2nd prize was won by Mr. G. W. FORBES, gr. to Madame NICHOLLS, Regent House, Surbiton.

Decorative.—Class II. was a comprehensive one, calling for six bunches of decorative, spidery or thread-petalled, plumed, &c., varieties. The best exhibit of these was one from Mr. W. C. PAGRAM, and included King of Plumes (yellow), and Miss Carter (lemon), already well known varieties; and Houpe Fleur, a new bronze and yellow-coloured small flowered continental variety, with thread-like florets.

PLANTS.

We did not observe any specimen-plants of Chrysanthemums.

Mr. David Gibson, gr. to W. JOHNSTONE, Esq., Coombe Cottage, Kingston-on-Thames, had the best display in Class 22 of flowering plants, &c., arranged upon a table to produce effect. The centre-piece was a cone 4 feet or more in height, composed of plants of Begonia Gloire de Lorraine and Roman Hyacinths, the general effect being the same as would be afforded if a huge plant of this Begonia were trained similarly to a pyramidal Azalea. The exhibit contained very fine Cyclamens, Primula sinensis, Cyripediums, Catt. eyes, Bouvardias, Odontoglossums, Carnations, &c., and had an attractive effect, if somewhat heavier than desirable.

AMATEURS.

In the classes for amateurs, the most successful exhibitors were Mr. W. PERRIN, gr. to C. W. RICHARDSON, Esq., Fairgreen House, Sawbridgeworth, who won three 1st prizes in the principal classes; Mr. A. HOONEY, gr. to G. H. COX, Esq., The Grange, East Barnet; and Mr. G. C. FARMER, Leeds Abbey, Maidstone.

ARRANGED FLOWERS.

Some of the exhibits in the classes for baskets and vases, decorated with Chrysanthemums, and others with foliage and sprays from berried plants were very pretty. The principal prizes were won by Miss C. B. COLE, The Vineyards, Feltham; Mr. H. PESTELL, gr. to F. S. WIGRAM, Esq., Elston, Bedford; Miss EASTERBROOK, The Briars, Fawham, Kent; Mr. W. G. PRUDEN-CLARKE; and Mr. F. BUSH, gr. to W. T. LISTER, Esq., Rose Hill, Totteridge.

CERTIFICATED VARIETIES.

The Floral Committee on Tuesday recommended First-class Certificates to the following varieties:—

Chrysanthemum Edith, a large single-flowered variety, pale-rose with light band around disc. From Mr. H. J. JONES.

Chrysanthemum J. R. Upton, a large yellow Japanese, very large, florets twisted to some degree; shade of colour similar to that of G. J. WARREN. From Mr. R. KENYON.

NON-COMPETITIVE EXHIBITS.

One of the prettiest groups of miscellaneous plants we have seen for a very long time, was an exhibit from Mr. John Fleming, gr. to Sir CHAS. PIGOTT, Wexham Park, Slough. The groundwork of this "floralscape" was composed of very dwarf plants, but there was a great variety of miniature groups that gave the most artistic relief. Beautiful Cocos Weddelliana Palms had their pots, as it were, "mossed over" with Cyclamens, themselves splendid specimens with large flowers of some substance. Codiaums were similarly "based" with Ericas, Cyclamens, or Begonia Gloire de Lorraine. The group itself was an exhaustive representation of the plants that will bloom at this season. There was a specimen of Humex elegans, the last of the season, associated with forced Lilies of the Valley and Daffodils. Poinsettias were numerous, and some of them not more than 4 inches high; Calla aethiopica added an appearance of stateliness; and there were Roman Hyacinths, Carnations, Chrysanthemums (but not many), Cyripediums, Dendrobiums, Bouvardias, Primulas, Paneriums, Statice, Solanum capsicastrum, Azaleas, Deutache Perle, Datura double-white, Euphorbia Jacquiniiflora, &c. These were in conjunction with a nice collection of foliage plants (Gold Medal was awarded).

Messrs. CANNELL & SONS, Swanley, Kent, had a large exhibit in which the magnificent zonal Pelargoniums and uncommonly fine plants of the ever-recurring Begonia Gloire de Lorraine were most striking features. Amongst the Chrysanthemum blooms were several interesting new varieties. A sport from Sunflower, with florets half their length yellow, and succeeding half red, may prove to be a pretty novelty; Lord Methuen, an orange-red Japanese, is promising. A number of decorative varieties was included, and

additional ones of the same type as described in our last issue (Silver-gilt Medal).

Mr. H. J. JONES, Ryecroft Nursery, Hither Green, Lewisham, and Mr. NORMAN DAVIS, Framfield Nurseries, Sussex, exhibited large collections of cut blooms similar to those from the same cultivator at the November show, and they were staged in the same positions. On the occasion under notice, as at the November show, Gold Medals were awarded to each of the exhibitors.

In Mr. JONES' exhibit the new single variety Edith, described above, was shown, and numerous other novelties, besides a variety of well-known exhibition and decorative Chrysanthemums, which were effectively displayed in handsome vases, suitably relieved with green and coloured foliage.

Mr. NORMAN DAVIS' exhibit included fewer of the prominent vases used on the last occasion, but the blooms were well set up nevertheless, and were exceptionally fresh in appearance, and of good quality. Madame R. Cadbury, the new white Japanese variety raised by Mr. Weeks, was included among the novelties.

Mr. J. AOATE, Havant, exhibited twelve magnificent blooms of the new white incurved Japanese, Florence Molyneux.

Mr. W. J. GODFRAY, Fxmouth Nurseries, Devon, was awarded a small Silver Medal for a collection of cut Chrysanthemums.

Mr. ROSE OWEN, of the Floral Nurseries, Maldenhead, had a large exhibit of Chrysanthemums. There were 120 blooms in boxes, and a considerable number of vases, &c. Among these were many unnamed seedlings.

MISCELLANEOUS SOCIETIES.

Devon and Exeter Gardeners'.—Mr. W. MACKAY, of the Royal Nurseries, Exeter, at the last meeting of this society contributed a paper on "Cut Flowers and their Arrangement." A mistake was frequently made, said Mr. MACKAY, by cutting flowers in such a manner that insufficient stem is left to permit of the flowers being properly displayed. Cut flowers are sometimes put into vases or flower-glasses of unsuitable shape or colour. These should either harmonise or offer a striking contrast to the flowers they contain. Many charming effects are produced by using shades of one colour only, thus developing a pleasing harmony in light and shade. Most flowers when made up into sprays for the button-hole, have the best effect when relieved with their own foliage, and this was well illustrated by some Carnation blooms and Roses. In arranging sprays for ladies' wear, the great thing was to keep them light and graceful. Bouquets, also, should always be arranged lightly, and should not reveal a laboured effect. In table decoration, flowers should not be given too much space, and as a rule the best effects may be produced from the most simple flowers and foliage. Two colours of the same flower are effective, for instance, pink and dark Roses, but they require careful handling to keep them from looking heavy. Sweet Peas of bright or pale colours produce a light, cheerful effect. Mr. MACKAY showed, in a brown vase, a group of Chrysanthemums and foliage, treated in various ways to illustrate different methods of treatment.

Isle of Wight.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday, November 2. Dr. J. GROVES, B.A., J.F.P., presided over a very large attendance of members, who were present to hear a paper read by Mr. W. TRENKLE, F.R.H.S., Brooke House Gardens, on the "Cultivation of Muscat Grapes." The essayist, who is a master of Grape culture, dealt with every phase of cultivation in an interesting and practical manner. After the lecture a unanimous Vote of Thanks was accorded the essayist, after which followed a profitable discussion, taken part in by the Chairman, and Messrs. Kime, Sheath, Bennett, and others. A most successful meeting was brought to a close by the election of several new members. S. H.

NATIONAL AURICULA AND PRIMULA SOCIETY.

—The Annual General Meeting of the above Society will be held in the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Wednesday, December 13, 1899, at 7 P.M. Members of Committee are invited to meet at 6.30 P.M. on the same day and at the same place.

CATALOGUES RECEIVED.

PLANTS, BULBS, SEEDS, FRUIT AND OTHER TREES, SUNDRIES, ETC.

FOSTER & PEARSON, Ltd., Beeston, Notts.

ERNST BEHARY, Erfurt, Germany.

VILMORIN-ANDRIEUX ET C^{ie}, 4, Quai de la Mégisserie, Paris.

S. F. RICHMOND, Chrysanthemum Nurseries, Oasett, Yorks.

GARDENING APPOINTMENTS.

Mr. R. JAMES, for the past fourteen years Gardener to T. H. HEPBURN, Esq., Dunmore House, Bradninch, Devon, as Gardener to A. SCOTT, Esq., Rotherfield Park, Alton, Hants.

Mr. C. E. HORTON, for nearly three years General Foreman at Shipley Court, Henley-on-Thames, as Gardener to N. H. CORSELLIS, Esq., Russ Hill, Charlwood, Surrey.

Mr. POPE, formerly Foreman in the Botanic Gardens, Glasnevin, has been superannuated; and Mr. POPE, formerly Propagator, has been appointed to fill the vacancy.

Mr. L. E. WALKER, for the last three years Foreman in the Gardens, St. Audries, Bridgwater, as Head Gardener to Sir HENRY BUNBURY, Bart., Barton Hall, Bury St. Edmunds.

Mr. E. F. THORNE, Head Gardener to T. M. CLUTTERBUCK, Esq., has removed with that gentleman from the Rookery, Stanmore, to Chequers Court, Gerard's Cross, Bucks.

Mr. A. BEECH as Gardener and Bailiff to W. SPENCER, Esq., Codicote Lodge, Welwyn, Herts.

Mr. C. FLOWERS, for the past three-and-a-half years Foreman under Mr. J. P. LEADBETTER, Gardener at Tranby Croft, Hull, as Gardener to R. HODGSON, Esq., Westwood, Beverley.

Mr. G. CHILCOTT, as Gardener to A. HARDIE JACKSON, Esq., Glenthorn, Harrow Weald, Middlesex.

Mr. JAMES A. MAY, Gardener to WICKHAM NOOKES, Esq., at The Red House, Leatherhead, has removed with that gentleman to Seladon Park, Croydon.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Durations.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.			
	Above (+) or below (-) the Mean for the week ending December 2.	ACCUMULATED.			No. of Rainy Days since January 1, 1899.	Total Fall since Jan. 1, 1899.	Percentages of possible Duration for the Week.	Percentages of possible Duration since Jan. 1, 1899.		
		Above 45° for the Week.	Below 45° for the Week.	Above 45°, difference from Mean since January 1, 1899.						
									Below 45°, difference from Mean since January 1, 1899.	
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Inn.					
0	8 +	42	0	+ 412	- 79	2 +	214	48.8	7	28
1	9 +	36	0	+ 245	- 49	7 -	183	29.7	14	31
2	8 +	44	0	+ 361	- 148	6 -	156	21.3	26	32
3	5 +	35	8	+ 424	- 334	4 -	142	21.0	36	42
4	5 +	37	6	+ 421	- 175	4 -	139	23.6	27	39
5	5 +	38	8	+ 572	- 321	4 -	122	23.2	25	46
6	8 +	46	0	+ 277	- 117	4 -	202	47.1	12	32
7	7 +	46	0	+ 436	- 191	4 -	173	32.8	17	38
8	4 +	40	0	+ 625	- 149	8 -	157	34.3	17	45
9	6 +	43	0	+ 374	- 135	4 -	206	33.3	13	33
10	5 +	48	0	+ 505	- 102	4 -	169	35.9	21	38
°	3 +	59	0	+ 839	- 71	9 -	148	24.7	19	52

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

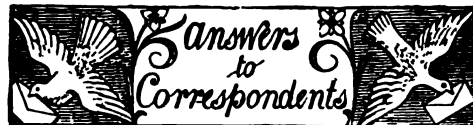
THE following summary record of the weather throughout the British Islands for the week ending December 2, is furnished from the Meteorological Office:—

"The weather was generally fine over our Islands as a whole, but rain was again frequent in the extreme N. and N.W., and towards the end of the week unsettled rainy; conditions were experienced over the whole kingdom.

"The temperature was much above the mean, the excess ranging from 8° in the 'Channel Islands' to 7° in 'England, N.W.', 8° in 'Scotland, N. and W.', and 'England, N.E.', and to as much as 9° in 'Scotland, E.' The highest of the maxima were recorded during the earlier days of the period, when they ranged from 59° in the 'Midland Counties' to 56° in 'England, N.E., E., and S.W.' The lowest of the minima, which were registered towards the end of the week, ranged from 37° in 'Scotland, E.' and 'Ireland, S., and 38° in 'England, E.' and 'Scotland, W.' to 35° in 'England, N.E. and N.W.' and 'Ireland, N.' and to 30° in the 'Channel Islands.'

"The rainfall exceeded the mean in 'Scotland, N.', but was much less in all other districts.

"The bright sunshine was less than the mean in most parts of the kingdom, but exceeded it over the northern, eastern, and central parts of England. The percentage of the possible duration ranged from 7 to 14 in 'Scotland,' 13 to 21 in Ireland, and from 17 to 36 over 'England.'



BOOKS: *The Uses of Plants*, by Prof. Boulger, was published in 1889, by Roper & Drowley, 11, Ludgate Hill.

CLIMATE OF NATAL: X. The summer heat of Natal now approaching is excessive. The coldest months, July and August, have a temperature of 30° to 40°. Severe frost at Johannesburg is reported in our columns, May 20, 1899, p. 321.

DENDROBIUM KINGIANUM: W. J. Keep the plants tolerably cool and dry until growth recommences, then afford it an increased amount of rain-water at the roots, and a higher temperature, till the new growths are finished.

GLASS HOUSE FOR GROWING TOMATOS, STRAWBERRIES, &c.: A. C. The sort of house described would suit these plants if it were fitted up with hanging portable shelves on which the Strawberry plants could be stood. These might be ranged alongside the walls and over the side-paths.

GUMMING FLOWERS IN ORDER TO PRESERVE THEM ON BEING CUT: W. C., junior. A floral gum is sold by the horticultural sundriesmen and florists for this purpose. It is only necessary to let a few drops fall into the heart of a flower to prevent its petals falling.

HYDRANGEA PANICULATA FORCED: W. L. The flower-heads being terminal on well-ripened shoots of the current season's growth, would be sacrificed if you were to cut-back the shoots. The necessary pruning of Hydrangeas should follow flowering.

MOSSY FRUIT-TREES: L. A. W. Make some lime-wash of a good consistency, straining it through a hair-sieve to remove all grit, and apply this with the garden-engine or a big syringe twice during the winter. It may require repeating annually, or less often. The stem and larger limbs, if very much moss or rather lichen-grown, should be scraped with a piece of hoop-iron before the wash is applied. In your county, moss commonly overgrows the fruit-trees, more especially in orchards under grass, and to a greater degree on damp soils than on dry ones. In gardens, scrubbing the stems and branches of the trees with strong soap-suds, containing petroleum at the rate of a wine-glassful to two gallons of suds, may take the place of the lime-wash.

NAMES OF FRUITS: M. L. Tower of Glamis.—*Enigma*. The variety is unknown either as a seedling or a sport; it is worth further trial, and we suggest working it upon both crab and Paradise stocks for comparison.—A. L. 1, Golden Winter Pearmain; 2, Cockle Pippin; 3, Scarlet Nonpareil.—J. W., Westmoreland. 1, Calville Rouge d'Hiver. The seedling fruits appear to be distinct and rather promising, except that they do not keep well, judging by those sent. There are several good varieties of the same type already in cultivation, and its usefulness would mainly depend upon the habit and productiveness. Graft a few stocks with it next spring and watch its behaviour. Considerable time is needed in testing seedling fruits.—G. P. 1, Doyenné du Comice; 2, Easter Beurré; 3, Glou Morceau; 4, Gloria Mundi.—W. H. 1, Resembles Red Ingestre; 2, If this is a fair sample it is too small to be of much use, and is probably a local variety, or the fruits must be from an old and neglected tree. Apples about the size of marbles are not required now.—R. The Pears were all smashed, being loose in the box; 5, Dumelow's Seedling; 6, Striped Beaufort.—S. A. 2, Doctor Nelis; 3, Burgomeistre. The others were not recognisable.—M. T. 1, Durondeau; 2, Emile d'Heyst; 3, Josephine de Malines; 4, Beurré Hardy.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—H. S. We do not undertake to name varieties of florists' flowers.—Salop. 1, Codium (Croton) Nevillei; 2, C. pictum; 3, C. variegatum; 4, C. variegatum; 5, Oncidium flexuosum; 6, Ruellia macrantha.—F. S. Cymbidium eburneum var.—J. I., Isle of Man. Dendrobium speciosum.

PRIMULA LEAVES SPOTTED: C. W. D. The leaves bearing yellow spots with dark centres are symptoms of a fungus disease. A fungus mycelium is present inside the leaf, but the fructification thereon is not satisfactory; it is very like Berkeley's *Ocularia interstitialis*. As, however, one authority gives four fungi as occurring on leaf-spots of Primula (and these fungi not very distinct), fresh material would be required to make certain. In any case, the remedy is thorough spraying with a dilute fungicide, say Potassium sulphide, half an ounce in each gallon of water. Powdered copper sulphate, as already used, is likely to burn the foliage; and solution of copper salts, if used, should be dilute. W. G. & Leeds.

PROTECTIVE COMPOSITION TO PLACE ON TREE J. A. If it be as a protection against hares and deer, use a thick paint of clay, cowdung, soot, and spirits of tar; the latter in the proportion of 1 pint to 3 gallons of the mixture. Apply with a brush once or twice in the winter, as high as the animals can reach, allowing the heavy snow falls.

PUBLICATION: A. C. It is a trustworthy work quite up to date, and fitted for self-instruction.

STEPHANOTIS: J. Bailey. The brown markings on the leaves are entirely due to a discoloration of the epidermis. The internal leaf-structure is not in any way affected, and there is no trace of micro-fungi, or of insects. Is the disfigurement not due to applications of insecticide? R. N.stead.

TOMATOS, CUCUMBERS: J. G. At the new year Cucumber-seed may be sown on hot-beds or in the stove, the progress of the plants being more rapid in the former. In this case the bottom-heat should range between 75° to 80°, and top-heat of 70°, with a small amount of air given at night, and by day more of it whenever it is safe to afford it. The bed should consist of Beech or Oak-leaves and stable-litter, well made and sweetened before any seeds, cuttings, or plants are put into the frames. Tomato-seed may be sown and brought on in such hot-bed at the end of the month of January and later, but the seedlings must not stay therein too long, or spindling will take place, spoiling the plants for all useful purposes. As the daylight lengthens and strengthens, the raising of Tomatos from seed can be more surely undertaken, seeds being sown in any pit, house, or frame having a temperature ranging between 60° and 70°, no bottom-heat being required unless the seed is sown on a bed of soil instead of in pots and pans, when a trifle of bottom-heat is always desirable for early spring sowings.

COMMUNICATIONS RECEIVED.—Foster & Pearson, Ltd.—J. W. C. W. D., next week.—R. T.—E. T. C.—Prof. Balducci.—P. & M.—A. F. S.—E. Sandford.—Norman.—C. C.—A. V.—Young Gardener.—J. M.—E. S.—C. B.—D'Hales.—J. W. H.—R. Weichsel & Co.—G. M.—W. H.—B. C. J.—D. T. F.—J. O'B.—Wild Rose.—T. S.—A. S.—"Roder."—H. Friend.—E. B.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—Galapagos.—H. G.—W. B. H.—H. C., Geneva.—Prof. Cogniaux Verviers.—J. I., Isle of Man.—A. McL.—H. Cannell & Sons.—G. N.

DIED.—On November 23, at 2, Thanet Villas, Hanworth Road, Hounslow, STEPHEN SPOONER, of the Hounslow Nurseries, age thirty-six.

—At Commercial Court, High Street, Falkirk, on the 2nd inst., THOMAS SORLEY, many years Head Gardener at Mayfield, Falkirk, aged seventy-eight years.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardener's Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets, see p. xiii.)



THE Gardeners' Chronicle

No. 677.—SATURDAY, DEC. 16, 1899.

SOME SUSSEX FRUITS.

I.—THE MEDLAR.

IF Sussex does not make a noise in the world, it is not because she has nothing of which to boast. The two great battles of Hastings and Lewes were fought within her borders, so that she is not without her military records. For centuries her forges were the most famous in the land. Her roads till recently were everywhere notorious for their badness; her Hop-gardens have ever been in repute, and her archaeology has fascinated the greatest scholars. Nowhere else do we meet with the comital subdivisions known as rapes. If Sussex has not the best bacon in the country, she certainly has a greater number of hams than any other county; and, in the matter of fruit she stands among the foremost. Her proximity to the sea, her southern aspect, her special geological features and peculiarly constituted subsoil, her plodding sons, and her age-long traditions, are all here in her favour.

Without attempting to exhaust the subject now under treatment, it will be the writer's aim to bring a few of the special products of Sussex more immediately under review, and the Medlar may conveniently be taken first, because it is the most nearly indigenous. It is true that some botanists question the right of this fruit to be regarded as a native of our island, even in the sunny south. But if it is not truly wild, Sussex is the county where it is most at home in woodland and hedgerow, and its spinous form is a sufficient indication of its near approach to an indigenous form. Here, too, its fruit in a wild state ripens in the hedgerow as well as it does on the cultivated tree. [Hooker, in his *Students' Flora*, considers it not indigenous. Bentham, in his *Handbook of the British Flora*, looks on it as an escape from cultivation; but adds, "In Britain apparently wild in several localities in Southern England, but probably not truly indigenous." Considering its European distribution it seems difficult to doubt the possibility that it may be or may have been indigenous, but that is a point for the botanist to settle.]

Three hundred years ago, Gerarde remarked that "it is very late before Medlars be ripe, which is in the end of October; but the floures came forth timely enough." Three centuries have brought no change in this respect. It was on the last day of October that I ran over to Bosham, the village whence Harold embarked for Normandy. As I cycled down the narrow lanes, redolent of autumn scents, I came presently to a magnificent tree overhanging the road, and laden with fruit. It must have been 30 feet high, and though the gardener had nearly filled a wheelbarrow with the dark-brown fruits, which stood out in striking contrast to the warm, sienna-coloured leaves, he assured me he had only just begun his work,

while the fruit was not so large as that from the adjoining tree. There are "odds of Medlars" as of other things. They vary in size and quality, as Apples do, though the range of divergence is not so wide.

The Medlar is one of those fruits which do not ripen in this country while they hang. Some fruits are never at their best unless eaten the moment they are plucked. In the present case, the conditions are just the reverse. The fruit must be placed on straw or bran to become mellow. It is essentially the dainty of the luxurious, because, like game, it has to be high before it is palatable. Gerarde's remark still holds good: "The pulpe or meat is at the first so harsh or choking, that it cannot be eaten before it become soft." In the smaller kinds, when the persistent calyx which crowns the fruit, the skin, and the stones are removed, there is very little left; but the larger forms contain a goodly quantity of rich edible matter, whose flavour is altogether unique.

The name is noteworthy, as it illustrates the influence which words exert on each other. As a magnetic rock will deflect a ship's compass, so one strong word will affect another. The name Medlar, though it has nothing in common with meddler, has undoubtedly been brought within its range. One authority says that the fruit was called in Normandy and Anjou *Meslier*, but as the verb *mesler* became meddle in English, so the name of this fruit was transformed from *Meslier* to Medlar. Thus Medlar represents the French *Meslier*, which is the Latin *Mespilum*. This, in turn, comes from the Greek, and several attempts have been made to get at the radical idea. There is a general agreement as to the first syllable. *Med-* is for *Mes-*, the Greek word for middle (*mes-os*). The second syllable, however, has given some trouble. I give three of the views which have been entertained:—

1. Medlar comes from *mesos*, middle, and *pileo*, to squeeze tight, to bind together, because the fruit is astringent and binding. "The Medlars are cold, dry, and astringent," says Gerarde, and he adds that the leaves are of the same nature, while the dwarf Medlar is not only dry and astringent, but sharp. It is doubtless due to this peculiar astringency, as Mr. Grindon has already remarked, that the Medlar has never held a high place among the fruits of the orchard; and almost always "when mentioned in literature, the associations are ignoble, if not offensive."

2. Medlar is derived from *mesos*, middle, then, cut in two, halved; and *pilos*, a globe or ball, because it has the shape or appearance of a hemisphere. In this case both the etymology and the shape are forced and unnatural, though it may be admitted that if the calyx were entirely removed the rest of the fruit is somewhat hemispherical.

3. Medlar is derived from *mesos*, middle; and *spilos*, a stone, because of the hard kernels which are contained in the middle of the fruit. Of the existence of the stones or hard seeds there can be no doubt, but where is the classical authority for translating *spilos* (a stain) by the English word stone? There is, however, another Greek word, *spilas*, a rock or crag, which may be intended, and this is the etymology to be preferred.

Our ever-ready Shakespeare has not failed to utilise the similarity between Medlar and meddler. In *Timon of Athens*, the following dialogue occurs between Timon and Apemantus. Apemantus thus charges Timon: "The middle of humanity thou never knewest, but the

extremity of both ends; when thou wast in thy gilt and thy perfume, they mocked thee for too much curiosity; in thy rage thou knowest none, but art despised for the contrary. There's a Medlar for thee, eat it." He has given him a bitter pill, a sharp, acid fruit to eat, something unpleasant to think about. Timon replies: "On what I hate I feed not," which leads to the question—"Dost hate a Medlar?" "Ay," says Timon, "though it look like thee." The outspoken Apemantus retorts: "An thou hadst hated Medlars sooner, thou shouldst have loved thyself better now."

I have claimed the Medlar as a Sussex fruit. It may grow, but is never so rich elsewhere; and in the north of England it rarely ripens its fruit though it will blossom there freely. In the days of Gerarde it was customary to graft it on the Whitethorn. "The Medlar-trees (he says) do grow in orchards, and oftentimes in hedges among Briers and Brambles, being grafted in a White Thorne it prospereth wonderfull well, and bringeth forth fruit twice or thrise bigger than those that are not grafted at all, almost as great as little Apples; we have divers sorts of them in our orchards." The tree may be raised in various ways, viz.: from seed, by cuttings, layers, or grafting. The common Pear-stock has been found suitable, and grafting thereon is generally regarded as the most eligible method. A rather moist situation on rich loam, with a deep bottom, seems best adapted to bring the fruit to perfection. Formerly, two varieties were selected out of the "divers sorts" spoken of by Gerarde. The first, known as the Dutch Medlar, has the flower and fruit large. In the Nottingham Medlar the fruit is smaller but much superior in quality, and the best fitted for dessert. A third kind now under cultivation bears the name of the Royal Medlar. The wood grows slowly, the timber is firm and durable, and in suitable situations the tree attains a great age. The Dutch Medlar does not reach a great height, and its branches are usually crooked and unsightly. On the other hand, the Nottingham attains a great size in old orchards in Sussex, and is sometimes exceedingly handsome, especially when the leaves have assumed their warm autumnal hues.

The name Medlar, with sundry distinguishing epithets, is applied to other fruits of a similar kind. Even in Gerarde's day the Neapolitan Medlar was known in England, and figured in his well-known *Herbal*. This is nearly related to our Hawthorn, is a native of Southern Europe and Palestine, and frequently finds a place among table-fruit, the Apple being pulpy, and of a pleasant but somewhat acid taste. The Orientals also have their Medlar, or Loquat, which is not unknown in England. The writer has eaten it in China, but would prefer a plate of Sussex Medlars to a bushel of the Eastern fruit. In Madeira, where the European Medlar is rarely seen, the Loquat is common. It was introduced about sixty years ago, and at once began to thrive, producing a fruit about the size of a Walnut, amber coloured, and of a grateful acid flavour.

It may be added that when the fruit of the Medlar has become soft and mellow it loses the chief part of its astringency, and with this loss there is a corresponding change in the action of the fruit and its effects on the system. For dessert at Christmas commend me to a dish of well-preserved Sussex Medlars; Oranges and other foreign fruits may then take their chance. *A Sussex Naturalist.*

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

LÆLIO-CATTLEYA × CAPTAIN PERCY SCOTT
(L.-C. × ELEGANS GRANDIFLORA × C. LABIATA
FLAMMEA).

A VERY fine hybrid with flowers over 7 inches across, and of a delicate purplish-rose, the front of the finely-crested labellum being ruby-purple. A purple striped band runs up the middle from the base, each side of the opening of the tube having a cream-white blotch.

CATTLEYA × MRS. HERBERT GREAVES (HARRISONIANA × GASKELLIANA ALBA).

Flowers 5 inches across; the segments broad and well displayed; sepals and petals very delicate rose-pink; lip white, with a primrose-yellow tinge over the side lobes and opening of the tube; the margin being faintly tinged with pink. In form it resembles the similar cross known as "Miss Williams," but the use of the white form of *C. Gaskelliana* has produced a very chaste and delicately-tinted flower. All three were raised by M. Chas. Maron, of Brunoy, France, and have now flowered in the collection of John Leemann, Esq., West Bank House, Heaton Mersey (gr., Mr. Edge), who received First-class Certificates for the two first named at the Manchester and North of England Orchid Society's show, November 23.

LÆLIO-CATTLEYA × YELLOW PRINCE (LÆLIA
XANTHINA ♀ CATTLEYA LABIATA GASKELLIANA ♂).

This is the reverse cross of L.-C. × The Hon. Mrs. Astor, and its distinctness warrants the distinguishing name. The flower is 4 inches across; the sepals and petals are rich, orange-tinted, chrome yellow; the labellum, which is showier than in L.-C. × The Hon. Mrs. Astor, is rich orange, beautifully veined and shaded with rose-purple. *J. O'B.*

SOPHRO - CATTLEYA CHAMBERLAINIANA VAR. TRIUMPHANS.

On the occasion of the meeting of the Royal Horticultural Society, at the Drill Hall, Westminster, on the 5th inst., Mr. J. Smith, Orchid-cultivator to the Rt. Hon. Joseph Chamberlain, Highbury, Birmingham, exhibited a plant under the above name (fig. 141), which was considered to be so distinct as to warrant the retention of the name under which it was exhibited. The parents of this cross are *Cattleya Harrisiana* and *Sophranitis grandiflora*, the first-named being the seed-bearer. It is therefore the reverse cross to S.-C. × *Calypso*. The flowers are different in shape and of a brighter colour than those of that variety, but they equal them in size. The sepals and petals reddish-crimson, with darker veining. The lip is of chrome, with the tip of the front lobe and edges of the side lobes of purplish-crimson. It received an Award of Merit.

FORCING FRENCH BEANS.

Few of those who force French Beans in November and December would say they were profitable croppers. That is also my own opinion after having given them more than ordinary attention; still, a dish of Beans at this season is sure to be greatly appreciated when it appears at table. I do not feel that I ought to say much of my failures, but rather to offer some hints as to treatment, so as to ensure a regular succession of pods. The plant does fairly well once the days begin to lengthen, and the artificial heat is sufficient, and bottom-heat as well, if that can be provided. Where no bottom-heat can be afforded, the plants may still be placed over the hot-water pipes, or in other such situation that would encourage the growth of roots. Many good gardeners advise the sowing of the seeds in small pots, and subsequent repotting. This is not my practice, as time is thereby lost, and, in dull weather, unless the plants are grown under very favourable condi-

tions, they receive a check. On the contrary, I would rather sow at once in the pots in which they will carry a crop, viz., 6-inch, the plants being assisted when podding with liquid manure. Another practice that may well be omitted with early-forced Beans is top-dressing, of which, so far as I have observed, the benefits have not been such as were looked for. It can scarcely be otherwise, seeing that only two or three weeks are available for the roots to benefit from the additional compost. I prefer to use the pots of the size named, and to fill them to within an inch of the top, and rely on manures. The method pursued at Sion is to sow 100 pots at fortnightly intervals. Beans can be gathered from plants in the open-air, the season for sowing beginning at the end of December. The first sowings are made in 6-inch, in February in

freer-growing *Ne Plus Ultra*, the period of bearing of the cross was lengthened, and pods are larger, and it is very suitable for forcing. For early forcing, Veitch's Early Favourite is a very suitable Bean, and the plant is of small growth, which is a great gain in a forcing Bean. The haulm is strong and vigorous, which are also points in its favour. The variety *Ne Plus Ultra* is still one of our best and most productive forcing Beans. Those who regard length in a pod as an important point, will find in the variety *Progress* something to their liking. It is a plant of dwarf habit, with rather large, broad, very fleshy pods. It is a cross of *Canadian Wonder* with *Mohawk*, and for planting-out in pits I do not know of any better variety. For early pot-culture, Sutton's Hybrid is splendid, but it is yet full early to write



FIG. 141.—SOPHRO-CATTLEYA CHAMBERLAINIANA VAR. TRIUMPHANS.
(Petals and sepals of reddish-crimson; lip chrome, edged with purplish-crimson colour.)

7-inch, and afterwards in 8-inch pots. I am aware of the utility of planting-out, and this is practised with the later sowings, when less heat is called for, but for the earlier sowings we have no suitable pits. The plants which are at the present time in bearing were sown about six weeks ago, and these cannot be termed profitable, for two days' continuous fog caused the flowers to drop before setting, and even under the best conditions the plants, from October to the end of December, make but weakly growth, and never produce a full crop.

A few words as to good forcing varieties, a subject to which I have paid particular attention with the hope of obtaining larger pods, with more flesh, and without losing the chief point in forcing, viz., time. For many years I grew the well-known variety *Mohawk* because of its earliness. After testing at the least a dozen varieties, *Mohawk* has remained my favourite variety, in spite of the crop being soon over. By crossing *Mohawk* with the

anything in reference to its qualities, although for forcing there can be no question as to its usefulness. It is a distinct type, and very free. The old *Syon House*, providing a good stock is grown, is still a valuable variety, and I have for years selected seed from the original stock with the intention of getting more size in the pod, and so far with fairly good results. It is a good pot variety, free, and of good quality, and if a larger pod can be secured, it will be valuable. *G. Wythes, Sion House Gardens.*

ORCHID NOTES AND GLEANINGS.

RESTREPIAS FROM GLASNEVIN.

THE Royal Botanic Gardens, Glasnevin, Dublin, possesses one of the richest collections of *Masdevallias*, *Restrepias*, and allied plants in these

islands, and their culture is a congenial study to the Curator, Mr. F. W. Moore, who kindly sends a selection of the most distinct forms of *Restrepia* at present in flower in the gardens there. One of the prettiest is *Restrepia maculata*, which has singular flowers, that are densely spotted and striped with purple. Another is *R. m.* "Glasnevin var.," which is so distinct in general appearance as to suggest at first sight a different species. The botanical features, however, are identical, and the differences are that in the Glasnevin variety the flowers are pure white, the pronounced purple markings of the type being reduced to faintly dotted lines down the lower sepals, and light purple lines in the upper sepal and petals. *R. antennifera* is one of the handsomest; and equally showy, though different in colour, is *R. guttulata*, a yellow flower with crimson spots.

and bears three flowers, the perianth measuring 1 inch across, and the tails nearly an inch in length. The reverse of the flower is white, slightly tinged with rose and yellow, the front being tinged with yellow and densely studded with reddish papillae, the lower segments also having some dark red spots. The tails are orange colour, and the whole flower very attractive.

A NEW WINTER CABBAGE.

THE new variety, St. Martin, shown in fig. 142, was obtained by crossing Christmas Drumhead with the Rosette Colewort. The Drumhead shape is retained in the seedling, together with the quality and mild-sweet character so valuable in the Colewort. Another cross from the St. John's Cabbage

valuable in severe weather, which will have less effect upon these than others. Perhaps neither of the new varieties will be useful for supplying the market, as greater size is required. *G. Wythes, Sion House Gardens, Brentford.*

COLONIAL NOTES.

FRUIT CULTIVATORS IN NEW ZEALAND.

GLORIOUS spring, with the early blooms of the Plum, Peach, and Pear opening and distilling their perfume in the atmosphere, such is visible in New Zealand at the moment of writing. Many professional fruit growers add to their income by other means in our beautiful islands; and perhaps a few instances that I have come across may amuse your numerous readers, and also show that the New Zealand gardeners are quite "up-to-date." We have good men of various nationalities carrying on the ancient practice of gardening in this country. "We are the largest growers of bulbs in New Zealand," saith one firm. They print a very good catalogue of bulbs, &c., including in it bulbs of *Narcissus Madame De Graaf*, at 30s. each; and have 200 to 300 varieties of *Daffodils* correctly described. They print their own catalogue without any extraneous help; one member of the firm signs his name as printer, the guarantee required by the State. A large grower of fruit for our markets helps to swell his revenue by taking contracts to survey mines, forests, and land; he signs after his name, C.E., surveyor, &c. Another, who grows a lot of indoor Grapes, is a State schoolmaster; hours of attendance 9 A.M. to 4 P.M. Another is manager to a firm of lawyers, and attends his office daily by rail, and he makes a handsome profit by all sorts of indoor and hardy fruit. A fifth is a general merchant, and has about 1000 feet run of vinerias, which he manages. So does a chimney-sweep, who grows splendid Black Hamburg Grapes, "hammer-marked," in large quantities. But perhaps the most remarkable is a canny Scot, whose ground on one side of his grand entrance-gate is covered with Aberdeen granite tombstones for sale; and on the other side is a brewing and bottling establishment, licensed. I do not say which of the two businesses come first, because it all depends from which quarter you approach the entrance; but they are rather suggestive, looking backwards from my coign of vantage. In the rear of these two residences are some first-rate vinerias, containing notably that best of all Grapes, Muscat of Alexandria, and as an English hot-house Grape grower, I pronounce the crop to be perfect. Just one more instance out of thousands I could mention: The "Painter's" brand of Apples is known in almost every town in New Zealand, grown by one who is celebrated as a painter in a painter in oils.

Thank goodness, we are now having better times in the colony, and can attend to our fruit-growing without having loaded muskets at our sides. *Joseph Mayo, Wellington, N.Z.*

CULTURAL MEMORANDA.

EUCHARIS GRANDIFLORA.

WHY do we not more often see healthy examples of these, the finest of all stove bulbous plants? I have often visited gardens and lived in gardens where *Eucharis* could not be grown; all that there was consisted of a few pots full of yellow, sickly leaves. Nothing is more disappointing to gardeners than to have charge of such a collection of this plant, and, contrariwise nothing affords more satisfaction than to be able to show a good lot of healthy plants. The culture of these is so simple it makes a gardener wonder why failures so often occur. Many gardeners are never contented when their plants are doing well, but they must re-pot them in the spring of each year when other stove-plants are receiving attention, and to this it is that failure often may be attributed. Experience has taught me that the most successful mode of growing



[FIG. 142.—CABBAGE ST. MARTIN: RAISED BY MR. G. WYTHES, SION HOUSE GARDENS.

R. sanguinea has smaller flowers almost entirely purplish-red; and the little Venezuelan *R. aspasiensis* has singular-looking flowers, that are shorter and broader in proportion than the others, but bearing on its petals and sepals the thickened point characteristic of the genus. There is a charm about these remarkable, compact-growing *Restrepias* and *Masdevallias*, with their insect-like flowers, which renders them attractive and interesting to everyone who studies them.

MASDEVALLIA × ACIS.

An inflorescence of the pretty *Masdevallia* × *Acis*, raised by Captain T. C. Hincks, Terrace House, Richmond, Yorks (gr., Mr. Rushton), by crossing *M. abbreviata* with either *M. × Chelsoni* or *M. Veitchiana*, which first flowered in 1896, has reached us. We may say without hesitation that *M. Veitchiana* exists in its composition, and now that it has matured, the hybrid proves a showy plant. The scape is more than 6 inches in height,

gave a distinct conical-shaped head. Varieties that produce conical heads are more valuable than others for show purposes, and they hold less moisture or snow than flat-headed kinds. Each of the new varieties appear to be equally hardy, and both make capital growth, and are most useful for winter use. After a trial with other new Cabbages at the Royal Horticultural Society's Gardens, St. Martin was recently given an Award of Merit. There is no lack of excellent varieties of Cabbage, but there is room for really good winter kinds. In obtaining a new variety there is some difficulty in selecting stock. The Brassicas vary so much, it would surprise many readers of this note to see what curious variations there are amongst new seedlings, and this necessitates so much time and such rigid selection, that a private gardener cannot often afford. I am not sure that the St. Martin will prove as hardy as Christmas Drumhead; one could hardly expect it. A characteristic of the new Cabbage is its dwarf stem-growth, and this will be

Eucharis grandiflora is to keep the roots confined, that is to say, if flowers are wanted, do not over-pot them, but aim at having the pots filled with bulbs as thickly as possible, and if they are doing well do not disturb them.

When potting has to be done always insert the bulbs deeply in the pots, which is preferable to raising them to the surface. One garden that I worked in possessed a splendid lot, which grew under the stove stage. The bulbs were planted in the space between the wall at the back and the edge of the floor in the front. The bed was so filled with bulbs that it was impossible to see the compost underneath, but they grew well, and flowered three or four times a year; the bed had not been disturbed for many years. I have flowered *Eucharis* five times in less than twelve months, which may scarcely be credited by some persons; still, it is true. The plants at this place are healthy, and at the present time they are affording a grand crop of fine flowers, and this the second time in the last ten weeks or thereabouts, and coming in at this season, when good flowers are so much appreciated, they are invaluable. The bulbs have not been disturbed for more than three years, the pots being now packed with bulbs and roots. The only aid to growth that is given is weak liquid-manure, two or three times a week. The plants stand in an intermediate-house during the early summer months, and are removed to the stove about the middle of the month of August, going back to the intermediate-house in early spring, having by that time yielded three or four crops of flowers. They are always kept growing, no drying-off being practiced. Such good results must, I think, be attributed to the kind of treatment afforded. *Arthur Smith, Edenhall Gardens, Langwathby.*

SCOTLAND.

NOTES ON PEARS.

APRICOTS and Pears were the two fruits of the present year, the crops of which were distinctly below the average in these gardens, the shrinkage in the last-named being due solely to the sterility of trees past their prime; what little these did bear was inferior in quality, and mostly fit for kitchen use. Young trees, on the other hand, carried a normally large crop of fruit, perhaps below the average as to weight, but remarkably good in flavour, and satisfactory as to the manner in which, so far, they have kept in store. Hitherto, though at no time more than sufficient to meet current demands, the supply has been uninterrupted, and this has largely been due to the very small percentage of fruit that has been lost through decay; the rot, so prevalent of late years, that rendered the flesh putrid without showing its presence outwardly till the fruit was wholly rotten, being entirely absent. Another circumstance of the present year worth remarking was the long time, which is equivalent to lateness, the fruit required to mature; considering the extreme heat and the long-continued absence of rain, that being a condition one did not expect. On that account all except the very latest varieties were later than usual in being gathered.

One result of the season has been the confirmation of one's previous estimate of varieties, *Mario Louise*, though not superior to former years, still holding the position of the finest-flavoured of all Pears, and joined to that, the one variety which can be obtained in good condition over an extended period. *Emile d'Heyst* is almost equal in flavour to the above. I grow it on a south wall only, and cannot say if the fruit would ripen equal in quality if produced on a west aspect where most of the trees of *Marie Louise* grow. At the same time, it is well worth the position, not only because of the richly-flavoured fruit it produces, but on account of the unfailing crop borne every year. *Thomson's* is another delicious Pear, but this year there was scarcely a fruit on

the trees. *Passe Colmar*, which is being used at the present date, bore not only a good crop, and the largest individual fruits it has ever done here, and these of a high flavour. The tree grows on a south wall, and it is obvious that it requires a very warm, dry season such as the present in order to attain to full perfection. I should be inclined to pronounce it a variety unfitted for the colder Pear districts, and on the other hand, one well worth planting where the best varieties of Pears succeed. The fruit, when small, requires severe thinning. In its season, *Beurré Superfin* easily occupied the first place for its delicious flavour. The tree crops well, and it is always good. *Fondante d'Automne*, generally first-rate, was less good this year; and another disappointing early variety to be named was *Clapp's Favourite*, which was more deficient in flavour than usual. The very old *Louise Bonne*, which at one time was known familiarly as the Good Lewis, was, as usual, of high quality.

What may be termed late Pears are below an average crop; moreover, they are usually very disappointing as to quality—but in our case that may arise from the trees being almost all trained to a west wall. We have, however, secured good crops of *Knight's Monarch*, *Winter Nelis*, and the very antiquated *Crassane*, of which it is sufficient to say that at its best it is only second-rate. The other two are, however, of the highest quality, though both require a little special attention in order to secure fine individual fruits. The tendency of the first-named to cast its fruit prematurely is a constant fault; but this evil can be lessened to a considerable extent by thinning the fruit whilst they are quite small, the tree nearly always setting a superabundant number of fruits. It requires a south aspect. The one drawback attaching to *Winter Nelis* is the small size of its fruits—a drawback often aggravated by permitting the tree to carry a crop of fruit beyond its capacity. In this case, as in the last, early thinning works wonders. It is no exaggeration to say the fruits individually may be increased to double the usual size by this treatment alone; and as the fruit sets, with an occasional exception, very freely, thinning becomes a part of the annual routine management of this variety. Moreover, the extreme smallness of the leaves provides another reason why its tendency to overcropping should be obviated by severe thinning. During several years the fruit, which at one time kept into January, and sometimes till February, has ripened towards Christmas, and sometimes earlier. The tree is one that responds readily to the somewhat drastic treatment of heading over for the production of young branches. I have known two apparently worn-out trees which have been rendered quickly fruitful by this expedient, which have continued to preserve the habit unimpaired for many years. This is a practice, however, which cannot be depended on in the case of many sorts—perhaps of very few; for though young branches are produced, and for a few years retain a fruitful habit, it is very soon lost, and the trees sink back into their original state of decrepitude. Neither can root-pruning in the case of very large and old Pear-trees which have lapsed into barrenness be depended on as a cure. Generally it is ineffective. So that, failing the less drastic method of removing a portion of aged spurs to be replaced by young growths, the course to pursue with trees in the condition alluded to is to replace them with young ones—a change, as I am aware, that few owners of gardens care to make.

I imagine also that in our northern latitude fruit-growers would discover an improvement in the best Pears, a few of which are referred to above, if, instead of planting on west walls, they were allotted positions with a south aspect. There is also often a palpable waste of wall-space where Pear-trees are allowed a liberal amount of extension. As these increase in years, good crops alternate with scarcity. How much better to increase the number of trees, to keep them always under control by means of root-pruning, and when signs of exhaustion arising from old age are noticed to replace with others! *B., East Lothian.*

NOTES FROM THE ITALIAN LAKES.

(Continued from p. 409.)

FROM Cadenabbia a beautiful view is obtained of Bellagio, which, by reason of its peculiarly favourable position, must hold the pride of place upon the lakeside. When looking southwards from Bellagio we have upon the left the *Lerco* branch of the lake, and upon the right the *Como* branch, whilst it extends in a north-east direction to *Colico*. Bellagio thus stands upon a promontory, and when viewed from the highest point of vantage in the grounds attached to the *Villa Serbelloni*, it has a rugged grandeur quite its own. The steamers that ply upon the lake render it easy to cross from one stopping place to another, but if time be not an object there are the boats, which are well appointed in every respect.

The first garden visited at Bellagio was that attached to the *Villa Melzi*, which is a veritable palace in style. This villa is immediately opposite *Cadenabbia*, hence it faces more towards the north. The vegetation is luxuriant in the extreme. The entrance for visitors is at the southern gate, the farthest removed from Bellagio, to approach which a *détour* above the gardens has to be taken. The grounds here, which were laid out with great skill and taste, have the advantage of greater expanse than those at the *Villa Carlotta*; thus there are several open spaces of verdant turf dotted here and there with grand Palms, Bamboos, and choice Conifers, whilst the lake forms the boundary, no road intervening. The ground behind the villa rises somewhat precipitately, and is well clothed, but not crowded, with large trees. The varieties of Bamboos noted were similar to those at the *Villa Carlotta*, but by reason of standing out prominently, they are seen to much more advantage, and the growth is extremely vigorous. The same may be stated of the Palms, *Dracenas*, *Magnolias* (*M. grandiflora*), and other important specimen plants. In some spots the Palms, chiefly *Chamerops excelsa*, have been grouped with a very fine effect. The *Campor-tree* was also noted as thriving well; so also were several Conifers, many having attained to such huge size as to be almost unrecognisable. Specimens of *Tsuga canadensis* were very fine, as also *Thujaopsis dolobrata variegata*, of which an immense but compact specimen was observed. *Picea Morinda* was also a noteworthy tree; *Acacia dealbata* grows to large dimensions, and when it is in flower the effect must be very good.

Of flowering-plants in beds and groups, combined with foliaged-plants, the *Cannas* are freely used, and they flower most profusely, as does *Hibiscus sinensis*, *Althæa frutex*, the single-flowered variety, making a brilliant display. Standard *Heliotropes* were usefully employed; whilst *Aloysia citriodora* was noted as growing in the most luxuriant manner—indeed, forming dense hedges in the garden. As at *Cadenabbia*, the Indian *Azaleas* grow freely; and also *Fuchsia fulgens*, and plants of the latter were nicely in flower. *Cockscombs* were thriving bedded-out; whilst, as may be imagined, the *Portulacas* made a most brilliant display in the bright sunshine. Tuberous *Begonias* were good, but not quite equal to those grown in cooler districts. Several specimens of *Lagerströmia indica* were in their full beauty, with quantities of large spikes of flowers. Much labour had been concentrated upon a huge basket-bed upon the sloping ground behind the Villa, but it did not strike me as being quite the thing with such lovely natural surroundings.

Near to the *Villa Melzi* is the *Villa Poldi*, which is not, as a rule, open to visitors. Although the proprietor was in residence, we were enabled by the courtesy of the head-gardener to inspect the gardens, the friendship existing between gardeners being the same in Italy as at home. With the use of French we got on very well together. I consider that this garden in the course of a few years will be finer than at the present, every consideration having been given for the future development of the very fine specimens. It has the advantage

of being made on undulating ground towards the lake side, from which it is only separated by the terrace wall, and it extends up the mountain side for a great distance.

The garden proper is divided from another part of the grounds, which partakes more of a wild garden, by the public road, which, being excavated throughout this portion, is not visible. Here were noted the finest individual specimens of Bamboos seen at Como. These were of *Phyllostachys mitis*, with stems 9 inches in circumference at 5 feet from the ground, and the growths more than 40 feet high; both *P. nigra* and *P. aurea* were also of huge dimensions, with large masses of *Bambusa japonica*. Perhaps the most graceful specimens, however, were of *Arundinaria Falconeri* (*A. falcata*?), which were well placed for view from various standpoints. Bamboos were also noted upon the higher grounds in the wild garden, where they thrive so freely as to need frequent thinning, an operation that had recently been carried out.

The Palms were chiefly planted in groups of one variety. The following were noted in groups, and as single specimens:—*Cocos Bonnetti*, *Chamærops*

miles. The grounds, kitchen-garden, and flower-garden have an area of about 5 acres, and much of the estate was renovated and laid out anew by the late Lady Milton about thirty years ago. Many changes have been made in recent years, and flower-beds being sown down with grasses in order to lessen the amount of labour required. These changes and alterations have not been without their advantages, for no part of a garden is so pleasing to the eye as an extensive and well-kept lawn. The most notable thing in the pleasure-grounds is a long border planted with *Pæonies*. This border is the delight of all who had the pleasure of seeing it during the month of June, when the herbaceous *Pæonies* are at their best. [Our correspondent kindly sent a photographic view of this border, which however we found was unsuitable for reproduction. Ed.]

The border in question is 140 yards in length, and 7 feet in width. This year each clump carried from 100 to 130 fully-developed blooms. An ornamental chain-fence runs down the centre of this border, which makes the effect still more pleasing, being covered with creepers in variety, also *Roses*,

Mrs. Middleton takes a lively interest in her garden, and believes that that which is worth doing is worth doing well, with the result that the gardens and grounds compare favourably with many others in the country. Her head gardener is Mr. Wilson. W. R. J.

MARKET GARDENING.

PEACH AND NECTARINE TREES IN GLASSHOUSES.

REMEMBERING the fact that the annually increasing number of readers of the *Gardeners' Chronicle* refer to their instructor for any reliable information which they may require on any subject relating to the culture of plants, fruits, flowers, vegetables, trees, and shrubs, cultural remarks on any of these subjects will prove fresh and useful to the army of new readers. No matter how often and well the several topics may have been previously dealt with, there is always something of interest to add, or some antiquated fallacy to explode; new ideas and practices, resulting from experience gained by each succeeding generation of practitioners in the progress of events, taking the place of old ones.

The planting of Peach and Nectarine trees in glasshouses is an operation that should be performed as early in autumn as possible; and, for that matter, the same remark applies to the transplanting of the trees out-of-doors at the foot of walls having south, south-west, and west aspects.

VARIETIES TO SUPPLY EARLY FRUITS.

The earlier that supplies of ripe Peaches and Nectarines can be placed in the market after the meeting of Parliament in spring, the more remunerative prices will be obtained for them. This being so, the varieties which require the least amount of artificial heat to ripen the fruit by a given time should be grown. Having had an extensive experience in the cultivation of Peaches under glass as well as out-of-doors, I feel justified in recommending the four under-mentioned varieties, which I place in the order in which they have ripened with me on walls having the same aspect: 1, Early Alexander; 2, Waterloo; 3, Amaden June; 4, Hale's Early. These are all first-rate early, high-coloured Peaches of fine quality, and they will yield a succession of ripe fruits for about three weeks, whether the trees of the several varieties be all planted in one house or not. Although the three first-mentioned varieties are good all-round early Peaches, Hale's Early is undoubtedly the best in point of flavour. As Alexander ripens its fruits a few days earlier than Waterloo, the former will realise a higher price.

With regard to Nectarines, Early Rivers is a long way ahead of other varieties in regard to earliness; and in point of size, colour, and flavour it is equal to the best of the older varieties. Lord Napier, Humboldt, and Pine-apple are excellent varieties for forming a succession to Early Rivers.

PLANTING AND SUBSEQUENT CULTIVATION.

Mark the positions which the individual trees are intended to occupy alongside the front walls (the houses being spans running north and south), at intervals of 15 feet, each hole forming the outline of half a circle 5 feet in diameter. Excavate these to the depth of about 2½ feet, putting in the bottom about 6 inches deep of brickbats, stones, or clinkers, broken somewhat fine on top for drainage. Cover this with turves grassy side down, coarse grass, or long stable-dung, in order to prevent the soil getting among the drainage and clogging it. This done, fill the holes level with the ground-line with the best loam obtainable, to which one-fifth of lime-rubble and a like quantity of horse-droppings should be added, the whole being well-mixed before depositing it in the several holes. In the centre of the holes thus prepared, plant the individual trees as soon as possible, first trimming back any straggling or damaged roots that may



FIG. 143.—HASELBECH HALL.

humilis, and *C. Fortunei*. *Dracænas* were here towering aloft above many things. Such flowering-plants as the *Lagerstrœmia indica*, *Nerium Oleander* and *Cannas* in variety were in full beauty. Several *Coniferae* were also noted, some specially fine examples being well placed near the Villa, varieties of *Pinus*, *Picea*, and *Abies* abounding. *Dasylirocn scrotrichum* was noted, with tall erect spikes of flowers.

A further example of good taste was apparent in the position chosen for the family mausoleum, which edifice is to be seen a long distance away, being associated most appropriately with the upright Cypress. Far away upon the slopes in the wild garden hay-making, amidst Bamboos, was being carried on. The paths in this part are of grass also, winding in and out, so as to reach the higher ground in an easy manner. *Jas. Hudson*.

HASELBECH HALL.

HASELBECH belongs to Lord Hawkebury, and is the present residence of Mrs. W. G. Middleton, who has been the tenant for eleven years. It is a pleasant, compact estate, not far distant from Rugby. From the south front good views are obtained of the surrounding country, and the battle-field of Naseby is within a distance of 1½

including the long trailing shoots of the Crimson Rambler, which succeeds admirably, and tones down the dazzling effect of the *Pæonies*.

On the opposite side to the *Pæony*-border is a border of herbaceous perennial plants, of choice species and varieties, in which something can be seen in flower every day of the year. A rosary exists, which is exceptionally strong in fine standard *Roses*.

In the grounds are fine symmetrical specimen-trees, including an *Araucaria imbricata*, which has not lost its bottom branches. An avenue, one mile in length and planted twenty-six years ago, contains some *Sequoia gigantea* over 40 feet high.

The south front of the Hall is adorned with a plant of *Ampelopsis Veitchii*, which in its autumn garb is magnificent. The kitchen-garden is surrounded by brick walls of a very substantial construction, which are covered on both sides with fruit-trees, which in most years afford a fairly good crop, although it is not a soil favourable to fruit-culture, being cold, heavy, and clayey. Trees and crops of all kinds are always best in this district in hot summers.

The glass-houses consist of vineries, Peach-houses, plant and forcing-pits, &c. Cut-flowers being in much request, numerous plants and bulbs have to be grown, and Violets are a specialty.

require shortening back, and cover with about 5 ins. thick of the compost described above, giving the trees a shake in an upward direction to let the soil well in among the roots during the process of planting. Should the natural soil of the covered-in space be of average depth and fertility, all that is necessary until more root-room is required, is to manure the intervening spaces between trees and central pathway, and dig it a good spade deep in spring for planting Tomatoes in. Do not tie the trees to the wire trellis for about eight weeks from the date of planting to allow of the loose soil subsiding a few inches during the interval.

In training the young trees to the trellis do not cut back the shoots to within 10 or 12 inches of the previous year's growth, as was the practice a few years ago, and possibly is still followed in some places. Leave the shoots their full length, simply shortening back any growth that may have taken the lead of the majority in order to promote a balance of growth in the trees, and with the same object any extra strong growths should be cut clean out. The shoots of the young trees should be spread well out at regular intervals over the trellis so far as they will extend, leaving perhaps an intervening space of from 15 to 20 inches for training the necessary number of summer growths at intervals of 3 or 4 inches, which will at all stages of the tree's growth be none too much space to allow between current and previous year's growths on the trellises. Thus treated, the trellises are furnished with bearing wood within two or three years from the time of planting. This is the "extension" system pure and simple.

One important point in the culture of Peach and Nectarine-trees is never to allow the soil about the roots to become dry, and to maintain the wood and foliage in a perfectly clean and healthy condition during every stage of the plant's growth. A somewhat dry and airy atmosphere should be observed during the time the trees are in flower, reversing this order of things as soon as the fruits are set.

A somewhat dry and airy atmosphere should also be maintained from the time the fruits begin to change colour until they have been all gathered, after which the trees should be well washed with clean water applied either with hose or syringe, morning and afternoon, until the leaves begin to turn yellow, when, of course, it may be discontinued. The ventilators should be left wide open (in the absence of wind) day and night from the time the fruit is ripe until it is time to start the trees into growth again. During a long experience in Peach-culture, practising what I have occasionally preached in the columns of the *Gardeners' Chronicle*, I have never had experience of the bud-dropping trouble in my Peach-houses, which I believe can be prevented by treating the trees and borders in the manner described above. *H. W. Ward.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

By A. C. KAPMAN, Gardener to Captain BOLFOORD, Westonbirt, Tetbury, Gloucestershire.

Climbing Plants and Shrubs.—All long straggling shoots may now be shortened, and the main stems securely fastened to the walls or trellises, so that they may not be broken by the wind or weighed down by snow. Where the plants have become aged, and growth is not satisfactory, it will be better to replace them with younger plants, an operation which the mild weather, if it continue, will favour. Walls which need to be only partially covered may be planted with *Lonicera*s, *Weigela*s, *Pyrus* (*Cydonia*), *Jasmin*, *Forsythia*s, and the green, the golden and silver variegated *Ivy*s. These various plants are best adapted for planting on an eastern aspect. *Carpenteria californica*, *Azara microphylla*, *Choisya ternata*, *Griselinia littoralis*, *Osmanthus aquifolius* var. *aurea*, *Desfontainea spinosa*, and varieties of *Ceanothus* being tender evergreen plants, should be planted on a west wall. The *Magnolias* and most of the creepers succeed on a south wall, while *Euonymus*, *Elæagnus*, the variegated *Eurya latifolia*, *Berberidopsis corallina*, and *Bridgesia*

spicata survive the coldest winters, and retain the variegated character of the foliage on walls facing the north.

Routine.—Now that the deciduous trees have shed their leaves, the latter should be swept up and stored in some place where they may be left undisturbed to decay. Those which have fallen amongst shrubs, and are liable to get blown about the ground, should be raked out, as by doing this now much labour is saved afterwards. All rough leaves, with sticks or Beech-masts should be burned, and their ashes mixed with other leaves and short-mown grass, which form when well decayed a good top-dressing for shrubs, &c.

Ornamental Crabs (Pyrus Malus).—Varieties of the Crab are very handsome, either in flower or fruit, and being hardy, they survive where the rather tender Almond perishes. They are effective when planted amongst evergreen shrubs, and ornamental as single specimens in the open lawn. The most distinct are John Downie, which bears clusters of fruit resembling a Bigarreau Cherry; the Orange-Crab, with fruit of a pale golden colour; Paul's Imperial, a scarlet Crab; Transcendant, an oval fruit, and very distinct; Fairy Apple, small and pretty; Siberian, in two varieties, scarlet and yellow fruited; and the American variety of the same, which produces larger fruits that are not so fine in colour. Of the larger-fruited varieties, there are the Dartmouth, a very prolific bearer, the fruit of which is of a rich deep crimson colour; Montreal Beauty, red and yellow varieties; Transparent, bright yellow. The value of the more delicate-growing trees lies in their abundance of blossom alone, and the following selection comprises *P. m. floribunda*, *P. m. f. atropurpurea*; *P. m. Tenrei carnea*, with small crimson-tinted blooms; and the double flowering kinds, *P. m. spectabilis* and *P. m. s. Scheideckeri*. Soil of a loamy nature, that is well drained, is the most suitable in which to plant them; but when grafted, as they usually are, on the wild Crab, they will thrive in most soils that are moderately rich, and of a good depth. The beauty of the baccate or berry-producing Crabs should not be overlooked.

Alpine Plants.—The succulent species, which usually have a tender constitution, should be lifted, potted, and wintered in cold frames, or if this be not done panes of glass should be laid over them, but not touching them, in order to afford protection against rain and snow. All tree-leaves which may have accumulated about the plants should be removed forthwith, otherwise these will set up decay, that may be communicated to the plants. If the rains have washed the soil from the roots, or if any plants have risen above the surface, they should be top-dressed with suitable kinds of soil, while those planted in very damp nooks should have a few sifted coal-ashes placed round them.

Stock Bedding Plants.—From the present until the middle of January is a trying time for these, and in order that they may be preserved in good condition, borders or shelves near the glass should be utilised for them so as to fully expose them to the light. Only as much water should be afforded as will preserve the roots from shrivelling. *Coleus*, *Alternanthera*s, and *Iresines* may be accommodated in the stove, being careful not to expose them to cold draughts. Plants of *Ageratum*, *Petunia*, *Fuchsia*, *Verbena*, and the hardier bedding plants require a temperature ranging from 40° to 50°. Should aphids appear on them afford a slight fumigation, and against mildew of the leaves use flowers-of-sulphur.

FRUITS UNDER GLASS.

By W. STREUNELL, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

Wintering Strawberries.—Various means are adopted for the protection of Strawberry plants in pots. The chief concern is the preservation of the pots rather than the plants, for the latter are hardy, but the pots when exposed to the weather burst when the soil gets frozen. A good depth of fine coal-ashes in which to plunge the pots is perhaps as good as anything, and next to these are tree-leaves, gathered soon after they have fallen. It is much better for the plants than to be stacked on their sides one above the other in tiers. The only recommendation this practice has is in the small space occupied by a large number of plants. If unheated pits are available these are better for the plants than any method of plunging out of doors, the plants being come-at-able in all weathers.

And next to cold pits are unheated houses. In both of these it is well to plunge the plants in leaves or ashes, in order to obviate the need of affording water frequently, and the destruction of the pots by frost.

Outside Vine Borders.—A border, when it is well drained, and the situation is one from which the surface-water passes off freely, does not require much extra attention if the Vines are started late, neither frost or moisture injuring the roots. Vine borders are frequently made to extend in and outside the vinery, even where early forcing is carried on. When this is the case, nothing serves better as a covering than freshly-gathered tree leaves laid on the soil 1½ to 2 feet thick, covering this bed with boards or lights from frames, or tarpauling. A covering of this sort imparts warmth and retains the latent warmth of the soil. Failing leaves, stable litter may be employed. The stems of Vines which are planted outside the vinery should be protected by hay-bands wound round them, if the border is covered with leaves or litter not deep enough to form a protection against frost. Thick manurial dressings put on a border at this season do more harm than good by closing the soil to the ingress of the air.

Ripe Grapes.—Whether these are allowed to hang on the Vine, or are cut and placed in bottles in the Grape-room, the same necessity arises for a frequent examination of the bunches, and the removal of decaying berries, the thin-skinned berries, like those of Black Alicante, suffering very soon. If the Grapes are left on the Vines a dry air should be maintained in the vinery, with ventilation afforded on dry days, using on these occasions a small amount of fire-heat. Similar conditions should rule in the Grape-room, and if there is no connection with the heating apparatus, an oil or coal stove should be used for drying the air. Do not neglect to keep the bottles filled with water, and to place a bit of charcoal in each.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

Change of Crop.—Although good crops of one kind of vegetable may be grown from year to year on the same piece of land with good cultivation, it is prudent to change the crop as often as it is possible to do so. In gardens where space is ample, a regular alternation of crops is readily practicable; but where the vegetable consumption is large, and space limited, frequent alternations are not easily obtained. At this season of the year much may be done in the preparation of the land for next season's crops: manure, decayed garden-refuse, charred earth and refuse being dug or trenched in. The wheeling of such materials to the quarter where it is required, should be carried out when the ground is hard with frost.

Peas.—Some gardeners still practice the sowing the round varieties of Peas at the end of November, or early in the present month. Sometimes the first sowing, if the winter proves mild, is apt to get too forward, and suffer injury if severe weather set in afterwards. For many years past I have sown in the first or second week in December; and again, weather permitting, in the middle of January, and from these sowings I have gathered good Peas at the end of the month of May. The seed should be sown thickly, and the drill made firm before the seed is put into it. It is a matter of prudence to roll the seed (damp) in powdered red-lead, or sprinkle it with paraffin, as a deterrent to mice eating them. As soon as the plants peep through the soil, scatter some finely-sifted soil along the rows, and often apply lime and fresh soot, so as to render the leaves distasteful to the sparrows, slugs, &c. When the plants are an inch in height, mould them up slightly, drawing the earth upon either side, so as to leave a little ridge, which will shelter the young plants considerably against the wind. In the event of very severe weather occurring without snowfall, Laurel or Spruce fir twigs should be stuck along the rows. Wrinkled varieties of Peas should not be sown till February or March, these being too tender to be profitable when sown earlier. Dwarf round seeded early-podding Peas, when sown on a south border, produce pods in quantity in the first week in June.

Broad Beans.—A few rows for a first supply may be planted at any time when the land is in a

state suitable for sowing, Early Longpod and Masagan being useful varieties to sow.

Frames, Pits, &c.—In frosty weather much care is needed in affording air to pits and frames, a very moderate amount given about midday being sufficient for the more tender plants; but Paraley, Cauliflowers, [and other hardy plants, should be more freely ventilated. All frames, &c., should be closed early, and covered with mats before 5 P.M.

Pea and Bean Sticks, &c.—In bad weather, the old and new sticks should be prepared for next season. Pea sticks may be sorted into three sizes, and tied in bundles ready for use, placing them under cover, if possible. Labels of all sizes, short stakes for securing Gooseberries and Currant-bushes, and long ones for Raspberry-canec, should be got in readiness.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir FREDERICK WISLIS, Bart., Clare Lawn, East Sheen.

Disea.—Where the cultivation of these rather unsatisfactory plants is attempted, those belonging to the *D. grandiflora* and *D. racemosa* sections, will need at this season more light, heat, and air than is usually obtainable in a cool Orchid-house. A cool greenhouse offers the most suitable conditions for them just now, as a freer circulation of air is permitted there, and water can be afforded with less risk of the leaves decaying. The rooting medium being deeper and more cohesive than that employed generally for Orchids, water need not be applied very frequently, but, by no chance should the compost be allowed to get actually dry. As fumigation is injurious to these plants, any insects that may appear on them must be removed by sponging or other similar means.

Cypripedium insigne and others.—For general utility and attractiveness no other Orchid equals the old favourite, *C. insigne*, at this season; and since Messrs. Sanders' introduction of the so-called "montana" type, their value as winter flowerers has advanced greatly. *Cypripediums*, having no pseudo-bulbs to be exhausted of their store of nutriment, are not debilitated if the flowers remain on the plants until they decay, and as it is in this condition that the blooms appear to the best advantage, this is another recommendation in their favour. At this season the plants should occupy a house or a division where the temperature is kept at 50° by night, and 10° higher by day. The atmosphere should be buoyant, not saturated with moisture, and the material about their roots should be kept in a genial moist state, but never allowed to become actually dry. These remarks apply to all varieties which have an affinity with *C. insigne*, as well as to *C. villosum*, *C. Boxalli*, *C. venustum*, *C. x Lathamianum*, *C. x Harrisianum* (now showing their flower-scapes), *C. exul* and *C. caudatum*, where grown cool, should not be afforded water overhead for the present, the plants being apt to damp off at the base.

Laelia pumila and its varieties having finished flowering generally, and the bulbs completed their growth some time since, the materials at the root must be allowed to get much drier, but a lengthened period of drying-off is not advisable, least of all for *L. p. Dayana*, which has thin pseudo-bulbs. The plants should be accommodated in an intermediate-house in a place near the roof. Here the growths and pseudo-bulbs will solidify.

Cymbidium.—*C. Lowianum* will now be showing its flower-spikes, and the air of the house being cool and moist, water should be sparingly afforded, alternated with applications of weak cow-yard manure-water. Plants of *C. giganteum* and *C. Tracvanum*, when the flowering is passed, should be afforded a short period of rest. *C. Devonianum* now developing its semi-succulent flower-spikes should be afforded water very carefully, so as not to wet these. Plants of the eburneum section of *Cymbidium* should be kept merely moist at the root.

Protection against frost.—To obviate the necessity of a large amount of fire-heat in the cool-houses, the roofs, sides, and ends should be covered at night, where practicable, with mats. We find "hop pocketing" of great service during the winter; it is easily put on and secured, and is an excellent protection against frost. If the blinds remain in position they should be lowered at night, and even if they are of the lattice description, they afford a large amount of protection from wind and

frost. The formation of ice on the inside should be prevented as much as possible, for when this thaws, and the consequent drip falls on the plants, dire results follow.

General remarks.—The foggy, smoke-laden air prevailing in the suburbs of cities, and more especially of London, weakens the light and shortens the working day, rendering extreme care necessary in attending to the plants. As little beyond sponging the leaves and other cleaning operations now occupy the cultivator's time, Orchids are lacking in interest at this season. Still, there is much to think about in affording water, damping-down, and ventilation. At the commencement of this year, I alluded to a grub which sometimes attacks the roots of *Cattleyas*, and now that these plants are being cleaned, all infested portions of roots should be removed, or the grubs picked out with the point of a knife; also, all straggling growths should be neatly tied in so as to form compact plants. I do not advise the tying of the growths close to each other, but prefer to see plants present a natural appearance. All sheaths of winter-flowering *Cattleyas* from which the flowers have been removed, should, as soon as signs of decay appear, be cut clean off at their junction with the pseudo-bulb so as to avert decay injuring the latter.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener, North Myms Park, Barnet.

Ruellia macrantha.—Plants which were raised from cuttings in the spring, and have been grown liberally, will be now in bloom, and should be placed in a light position in the stove. The large tubular or trumpet-shaped flowers are of a rosy-purple colour, and extremely attractive. They are produced in loose terminal clusters, and may be used in a cut state for furnishing vases, for which purpose they are very suitable, by reason of the length of stem obtainable with them. The plants have a good effect in the decoration of the stove. Propagation is easily effected in the spring. When the cuttings have been rooted and potted off, they should be stopped once or twice. It is best to cultivate them during the summer in a warm, moist house, and when growth is completed they may be afforded more air, and fuller exposure to the sun, in order to mature the wood, otherwise there will be but few flowers. This slight difficulty in flowering the plant satisfactorily is, I imagine, the reason why it is not more generally grown.

Heliotropes will continue to flower more or less throughout the winter if they are given a temperature of about 50° and a little air daily, when the condition of the weather will allow. Young plants in small pots for flowering early in the season should be afforded a temperature of 45°. Remove the points of the shoots if the plants are not sufficiently bushy, and when they have recommenced growth shift into 5-inch pots, and afford a little more heat.

Chrysanthemums.—Where large blooms are required, preparations should be made forthwith for striking cuttings. Should a considerable number have to be propagated, a shallow one-light frame may be placed near the light in a house having a temperature of from 45° to 50°. The cuttings having been inserted singly in small pots, should be afforded water and subsequently stood on a layer of coal ashes in the frame and the light closed. It is advisable that no more cuttings should be taken off at a time than can be inserted and placed in the frame almost immediately. In order to prevent the cuttings from damping, the light should be removed for an hour early each morning, at the same time wiping the inside of the glass to remove the condensed moisture. Where only a small number has to be propagated, a handlight or bell-glass may be used instead of a frame, but the same precautions must be taken to prevent damping. It is necessary to take the cuttings early also, if large, trained plants are required. Where, however, only ordinary decorative bush plants, and plants to provide cut flowers in quantity are needed, the cuttings may be taken any time between the end of December and the end of February.

THE HARDY FRUIT GARDEN.

By C. HARRIS, Gardener to J. B. FORTMEYER, Esq., Dropmore, Maidenhead.

Fruit-tree Borders.—When the operations of pruning and nailing of the trees are finished, the borders should be raked clean, and the rubbish and

weeds burned. It is always advisable to leave fruit-borders uncropped for a width of at the least 4 feet from the foot of the wall, except for a row of Violets planted close to the wall; and even these plants should be kept at some distance from the stems of the trees. This 4 feet space should now be dug with a fork to the depth of 2 or 3 inches, a small quantity of fresh lime being scattered over it previously. The soil of Plum borders being filled with roots at the surface, should be only just sufficiently pricked over to turn the surface, and if it be low a small quantity of new soil may be spread around the trees. The soil of a border immediately beyond the 4 feet distance, if cropped with vegetables, should be dug to the depth of one spit only. In mild weather, those aged trees on walls or elsewhere which produced heavy crops of fruits this year, if the growth be not strong, should be afforded manure-water of some kind, if it can be spared.

Top-dressing Quarters of Bush Fruits.—In pruning Raspberry canes, the points of the best canes reserved should be removed, leaving the canes about 4 or 5 feet in length. The plant being mainly surface-rooting, the ground in the vicinity of the stools should be cleared of weeds, rubbish, and some of the surface-soil, the whole being brought to the middle of the space between the rows, where there are few roots, and there turned under with the spade, making the land level in the process. Having done that, dress the soil around the stools with rich dung. Blackberries may be similarly treated. Aged bushes of black and white Currants may be likewise assisted with top dressings of manure laid over the roots, with a sprinkling of soil above it to keep it in position. The Gooseberry plantation and lines of bushes may receive a dressing of wood-ashes and hot-bed or potting-bench refuse soil; or bone-meal and potash may be mixed with such refuse soil, lightly digging the land under the bushes, and deeply in the middle space between the rows.

The Fruit-room.—With the arrival of frosty weather the doors and ventilators should be closed; and if the room be of light construction, the walls and the roof may be covered with straw or bracken, so that an equable temperature may be maintained. Means must be taken to keep such light materials in position. The ripening of Pears is most erratic this season, all the usually late varieties being now over, or ready for consumption. Josephine de Malines and Burre's Rance are finished at Dropmore, and a few fruits of that late variety, Duchesse de Bordeaux, are quite ripe. The premature ripening of these late Pears is due to the hot summer. Apples, on the contrary, are keeping well generally.

THE HATFIELD CURE FOR RED-SPIDER.—That red-spider should have manifested itself on Vines and Peach-trees last summer is not to be wondered at. This fact was noted by Mr. Norman, the gardener at Hatfield. After the Grapes were thinned, red-spider appeared on the Vines to such an extent as to call for strong measures in order to repress it. Mr. Norman, believing that the fumes of sulphur will entirely kill red-spider on Vines and Peach-trees, set himself to devise how best to apply this substance. On calling at Hatfield recently, Mr. Norman took me to one of his leaf-to-vineries, 35 feet long by 12 feet wide, and showed me his method of applying flowers-of-sulphur. On entering the house, I saw five spirit-lamps placed at intervals along the beds, each within a cylinder on the top of which was a saucer filled with a dark fluid, from which were rising strong sulphurous vapours. Mr. Norman stated that for many years he had tried various means to destroy the red-spider, and with varying results, and this year he had commenced the system I saw in operation. He experimented first in a house of the size given with one lamp; he went on to two, three, and four, and finally to five, the number that I saw. Directly I entered the house I could perceive that the atmosphere was filled with fumes, which soon began to affect my eyes, and I felt that a longer stay in the vinery was undesirable. Mr. Norman assured me that a series of experiments has enabled him to gauge exactly the amount of spirit and sulphur necessary to fumigate a house of a given size, and efficiently do its work without in any way injuring the foliage of Vines or Peach. R. D. [Mr. Norman would be doing a great service to gardeners by making his method known, and we hope that he will do so.]

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER. Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, Dec. 19. Royal Horticultural Society's Committee, Meeting.

SALES.

THURSDAY, Dec. 21.—Dutch Bulbs, *Araucaria* Plants, Roses, &c., at Frotheroe & Morris' Rooms, at 11 o'clock. Imported and Established Orchids, at Frotheroe & Morris' Rooms, at 12.30 o'clock.

WEDNESDAY, Dec. 20.—*Araucarias*, Palms, Lilies (Japan), Shrubs, &c., at Mr. J. C. Stevens' Rooms, at 12.30.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period December 8 to December 9, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.				LOWEST TEMPERATURE OF GLASS.
DECEMBER 8 TO DECEMBER 9.	AT 9 A.M.		DAY.	NIGHT.	At 1-foot deep.	At 2-foot deep.		At 4-foot deep.				
	Dry Bulb.								Wet Bulb.			
										Highest.	Lowest.	
SUN.	3	W.N.W.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.	
			32.0	31.7	43.8	35.7	0.06	41.1	46.5	49.9	21.5	
MON.	4	S.W.	43.8	41.3	50.1	26.5	0.00	41.1	45.6	49.7	26.3	
TUE.	5	W.N.W.	40.0	48.8	50.6	43.8	0.22	43.2	45.0	49.4	38.1	
WED.	6	S.W.	40.1	48.8	54.3	47.5	0.05	45.4	46.1	49.2	43.7	
THU.	7	W.N.W.	44.9	44.6	47.1	41.9	...	46.5	46.9	49.1	31.9	
FRI.	8	E.S.E.	36.0	33.2	36.1	35.8	...	45.5	47.1	49.1	33.2	
SAT.	9	E.N.E.	34.5	31.5	36.1	33.3	...	41.8	46.6	49.1	26.7	
MEANS...		...	41.8	40.0	45.4	36.3	0.33	43.5	46.4	49.4	31.0	

Remarks.—The weather during the first part of the week was dull and mild. Rain fell on three days. The latter part of the week was remarkable for black fogs and cold easterly winds.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—39°7.

ACTUAL TEMPERATURES:—

LONDON.—December 18 (6 P.M.): Max. 35°; Min. 30°.

East wind; light frost.

PROVINCES.—December 18 (6 P.M.): Max. 47°, Scilly; Min. 28°, Home Counties.

LORD PENZANCE.

LORD PENZANCE, whose death at an advanced age is announced, as a lawyer and a judge often came in conflict with his fellows, and his decisions, however sound, must necessarily often have offended some body or other. None of the papers that we have seen have made allusion to the amusements of his later years in hybridising the Sweet Briar. Here was a field of work in which he may be said to have pleased everybody and offended none. Such are the delights of horticulture. Even thorny Rose-bushes fail to estrange their admirers! What Lord PENZANCE did is best read in his own words in the *Rosarians' Year Book* for 1892. He pleads for the "picturesque"

in flowers, as well as for "symmetry, regularity, and smoothness of outline." In that article he shows how he was led to experiment with the Sweet Briar, and gives full details of his trials, and most interesting they are. We do not know how long his fame as a lawyer will endure, but we do know that among rosarians his memory will be held fragrant for many a long day; and although he wrote but little, he will always rank among our eminent scientific hybridisers. It is even possible that in this department of his work he will remain in memory, whilst his legal dicta will be left undisturbed on the topmost shelves of a lawyer's library.

The Constitution of Rose Soils.

PROBABLY the most successful Rose grower will be the least surprised at the negative results obtained by the Committee of the National



THE LATE LORD PENZANCE.

Rose Society in their enquiry into this important subject. The soil itself had already told the majority of these that the chief secret of their success was not in any one, but in many complex factors; that, however, did not hinder them from doing their best to enrich the earth as one of the most important elements in successful Rose growing.

Local climate is another vital consideration. Cultural skill a third point, which ought perhaps to be placed first—and an infinite capacity for taking thought, to give the finishing touches, that result in perfect Roses.

Such qualities as these are more practically important than the analysis of Rose leaves, Rose petals, and at various stages. Most of the grumblers who have failed, have trusted too exclusively to the soil, and these should be comforted as well as guided by the statement that none of the soils analysed are remarkable for high conditions of fertility; they may be considered to range as good garden loams, having a moderate proportion of organic matter (humus), and a somewhat high percentage of sand, except the sample from Cheshunt, which is decidedly low in sand and proportionally high in clay.

It would appear, therefore, that these soils

are peculiarly adapted to encourage maturation and solidity of wood rather than luxuriance and over-abundance of leaf. Consequently, blooms of regular form might be expected from Rose-plants growing in such soils. This is one of the most important paragraphs in the report. For, given regular form in Rose-blooms, all other points of excellence are possible, and the amount of readily available potash and of phosphoric-acid is quite sufficient to ensure steady and vigorous growth, especially when encouraged by the carbonic-acid set free in the decomposition of applied farmyard or stable-manure, which is the usual manure added to such Rose-soils.

It is certain that the natural resources of the sub-soils, and of their mechanical condition and warmth, have an important influence in determining the character of Rose-growths in these cases, and that the climate of the district must be taken into consideration.

The soils of all the nurseries fall within the definition of sandy loams except the Cheshunt soil, which is generally described as a clayey loam, though Dr. DYER says this is a mistake, owing to the fineness of the sand. The mistake is common among rosarians, as when loams become adhesive through the fineness of the sand or other causes, they are called clays; and what is more to practical purposes, such clays often grow the finest Roses. In no case was the proportion of humus or organic matter especially high, and in some cases it is, for horticultural soil, decidedly low; and the same observation applies to the nitrogen, which is one of its constituents.

The oxide of iron varies from 2 per cent. in the light, sandy, Oxford soil, to nearly 6 per cent. in one of the Hitchin soils. Lime also varies from probably the lowest minimum for plant growth in the Cheshunt soil to the abundant 3½ per cent. in the Oxford soil. Probably those varying proportions in lime and oxide of iron, especially of the latter, are important. The total quantity is nearly the same in all the soils, and is in no case more than moderate, while the proportion of potash that may be taken as available varies from a decided scarcity in one of the Hitchin soils, to a comparative abundance in the Oxford soil.

The proportion of total phosphoric acid varies from the poor quantity of 0.115 per cent. in the Colchester soil, and the great abundance of 0.325 per cent. in the Oxford soil. It is remarkable, however, that in certainly three of the five soils, viz., the Oxford, the Cheshunt, and the Bearston (Hitchin) soil, there is a great abundance of phosphoric acid in a readily available form, more especially in the Oxford soil.

Some have assumed that this may be a factor in the colouring of Roses, and assuredly we have never seen *Maréchal Niel* more gloriously golden, or *Souvenir de S. A. Prince* more spotlessly white than at Longworth. How far either were affected by the ratio of phosphoric acid in the soil Dr. DYER does not profess to say. It is, however, true that no one could grow, or showed better and brighter Roses than the late Mr. PRINCE, of Longworth. The same may be said of *Prince Arthur*, which has never been grown or shown in such perfection as by its raiser, Mr. BENJAMIN CANT, of Colchester.

In two other of the soils analysed, regarding them as horticultural soils, the proportion of phosphoric acid is lower, but in these the available phosphoric acid is well above the limits of ordinary agricultural soil, and it may be that for Rose-culture the proportion is sufficient.

Dr. DYER concludes in the following words:—

"I am obliged, after careful study of the chemical results, to come to the conclusion that any common bond that may exist between the soils must be sought less in chemical resemblance or in abundance in any particular chemical ingredient, than in good mechanical and physical condition of the soil and good drainage. Under this head I need only say that it has been pointed out that all the soils are more or less sandy loams, although they differ in lightness and consistency within somewhat wide limits. They probably resemble each other in all being in good physical condition and well drained, either naturally or artificially. On the whole, I should say that if any part of the special productiveness of these various nurseries,

follows from these figures that all these famous Rose-gardens lie low, and have only a moderate rainfall.

Referring to the Committee's report for particulars as to the constituents, it may be stated here that the two samples from Hitchin and the one from Cheshunt have popularly been looked upon as 'heavy soils': Messrs. HARKNESS' nursery being a heavy loam, about 2 feet deep, having a subsoil of marl resting on chalk. Mr. E. B. LINDSELL's is a heavier loam over a foot deep, resting on a subsoil of yellow clay. Cheshunt Nurseries: sharp sand 38 per cent.; clay and other fine matter, 62 per cent. Mr. Prince's nurseries, near Oxford: clean sand, 71 per cent.; clay and other fine matter, 29 per

from beneath grass-paths, roads, margins, &c., occupying open positions, so that the natural soil of the locality might be alone represented. In most cases samples were taken from two or more different spots in each nursery, the samples of soil were obtained by paring off the turf, and then cutting off with a spade slices about 2 inches thick and 10 inches deep—the samples being immediately despatched to Dr. DYER for analysis."

Great care seems to have been taken to prevent mistakes, and to gain sound knowledge as to the relation between good soils and perfect Roses. Also as to the chemical constituents and physical characteristics concerned in the making of good Rose-soils. And yet the results



FIG. 145.—A BED OF LILIUM CANDIDUM, WITH GLADIOLUS TO FOLLOW, AT HOLLAND HOUSE, KENSINGTON. (SEE P. 454.)

in the matter of good Roses, is to be attributed to natural conditions rather than to the skill of the growers, it would seem that these conditions must be looked for in local climatic influences, aspect, and possibly good natural drainage, rather than in any special features in the actual composition of the soils themselves."

The Colchester soil was taken from the three well-known nurseries of Mr. B. R. CANT, Messrs. FRANK CANT & CO., and Messrs. D. PRIOR & SON. They are about 150 feet above the level of the sea, and the rainfall averages 26·25 inches. The Cheshunt nurseries of Messrs. PAUL & SONS are 90 feet above sea level, annual rainfall 25·85 inches. Longworth, near Oxford, is at the height above sea level of 275 feet, the annual rainfall 24·96 inches. Hitchin, Herts, 220 feet above sea level, mean rainfall 25·05 inches. It

cent. The mixed Colchester-soils consisted of sand, 63 per cent.; clay, emphatically a sandy loam, 27 per cent.

Some of those most familiar with these three nurseries are inclined to regret that their soils were not analysed separately. For, though within a few miles of each other, they have several differences in site, mayhap in soil and in culture. Mr. PRIOR is at the lowest elevation, and has special facilities for the use of sewage, which is one of the most potent stimulants in the growth of good Roses. The defect of these statistics as to the mechanical composition and chemical constitution of Rose-soils lies in the information given by the committee on p. 6—"None of the samples of soil was taken from any part of the nurseries which had received any manure for many years previously, but

are almost or wholly negative. The committee was one of great ability, and by no means too small to accomplish thoroughly useful work. They had excellent agents, and the best of materials to work upon. Perhaps the majority of Rose-growers will think they made one mistake in mixing the three Colchester soils into one sample. The Roses from the three nurseries, though so near, vary considerably in the hue, colour, form, substance, of their Roses. Neither is the skill and culture, though always great and good, always alike. The modern art of surface scarification, that sets free and keeps at work hosts of bacteria, and all the forces of earth and air, are largely and wisely used. And perhaps the veteran champion Rose-grower, of Colchester, Mr. BENJAMIN CANT, was the first to grow a corn

crop in rotation with his Roses, or to store his soils with nitrogen through following corn with legumes.

But the mistake in mixing the three Colchester soils—if mistake it was—was trivial to the conditions imposed on page 6 of the Report, to the effect that no sample soils were to be taken from any part of these Rose-nurseries or gardens which had received any manure for many years previously, but from beneath grass-paths, roads, margins occupying open positions—so that the natural soil of the locality might be alone represented.

The majority of rosarians will look upon this as the play of "Hamlet" with the chief character left out. For whatever else the rosarian grows, or fails to grow, he grows soils. All his cultures, stimulants, his operations with land and water, aim at growing finer Roses through richer soils. The natural soil of the locality, whatever that may mean, does not greatly concern us. But what the natural soil may be made by skill, culture, manure, points the way to perfect Rose-ground. Here were seven of the finest Rose-soils in the country summoned to give evidence, while not one of them was permitted to give proof or evidence of their power or ability to grow perfect Roses.

Those natural soils could not, in the view of some critics, give other than negative evidence. Few of them within the memory of the oldest inhabitant had ever been seen to give a perfect Rose. The negative evidence is valuable as showing growers how little natural soils can do to develop perfect blooms. Another series of soils, from the grounds that have grown our best Roses for years, might yield valuable positive results. The first set of soils have told us they did little or nothing to grow our perfect flowers. This second set of soil-samples might speak with greater authority, and tell all concerned how far the best Rose-soils have worked with sun and shower, skill and stimulants, hosts of active bacteria, and the influence of local environment to evoke our most exquisite Rose-blooms.

Roses and Rose Shows. THE annual meeting of the National Rose Society, which was held on Thursday in last week at the time our last number was passing through the press, was notable for one circumstance, to which we shall allude later on. Following the chronological order of the annual report, read to the meeting, and of the agenda-sheet, we note that the report is, on the whole, satisfactory. Two shows were held, one at Colchester and one at the Crystal Palace, which were as favourable as the season would allow. A revised catalogue of Roses has been compiled with much labour and judgment, and a report on the analyses of certain Rose-soils has been published. The financial condition is sound—things looking even more favourable than they really are, owing to the lapse of one of the three shows generally held. At any rate, there is a balance to the good of some £155, from which the expenses of the publications before alluded to will be defrayed.

There has been an increase in the number of fellows, which now amounts to five hundred and seventy.

The exhibitions to be held in 1900 are the Southern Show at Salisbury, on June 27; the Metropolitan Exhibition at the Crystal Palace, on July 7; and the Northern Show at Birmingham, on July 19, an additional display being provided for under the auspices of the Royal Horticultural Society at the Drill Hall

James Street, Westminster, on July 3. The report was proposed for adoption by the chairman, Mr. SHEA, a proposition seconded by Mr. BUNYARD.

A discussion concerning certain points of detail of minor moment so far as the visitors to Rose shows are concerned then took place; and lastly, at the instigation of Mr. GEORGE PAUL, a resolution was adopted which, though only of a tentative character, may, we hope, be regarded as the thin edge of the wedge, which successive blows will drive home till we see, except for special purposes, the end of the hideous arrangement in boxes and lines which render Rose shows repulsive, if such an adjective can possibly apply in the case of a Rose.

It is not the first time Mr. PAUL has ventilated this subject; and he and some others have put their ideas most beautifully into practice at various shows. The magnificent displays of Chrysanthemums made this season, will, no doubt, do much to encourage a better system than that now followed. Of course, the arrangement in boxes has some advantages in judging individual Roses point by point; and for this purpose it may be retained till after the judging is over, when the flowers may either be arranged in some less objectionable manner, or be removed to some corner where they would be accessible to those who prefer this method of grouping, but where they would not offend those who like to see flowers so arranged as to appear to best advantage. The proposal is, that Roses of distinct colours, or examples of the same variety, shall be placed separately in vases to contain three, seven, nine, or more specimens, and arranged in the most becoming manner. Even for judging purposes this method would have some obvious advantages.

No doubt strict rosarians will be slow to see the desirability of change. That it is not impossible is shown by the case of the Carnation. It was once considered an impracticable thing to do away with the cardboard collars which throttled the Carnations and reduced them to discs of curious mechanism, rather than lovely flowers, adapting themselves, if permitted to do so, to endless variations of conditions. No one would propose the return to these collars now. The Chrysanthemum of to-day sets at naught the rules of the old florists, once supposed to be immutable, to such an extent that even the incurved varieties are vanishing. We cite these facts as cheering indications of that in the next decade—aye, even early in that period a Rose-show will cease to be the formal, tasteless thing it is at present.

* * OUR ALMANAC.—According to our usual practice we shall shortly issue a *Gardeners' Chronicle Almanac* for the year 1900. In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical and allied Societies, or any of our correspondents, will send us immediate intimation of all fixtures for the coming year.

A BED OF THE PAINTERS' LILY AND MIXED GLADIOLUS (see fig. 145).—In our issues for April 15 and 29 last we gave a description of the kind of garden decoration carried out at the world-famous Holland House, Kensington, which those who read the articles could not fail to notice differed greatly from that usually prevailing in gardens. It is a favourite method with Mr. DIXON, the bead gardener to Lord ILCHESTER, the present possessor of Holland House, to plant two or more different species of plants in one flower-bed, which, flowering in succession, maintain the floral display for some months. In this way the objection which

many persons have to the employment of herbaceous plants and bulbs in the place of bedding plants is got over. Of course, there is no blaze of colour but with the good taste that is now exercised in flower gardening, this is thought to be no loss. At any rate, a long succession of interesting, varied, and beautiful flowers is obtained in place of merely a few species which are at their best for three months only.

LINNEAN SOCIETY.—There will be an evening meeting on Thursday, December 21, 1899, at 8 p.m., when the following papers will be read:—1, "The Air-bladder, and its connection with the Auditory Organ in the Notopteridae," by Professor THOS. W. BRIDGE, M.A., D.Sc., F.L.S., &c.; 2, "On some New and Interesting Foraminifera from the Funafuti Atol, Ellice Islands," by Mr. F. CHAPMAN, A.L.S., &c.

ROYAL HORTICULTURAL SOCIETY.—The last meeting this year of the Committees of the Royal Horticultural Society will take place on Tuesday next, the 19th inst., in the Drill Hall, James Street, Westminster.

NATIONAL DAHLIA SOCIETY.—We are informed by Mr. J. F. HUDSON, hon. sec., that a Committee meeting will be held by permission of the Horticultural Club, in the Club Room, at the Hotel Windsor, Victoria Street, London, S.W., on Tuesday, December 19, at 2 p.m. Agenda: Report for 1899; Schedule for 1900; Financial Statement, and other business.

"BOTANICAL MAGAZINE."—The December number contains coloured illustrations of *Odontoglossum brevifolium*, tab. 7687. A native of Peru, flowered in the collection of Sir TREVOR LAWRENCE.

Cereus viridiflorus, tab. 7688.—A native of the Rocky Mountains of New Mexico and Colorado; the most northerly representative of its race. It is subglobose, with projecting ribs and tufts of straight spines; the flowers, which measure 1½ in. in diameter, are primrose-yellow. It is all but hardy at Kew, requiring little or no protection in winter.

Mina lobata, tab. 7689.—*Gardeners' Chronicle*, 1886, ii., 684.

Epipactis gigantea, tab. 7690.—Native of Western N. America and Temperate Asia. Hardy at Kew.

Kleinia Grantii, Hook., tab. 7691.—A native of E. Tropical Africa, with stalked, obovate, fleshy leaves, and button-like heads of crimson flowers. Botanic Garden, Cambridge.

THE ONION TRADE IN GERMANY.—Messrs. R. WEICHEL & Co., of Magdeburg, state that there is, at the present time, a rather satisfactory demand for Onions, so that prices are fully maintained. They feel confident that prices will continue to rise when Dutch and Spanish Onions become scarcer. The German crop was small; and fair-sized Onions are difficult to obtain.

"GÄRTNERISCHEN CENTRAL-BLÄTTER."—We learn from a circular issued by the publisher of this organ of the Allgemeinen Deutschen Gärtner-Vereins, Weissenburg Strasse, 66, Berlin, that, on account of the success of this venture in the domain of horticulture, the annual subscription has been reduced from 10mk. to 6mk.

CHAILLETIA CYMOSA.—Professor MACOWAN, the Government Botanist at the Cape, identifies this as a poisonous weed, very fatal to cattle in the Transvaal.

THE JARDIN DES PLANTES.—We have received a copy of the catalogue of seeds and living plants offered for exchange by the Museum d'Histoire Naturelle. Application should be made to M. le Directeur du Museum, 57, Rue Cuvier, Paris.

AUSTRALIAN POISON PLANTS.—Some time since we received a parcel of dried herbage from Australia with the information that they were poisonous to sheep. There were no flowers or pods, and we could only guess that they were species of

Gastrolobium. W. Australian papers mention the poisoning of camels by *Oxylobium retusum*, a nearly allied plant, and it seems more than probable that several allied Leguminosae may be dangerous to stock. The *Macrozamia* (Cycads) are also poisonous.

THE LIVE STOCK JOURNAL ALMANACK (VINTON & Co.), appeals especially to stock-breeders. For them a most varied and satisfactory programme is provided, copiously illustrated with appropriate figures.

UNWHOLESOME FRUIT.—At the Southwark Police Court, on December 7, several well known wholesale dealers were convicted of selling, or of having on their premises "unsound" fruit. Some of the defendants pleaded guilty. In all but one case heavy fines were inflicted. Some of this fruit consisted of Strawberries despatched from Rotterdam! How such soft fruit could be expected to be in good condition is matter for surprise, unless on the principle that anything is good enough for boiling down. In some of our Kentish fruit-grounds the factory is on the premises, and there is but a step from the field to the preserving-pan. The prospects of such establishments ought to be bettered by the recent revelations.

WILLIAM PAMPLIN, whose death at the age of 92 we alluded to in a recent issue, is the subject of an appreciative notice in the *Journal of Botany* for December, from which we take a few additional particulars. A portrait of the deceased botanist when in his ninety-second year is also given. PAMPLIN was the son of a nurseryman, but became widely known as a botanical publisher and bookseller till his retirement in 1863. He was elected an Associate of the Linnean Society in 1830, while still an assistant in his father's nursery, so that he had been connected with that Society for about seventy years. He was the original publisher of Sir WILLIAM HOOKER'S *Species Filicum* and *Century of Ferns*, of BOOTH'S illustrations of the genus *Carex*, HOOKER & THOMSON'S *Flora Indica*, THWAITES' *Enumeratio Plantarum Zeylanica*, and BROMFIELD'S *Flora Vectensis*.

CROSNES.—The tubers or rhizomes of this vegetable are remarkable for their shell-like appearance, due to the short swollen spaces or internodes between the nodes, which resemble the coils of a shell. A correspondent was digging in a Potato-field and came across a number of these root-stocks, which had lost their usual character, and lengthened into long quadrangular stems of a white colour. These greatly puzzled him, and would have been puzzling to us had we not discerned among them one or two intermediate in form between the ordinary Chinese Artichoke and the long square underground stems above mentioned. This is a vegetable of the easiest culture, but it does not make so much way in this country as in France. Nevertheless, we have this year, for the first time, as we think, noticed a mention of it in our market reports.

"MONOGRAPHIEN AFRIKANISCHER PFLANZEN-FAMILIEN UND GATTUNGEN (COMBRETACEÆ)."—This is the third number of a publication devoted to the description and illustration of African plants. It is of quarto size, the descriptive matter in Latin, the comments in German, while the lithographs, of which there are thirty, and of excellent quality, may be understood by botanists of all or any nation. In some cases details are given as to the anatomical structure of the leaf.

MR. CULVERWELL.—We learn that this well known gardener and expert hybridist after serving the MILBANK family for fifty-one years is retiring to Ivy Cottage, Fencote, Bedale.

THE SWEET PEA.—A preliminary meeting took place at Edinburgh on September 13 last, Mr. GEORGE GORDON, V.M.H., presiding, when the following propositions were agreed to:—

That it is advisable to organise an exhibition of Sweet Peas in London, in July, 1900, in order to celebrate the bi-centenary of its introduction to Great Britain in 1700. That a Conference of admirers and growers of Sweet Peas be convened for the purpose of classifying the varieties into groups of colour and form; for the selection of the finest in each; and for such other purposes as may be deemed advisable for increasing the interest in the improvement and culture of this popular flower, both at home and abroad. That as visitors to the exhibition and conference are expected from the United States and several continental countries, it is desirable that suitable social functions be arranged in conjunction with such occasion. The preliminary committee appointed at this meeting have drawn up the following scheme:—1. An exhibition of Sweet Peas in London during July, 1900, at which prizes shall be offered for collections and bunches of Sweet Peas; and for illustrations of how the flower can be utilised for decorative purposes. 2. Trade exhibits of Sweet Peas, not competing in any of the classes in the schedule, but to which honorary awards will be made, will be invited. 3. Special prizes are invited, but those only can be accepted that are free from trade conditions. 4. A conference will be arranged at which certain experts will read papers dealing with the classification, history, evolution, and properties, &c., of the Sweet Pea. 5. A banquet and other social observances as may be deemed advisable. 6. That some person of distinction be invited to become president of the international celebration. 7. That a number of gentlemen, prominent in matters horticultural, be invited to become vice presidents. 8. That a fund be opened to provide a prize list and defray expenses of the celebration, towards which a considerable sum has already been promised. It is estimated that the sum of £300 will be required to carry out the celebration in a manner that will ensure its unqualified success. Tickets of admission to the exhibition and conference will be allotted *pro rata* to subscribers to the fund. Any surplus remaining after the payment of necessary expenses will be given to the gardening charities. 9. That the following form an executive committee to carry out the celebration, with power to add to their number:—Chairman, Mr. George Gordon, V.M.H.; Mr. N. F. Barnes, The Gardens, Eaton Hall, Chester; Mr. E. Beckett, The Gardens, Aldenham House, Elstree, Herts; Mr. P. Blair, The Gardens, Trentham, Staffs.; Mr. Charles H. Curtis, 68, Whitestile Road, Brentford; Mr. Wm. Cuthbertson (Messrs. Dobbie & Co.), Rothesay; Mr. John Eckford, Wem, Salop; Mr. F. G. Foster, Brockhampton Nurseries, Havant; Mr. John Fraser, F.L.S., 5, Clements Inn, Strand, W.C.; Mr. J. McHattie, The Gardens, Strathfieldsaye, Mortimer, Hants; Mr. E. Molyneux, The Gardens, Swanmore Park, Bishop's Waltham; Mr. Thomas Lunt, The Gardens, Keir House, Dunblane; Mr. H. J. Jones, Ryecroft Nursery, Lewisham; Mr. Hugh Pettigrew, St. Fagan's Castle, Glamorganshire; Mr. R. Sydenham, Tenby Street, Birmingham; Miss Willmott, Warley Place, Great Warley, Essex; Mr. Horace Wright, Dault Road, Wandsworth; Mr. J. Whytock, The Gardens, Dalkeith, Edinburgh; Hon. Secretary and Treasurer, Mr. Richard Dean, V.M.H.

MR. J. EDNIE BROWN.—In our last issue we had occasion to record the death of this eminent forester at Cottesloe, West Australia, but we had then no time to do more than announce the fact. He was a son of the author of *Brown's Forester*, and he betook himself in early life to Canada, where he became Conservator of Forests. From Canada he migrated to South Australia, where he occupied a similar position until he accepted an invitation to proceed to New South Wales as Director-General of Forests. Adverse financial circumstances led to severe retrenchment in the Government service, and Mr. BROWN accordingly transferred his services to West Australia. His multifarious duties and migrations did not prevent him from undertaking

and carrying out a work in folio, with coloured plates, on the *Forest Flora of South Australia*. Mr. BROWN'S death will be a serious loss to West Australia, the importance of whose forests, as of their proper conservancy, can hardly be over-estimated. Mr. BROWN died from the consequences of influenza, in the fiftieth year of his age.

INJURIOUS INSECTS.—Mr. ROBERT NEWSTRAD has prepared a *General Index to Miss ORMEROD'S Annual Reports of Observations on Injurious Insects, 1877-1898*. The *Index* has been most carefully prepared, and will be of great utility. In addition to the *General Index*, there is a separate *Plant Index* and an *Index of Annuals*.

PRESENTATION TO THE SECRETARY OF THE PUTNEY CHRYSANTHEMUM SOCIETY.—The annual dinner of the members and friends of the Putney and Wandsworth Chrysanthemum Society was held at the Railway Hotel, Putney, on the evening of the 9th inst. There were upwards of sixty persons present, including many representative horticulturists. A pleasant incident at this event was the presentation of a handsome marble timepiece, suitably engraved, to the honorary secretary, Mr. J. F. McLEOD, who, through pressure of business in connection with his position at Dover House Gardens, Roehampton, has found it necessary to resign the secretaryship. The presentation, which was made by Mr. TEW, was accompanied with many expressions of appreciation of the work done by Mr. McLEOD since he accepted the position, and of regret that a change was necessary. Mr. McLEOD suitably replied, and promised to continue his support of the Society in an unofficial position. The toasts were freely interspersed with a capital programme of vocal music. Before the guests separated, "The Absent-Minded Beggar" was sung, and a collection made in aid of the "War" Fund.

TRINITY COLLEGE BOTANIC GARDENS, DUBLIN.—There is at present here a very fine display of *Calanthes* in bloom, the varieties mostly consisting of *C. Veitchi* and *C. vestita*, the collections being displayed in the Economic-house.

CHRYSANTHEMUM EDITH.—This new single-flowered variety, recently awarded a First-class Certificate by the National Chrysanthemum Society, was exhibited by Mr. W. C. PAGRAM, gr. to J. COURTENAY, Esq., The Whim, Weybridge.

EDINBURGH SEED TRADE.—The assistants held their annual dinner on the evening of Friday, the 8th inst., and, as usual, it proved a most successful affair. The dinner was thoroughly Scottish in character, and included the indispensable haggis, red-herring, &c. After doing ample justice to the good things provided, the company were entertained for some hours with song and sentiment. The toast-list included the principal employers in town. During the evening a collection was taken for the Soldiers' Widows and Orphans Fund. The chairman (Mr. DAVID MITCHELL) presided with his usual heartiness over a very large attendance. Eighteen seed houses were represented.

PLANT PORTRAITS.

HIBISCUS MILITARIS, Meekans' Monthly, November.
MYOPORUM PARVIFOLIUM, a pretty greenhouse, hard-wooded plant, with linear leaves and white flowers. *Revue de l'Horticulture Belge*, November.
ORANGE, JAFFA VAR. *Revue Horticole*, November 16.
PEAR BEURRÉ STERCKMANS, a Pear of first-rate quality, ripe in December. *Bulletin d'Arboriculture*, October.
PENTARAPHIA FLORIBUNDA, a scarlet-flowered Gesneriad, with lanceolate, velvety leaves, and panicles of irregular, tubular flowers, with a white, spotted throat. *Revue de l'Horticulture Belge*, November.

HOME CORRESPONDENCE.

XL-ALL VAPORISING COMPOUND AND THE PHARMACEUTICAL SOCIETY.—The *Gardeners' Chronicle* in its issue of December 9, dealing with

the recent case of the Pharmaceutical Society v. Messrs. Jacob Wrench & Sons, Ltd., says:—"There is an impression prevalent that the restrictions we have mentioned are maintained as a monopoly for the benefit of the Pharmaceutical Society or its members. This is altogether a mistaken view, &c." I beg to submit that, in the eyes of thousands of traders, this is not a mistaken view at all. It is, in fact, just what they do think, and what they believe to be the fact. Without imputing mercenary motives to the Council of the Pharmaceutical Society in protecting the interests of its members, to say the least, it is strange that the XL-All Compound should not have been attacked before now. How is it that they have left it alone until it has become known to practically every horticulturist in the kingdom, and has become all but indispensable for use in the garden as an insect-destroyer? It has been suggested, that had not the trade in this gardeners' requisite developed to its present proportions, the attention of the Council of the Pharmaceutical Society would not have been drawn to it by its members. Why this sudden discovery of the fact that the XL-All Compound is a preparation which contains a percentage of nicotine? And why are they so fearful that some one will drink it, when it is manufactured and sold expressly for fumigating greenhouses? Why has it taken six years for them to discover that this is so dangerous, after it has been sold by nurserymen, seedsmen, and florists, for this length of time without a single accident? To all unbiased minds the answer suggests itself. It appears that neither the Pharmaceutical Society nor its members have any control over the sale of carbolic acid or its preparations, and these can be freely purchased anywhere for domestic use, and seem to stand about some households quite unguarded. If this and other poisons of a similar character can be, and are, sold without any restrictions for household purposes, surely the horticultural trade may claim the right to sell a preparation of nicotine for use (quite apart from the dwelling-house) in greenhouses, which, in nine cases out of ten, would be stored in an outhouse in the garden. It is the opinion of many that all interested traders who have suffered from similar jealous and needless interference at the hands of the Pharmaceutical Society should organise a Society of their own to watch over their interests, and to bring their grievances before Parliament at the earliest date possible, with a view to getting the Act of 1868 amended, so as to enable agents other than pharmacists to sell poisonous preparations for technical purposes (in the manufacturers' original packages) to the trades and professions, which, in the ordinary course of business, it should be their legitimate right to supply, of course under necessary restrictions. The Pharmacy Act of 1868, as affecting the sale of poisonous preparations for technical purposes, does not appear to be understood by one and all alike. It must be clear to all but the most nervous people that the skill of a pharmacist is not at all necessary to sell a farmer a tin of "sheep dip." Why, then, should not the latter be able to get it from the same source of supply as his other farm requirements? Again, why should a gardener not be able to order his "Fumigator" or "Weed-Killer" from his nurseryman or seedsman together with his bulbs or seeds, thus saving the expense and trouble of having to obtain one requisite from one source, and one from another? Next we shall hear of nurserymen and seedsmen being prosecuted for selling any kind of insecticide; and bulbs and seeds containing poison may not go exempt. I shall be glad to receive communications and suggestions from anyone who is willing to join such a movement as is above indicated. *G. H. Richards, 128, Southwark Street, London, S.E.*

THE KEEPING PROPERTIES OF COE'S GOLDEN DROP PLUMS.—At p. 401, "Greengage" rather throws doubt upon these. It does not seem, however, that he has tested them for any length of time beyond three or four weeks. Growing bold on this limited experience, "Greengage" proceeds to affirm that they cannot be kept much longer unless they are stoved, that is, converted into Prunes. Now, to say the least of it, this is rather hard on those who have done this impossible thing—of keeping Golden Drop Plums for six, nine, or twelve months, again and again, and who in sheer sympathy for his neighbours set forth in the *Gardeners' Chronicle* how to do, that any or all of your readers might enjoy this rare and luscious winter sweet. It seems there could be no fame and little thanks

reaped over the keeping qualities of the Golden Drop. Its long-keeping qualities have been well and surely known for half a century or more. The great Doctor in the editorial chair, Lindley, and his fruit Director, the late Robert Thomson of Chiswick, James Barnes of Bickton, Spenser of Bowood, Fleming of Trentham, the Ingrams of Frogmore and Belvoir, Beeton of Shrubland, and hosts of others, dead and alive, were familiar with the unique and late-keeping properties of Coe's Golden Drop Plum. But "Greengage" denies this, and also doubts whether it can be grown unless in a few favourite sites, and summers of equal warmth to those of the last few years. It can. Were I in need of guidance, I would rather follow such great authorities as Dr. Lindley and Dr. Hogg than "Greengage." I have also seen, handled, tasted fine Golden Drops off walls from every possible aspect and the open air in most of the counties of Britain, and the very best samples were from north walls—cordons, within a foot of the ground; and pyramids, as bushes, from 1 yard to 5 feet high. I have seldom or ever found Coe's Golden Drop either shy-bearing, tender, or miffy, but free, fruitful, profitable. The nearest match for it in sound keeping after gathering, or hanging on pot-plants in orchard-houses after ripeness, is the blue Imperatrice, the Ickworth variety, and that cannot be trusted to keep so long sound as Coe's Golden Drop. *D. T. Fish.* [Cannot any other correspondents of the *Gardeners' Chronicle* give their experiences on these various disputed points? *Ed.*]

GRAPES WITHOUT FIRE-HEAT.—I have recently seen and tasted Gros Guillaume and Gros Colmar Grapes of great size and excellent quality, the first bunch weighing just under 5 lb., and the latter 3 lb. 12 oz., with berries $3\frac{1}{2}$ inches in girth, and well coloured, which were grown at Dr. Houghton-Brown's Convalescent Home, Barn Rocks, Bognor, without fire-heat. The crop was heavy, and the Grapes keep well, not having been damaged by fog. There is no heating apparatus of any kind, and these varieties, which nearer London require fire-heat, attain to perfection in a vinery near the sea, and well exposed to the sun. The bunches were so fine that if exhibited in competition with hot-house Grapes, either at the Crystal Palace or at the Aquarium, they would, in my opinion, have been awarded a prize. They reflect great credit upon the gardener, Mr. Jenner, as they give evidence of great cultural skill. It is quite clear to me from these examples that Grapes can be grown at Bognor on a large scale at small expense, and that they would realise a good price in London. *W. Roupell, F.R.H.S.*

ROSE SOILS.—Your remarks (p. 438) on this subject bring to my mind a conversation I had recently with a young foreman-gardener on a similar matter. It was in reference to the culture of Euphorbias (Poinsettias). Without being in any way egotistical, I must say that for some twenty-five years we have been fairly successful in the cultivation of large batches of this useful winter-flowering stove-plant. Numbers of my Yorkshire *confrères* could bear out what I say if required. My own opinion has long been that there is something in our soil, or local conditions influenced by the soil, that has materially helped in bringing about this success. The young man alluded to was here the other day, and in going through the houses the culture of the Poinsettia pulcherrima was mentioned. Some years ago he was an assistant in these gardens; hence, he was well versed in the cultural methods pursued. Since then he has served in another garden in an adjoining county, where this plant was successfully grown. He is now foreman in a garden not more than 12 miles from Grimston Park, as the crow flies. He told me that it was next to impossible for them to grow Poinsettias satisfactorily. This has been the case for a long time. The head gardener, who is an old friend of mine, is a good general cultivator, and a man not easily put off his object when he sets his mind upon it. The geological formation is different to ours. The subject of soils and local conditions in the cultivation of plants and fruits generally are, as your readers will know, very important ones. When recording or criticising successes or failures, I do not think we gardeners always give this fact sufficient consideration. *H. J. C., Grimston, Tadcaster.*

COMET RED CURRANT.—Mr. A. H. Pearson, who always has the courage of his opinions, has said in his paper on "The Fruit Crop of the Year," published recently in the columns of the *Gardeners' Chronicle*, that so far as he has found, the new red Currant Comet sent out from Jersey, is practically the same as the well known La Versailles. I was interested in reading so much from that source because I held just that opinion when the Currant came before the Fruit Committee. Probably some other traders as well as Mr. Pearson have grown the variety Comet and are able to give an opinion. No one would wish to do an act of injustice on an *ex parte* statement, although there can be no doubt but that Mr. Pearson wrote without bias. The point ought ere now to have been determined at Chiswick. In any case it is evident that should the Nottingham dictum be sustained, any award made under a wrong impression should be revoked. *A. D.*

DOUBLE-FLOWED DAISIES.—The note by your correspondent "A. D.," in your issue of December 2, shows one of the ways by which the double Daisies may be introduced into our gardening for the late months. Judging by seedlings which have come here, I think we may, in time, develop a race of Daisies which would give us more or less bloom throughout a mild winter, and this without raising them yearly from seeds. I have a couple of varieties of this almost perpetual-blooming Nature. One of these, a pink Daisy, has been in bloom since October came in, and it will last throughout the winter unless the season becomes very severe. This plant I have had under observation for three years. At first I thought its flowering might be due to its being a young seedling, but it seems to be its natural habit to flower at this time. The other is inferior to this. The cultivation and improvement of the double Daisy have, it appears to me, been neglected to some extent for a number of years. How few named varieties we have now compared with what were in existence thirty years ago! There was at one time a grand collection in a nursery at Battle (Mr. Luff's *Ed.*). I once had seeds of this strain, and from it had very fine flowers. Unfortunately, the Daisy needs division in early summer, and re-planting in small tufts, and the exigencies of growing a large and varied collection of flowers in the small space the gardener can afford, leads to the neglect of some plants. Thus I have lost plants I would fain have kept. There are good strains of Daisies in the market still, but many are almost worthless, and cause disappointment. It is evident from the remarks of your correspondent that Mr. Blencowe has been fortunate in securing a reliable strain. *S. Arnott, Dumfries.*

BEGONIA GLOIRE DE LORRAINE.—Good sturdy cuttings sprang up from the base of the old plants, these having been subjected to a short rest, were duly cut down; upon the old plants being placed in a high temperature, strong suckers were plentiful; these were the ones selected, and they proved to be the best. Cuttings of these were, during the last week in May, inserted singly in small pots (2-inch), plunged in the propagating-case, where a steady bottom heat was maintained. Rooting having taken place, the small plants were stood upon a shelf near the glass in the same house in direct sunlight, the usual potting being taken in hand as soon as the plants required it; and the plants were again placed upon the shelf in the same position, which was one facing south-west. The potting materials at this stage consisting of equal parts of peat and good fibrous loam, with a large addition of sand, ample drainage being provided, the growth became both rapid and free. A thin stake inserted in the centre of each pot allowed the growths to be looped up readily, and the plant being naturally of a branching habit, no stopping or pinching was necessary. As the plants became too large to remain on the shelf, they were transferred to a warm pit, the growth not being checked. They were fed occasionally with artificial manure, in the proportion of a table-spoonful to a gallon of water. The result is that the foliage has quite enveloped the $4\frac{1}{2}$ -inch pots with a mass of flower, which brightens up the show-house considerably. *W. H. Sharpe, Highwood Gardens, Rochampton.* [With this communication came two excellent photographs, amply testifying to the successful cultivation practised by our correspondent. We do not reproduce them, having already given similar illustrations of the plant. *Ed.*]

of gold intermingled with green; American Oaks here, and wild pieces of Virginian Creeper there, are aglow with colour; Chestnuts, Planes, Cherries, Beeches, and Elms, are rich in golden tints. Even the lowly Bracken and the Blackberry leaves respond, and add to the brilliancy of the scene.

So far as it has been possible, every feature of old Phillip Frost's labours has been under Mr. Herrin's care religiously tended. All the fine Conifers which have done so much to give Dropmore its high reputation are doing as well as years will permit. To many of them liberal top-dressings of soil and mild manure have been afforded, with excellent results. Of these, *Abies grandis*, *Cedrus atlantica*, very glaucous in hue; *Picea Morinda* (the Weeping Conifer), *Sequoia gigantea*, *Pinus insignis*, one grand specimen; *Cedrus Deodara*, equally noble; *Abies Pinsapo*, *Tauca Mertensiana*, and, not least by any means, the giant male *Araucaria*, now (October) carrying clusters of large red catkins. All of these are improving in appearance and size year by year.

Dropmore flower-gardens are, doubtless, somewhat quaint and formal; they seem to belong to the old Dutch style minus the topiary. But the entire architectural surroundings, with abundance of vases and balustrades, seem not out of harmony, and are worth preserving, if but to illustrate flower-garden examples. A modern architect would erect a new and noble mansion further out on the brow which overlooks the park and lovely woodland. Critics are fond of decrying the old style of gardening, but were all gardens modelled alike, great indeed would be the pity. Under Mr. Herrin's charge a large kitchen-garden and fruit-orchard, some half a mile distant from the house, was added some years ago, which has been greatly improved. The whole of the walls have been renovated or newly planted. Apple, Pear, and Plum trees have been largely planted outside the walls; and within the garden round the quarters, similar trees have been planted.

Apples here on bush trees some ten years old, running up on each side of the centre walk, were, when I saw them, a brilliant picture of fruit, rich in colour. What crops they were carrying of fine and generally brilliantly-coloured fruits! Golden Noble, Lord Grosvenor, Wellington, Lane's Prince Albert, Grenadier, Cox's Pomona and Orange Pippin, Bramley's Seedling, Baumann's Red Russet, Blenheim Orange Pippin, Lady Sudeley, Ribston Pippin, Peasegood's Nonsuch, Lady Henniker, Newton Wonder, and many others. A. D.

FOREIGN CORRESPONDENCE.

THE CHINESE CABBAGE (BRASSICA SINENSIS).

"I AM sending you by this mail some seed of the White Cabbage (Pe'tsai), about which you (Prof. Bailey Balfour) spoke to me last November. It is said to be very good seed. So far as I can ascertain, the seed is sown either as soon as the frost is out of the ground, or in July. For early sowing, the seed is soaked a short time, then sown in boxes, and afterwards planted out when quite small. The spring crop is cut when about 1 foot high. If left longer it runs to seed. That sown in July grows double the height, and ought to have, like the other, a very compact heart. In this climate and in this soil it is kept for a long time in pits excavated in the ground and covered over. The Cabbage heads are turned over every day, and any decaying portion is picked off. The cold is intense here in winter, and hardly any rain falls between September and April, so that there is no fear of damp. The Cabbage makes an excellent salad in winter. The hills immediately behind Peking, which border this plain, are part of a lime-stone range, and our water here is very hard. Low-lying land in the plain, if left uncultivated, always bears an efflorescence of soda. The manure used is, I presume, desiccated

human manure, as it is the general manure in use in this neighbourhood." H.M. British Consul, Tsientsin.

The fullest account we have of the Chinese Cabbage is from the pen of M. Pepin, the late head gardener at the School of Botany at the Jardin des Plantes, an account of which an abstract is given in Pailleux & Bois, *Le Potager d'un Oursieur*, 3rd ed., p. 464. The plant is an annual, which does not heart well, but the foliage furnishes an excellent vegetable in the hot dry season in Bourbon. In the north of China it is grown in enormous quantities, and is used in October and November, salted or cooked, with rice. Three kinds of Pe'tsai are mentioned: 1, with white, very delicate tender leaves, which heart like Lettuces if aided a little; 2, Nisontou, or "Beef Strawberries," because its leaves are crisped, fleshy, and full of juice; 3, "Violacees," in which the leaves are very thin, smooth, tender, and agreeable to the taste, but with a trace of bitterness. In addition there are numerous minor variations in form. Climate, soil, and season cause great variation in the Pe'tsai for better or for worse, so that experiment alone can determine whether the vegetable is worth growing in any particular locality. In any case, it is grown in vast quantities in many parts of China, north and south. The Cabbage is preserved in winter by two methods. In one case the Cabbages are exposed to the sun to remove superfluous water, then to pile them up in close heaps, or in pits dug for the purpose. The second method consists in planting them in sand. Those who do not wish to keep them so long, lie them flat on the ground, which is neither too wet nor too dry; cover them with straw, over which dry soil to the depth of a foot is placed. Others who have suitable means hang them up, leaves downwards, and as close together as possible.

In France, the results of experiments of M.M. Pailleux & Bois have not been satisfactory, but they recommend its trial at Roscoff and the West Coast, where the influence of the Gulf Stream is felt. Our south-western counties ought also to be favourable localities. See also *Gardeners' Chronicle*, 1886, p. 40. In the tropics, as in British Guiana, the Chinese Cabbage is greatly esteemed.

ENQUIRY.

PHYSALIS PUBESCENS (CAPE GOOSEBERRY).—A correspondent, Mr. C. J. Blake, who intends to cultivate this plant next year, would be very glad if Mr. J. A. Ross, who wrote about it in our issue of the 9th inst., would kindly give his experience, and the best methods of obtaining fruit for dessert over a lengthy period.

GARDENING APPOINTMENTS.

MR. S. F. MAY, for three years Gardener to A. SCOTT, Esq., Rotherfield Park, as Head Gardener to H. E. WALFORD, Esq., Arlebury, Aylesford, Hants.
MR. DUNCAN BROUGH, lately Gardener to Sir ARCHIBALD EDMONSTONE, Bart., Dunrobin Castle, Strathblane, N.B., as Gardener to Earl FITZWILLIAM, Corlattan, Shillelagh, co. Wicklow.
MR. J. HAMMOND, for fourteen years at Winkton Lodge, Winkton, R.S.O., Hampshire, as Head Gardener to Mrs. GUBINS, Longmead, Bishopcote.
MR. GEO. TINGLEY, of the Plant Department, Hyde Park, and Kensington Gardens, as First Assistant to the Botanical Collector for the School Board for London.
T. MARRIOTT, Esq., having taken Park Hall, Hayfield, Stockport, has engaged Mr. ALFRED J. DRIGTON to remain with him as Head Gardener.

CATALOGUES RECEIVED.

PLANTS, BULBS, SEEDS, FRUIT AND OTHER TREES, SUNDRIES, ETC.

F. VALLIS & SON, Bromham Fruit Farm, Chippenham—Chrysanthemums.
FREDERICK ROEMER, Quedlinburg, Germany—Seeds.
ERNEST RIEMSCHEIDNER, 46, Hamburg Str., Altona, Hamburg. Agents, WATSON & SCULL, 90, Lower Thames Street, London—Seeds.
SUTTON & SONS, Reading—Seeds.
FIDLER & SONS, Reading—Seeds.

UGANDA JUNIPER.—The *Kew Bulletin* for October last, p. 197, contains an extract from a letter of the late Captain B. L. SCLATER, R.E., relating to a Juniper identified at Kew as an all probability *Juniperus procera* of Hochstetter:—"I think I told you about the Juniper forests on the top of the Kedony escarpment. The forests to the north of Lake Naivasha are of the same Juniper, and we are building the bridge over the Morendal with it. It is also extremely plentiful here, and I have seen large trees 200 feet high, and at least 8 feet in diameter, at the base."



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 45° Fahr. for the period named; and this combined result is expressed in Day-degrees—"Day-degrees" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DURATION. Above (+) or below (-) the Mean for the week ending December 9.	TEMPERATURE.				RAINFALL.			DURATION Sun.		
	ACCUMULATED.				More (+) or less (-) than Mean for the Week.	No. of Rainy Days since January 1, 1891.	Total Fall since Jan. 1, 1892.			
	Above 45° for the Week.	Below 45° for the Week.	Above 45°, difference from Mean since January 1, 1891.	Below 45°, difference from Mean since January 1, 1891.						
Day- deg.	Day- deg.	Day- deg.	Day- deg.	10ths Inch.	Inch.					
0	3 +	13	25	+ 414	- 76	1 +	219	50.4	3	28
1	2 +	10	31	+ 241	- 40	8 +	188	81.2	1	21
2	3 +	20	13	+ 367	- 157	7 +	161	22.6	5	28
3	2 +	11	22	+ 420	- 237	1 +	143	21.6	28	28
4	1 +	10	33	+ 414	- 168	1 -	148	24.1	11	28
5	2 +	23	12	+ 572	- 223	4 -	126	33.5	17	26
6	4 +	27	8	+ 287	- 127	5 +	208	46.9	6	28
7	2 +	21	10	+ 489	- 107	3 +	173	33.3	10	27
8	2 +	28	7	+ 625	- 162	5 -	161	35.1	13	44
9	4 +	28	3	+ 386	- 149	5 +	213	34.6	3	28
10	4 +	31	0	+ 518	- 114	2 +	175	36.9	3	27
*	3 +	48	0	+ 893	- 76	0 over	156	25.6	23	28

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing District—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, E.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending December 9, is furnished from the Meteorological Office:—

"The weather was very cloudy or dull over our island generally. Rain fell rather frequently during the earlier half of the period, but towards its close the weather became fine, and the air drier, especially over England.

"The temperature was again above the mean for the time of year, the excess ranging from 1° in the 'Midland Counties' to 4° in 'Scotland, W.' and over Ireland. The highest of the maxima were recorded during the earlier days of the period, and ranged from 61° in 'Ireland, S.' and 57° in 'Ireland, N.' to 54° in 'Scotland, W.' and 'England, E.' The lowest of the minima were registered either at the beginning or at the end of the week, when they varied from 21° in the 'Midland Counties,' and 'Scotland, E.' and 24° in 'England, N.W.' to 28° in 'Ireland, S.' and to 35° in the 'Channel Islands.'

"The rainfall exceeded the mean in most districts, but was rather less in the 'Midland Counties,' 'England, S.W.' and 'S.' and just equal to it in the 'Channel Islands.'

"The bright sunshine was deficient in nearly all districts. The percentage of the possible duration ranged from 24 in 'England, E.' and 23 in the 'Channel Islands,' to 3 in 'Ireland, N.' and 'Ireland, E.' and to 1 in 'Scotland, E.'"



CARNACTIONS DYING: H. H. P. Deep potting seems to us to be the cause, aggravated, probably, by the close nature of the potting compartment and no ventilation.

CROQUET: J. H. H. If you were to purchase a little Manual on the game of croquet, it would afford all the required information. Such a Manual is published by Mr. Upcott Gill, 170, Strand, W.C.

CUCUMBER PLANTS DYING OFF: J. M. We should suppose from your description of the methods pursued in renewing the beds of soil, that the whole has become unwholesome, or, at the least, no longer suitable for the growth of the Cucumber-plant. We fail to understand how, in the entire absence of bottom-heat, you manage to get any crop of winter Cucumbers. The soil, besides, must be "Cucumber sick." There were no eel-worms on the roots sent, and the cause of death is traceable to the unwholesome state of the soil, due to its long continuance *in situ*. Clear every particle out, making a new start with fresh soil, and affording some bottom-heat for the winter fruiters.

GRUBS: C. B. The grubs eating your Cyclamen are those of some weevil. They are very destructive, and have been introduced with the potting-soil. All you can do now is to trap as many as you can with slices of Carrots, Potatoes, &c. In the future bake or scald the soil; if baked, place it in sacks and bury it in the earth for a week or two to moisten before using any of it. As a rule, only pasture-loam that has been in stack for a year or two should be used in potting plants, and during the whole of that time the stack should have been kept quite free from herbage, by which means the weevil grubs, wireworms, &c., are starved to death. Fresh pasture-loam, or that from weedy heaps, is almost sure to contain creatures which live on the roots of plants.

INSECTS: Norman C. Cookson. The grubs from your herbaceous borders are the larvae of the garden Swift Moth, *Hepialus lupulinus*, L. (fig. 147). Your only course is to lift the plants and trench the borders. Roots of all infested plants should be carefully examined before replanting, and all larvae destroyed. If after this treatment the grub reappear, try the effect of one application of lime-water to the roots. R. N.

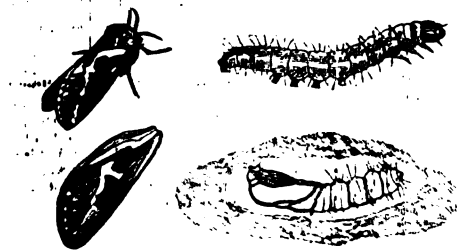


FIG. 147.—GARDEN SWIFT MOTH, LARVÆ, AND CATERPILLAR.

MUSHROOM-HOUSE: Reader. The best position is wholly or partially underground, thus ensuring a less fluctuating warmth than that obtainable in an above-ground building, doing away with the need of fire-heat, excepting in very severe weather, and maintaining the desired degree of moisture without having to damp down. If it be wholly beneath the ground-level, it may take the form of a tunnel, or it may be a parallelogram, with a groined roof in brickwork, and the roof may rise above the soil and be mounded over and covered with Ivy, as is frequently done with ice-wells. The area should be large enough to admit of four to six beds being made, some in bearing, others coming on, beside material in process of being prepared. In this event, an underground house need not be fitted with hot-water pipes, the heat from the beds and the stable-litter more than sufficing to maintain a

warmth of 80°, than which it should never rise. Such a house should have either a sloping roadway, up which the spent materials may be wheeled, or else stone steps, with a good wide space at the bottom, where the men might work in throwing the materials to the surface. In lieu of wheeling or pitching, an iron derrick sufficiently strong for hoisting a garden wheelbarrow when filled should be fixed at the top of the steps. The Mushroom-beds might be wholly made on the floor, or a tier of beds constructed with stone or slate, 4 feet above the lower beds. The worst and the most expensive sort of material in a Mushroom-house is wood. For keeping the materials together in the floor-beds, stout slate slabs, 15 inches high, should be used, or failing these, bricks set in cement. Unless the site is a very dry one, provision should be made for drainage by means of pipes running along the outside of the walls below the footings, leading these into a dry well if they lie below the level of the garden main-drain. There must be ample means for affording ventilation, and two openings are better than one. The width of a simple house with beds at the sides should be 12 feet, and not less than 11 feet. For an above-ground Mushroom-house double walls should be employed, and there should be a plaster-ceiling beneath the roof. The latter may consist of tiles, or a thick thatch of reeds or straw, never of slates. There should be some means of obtaining fire-heat; for unless a greater mass of fermenting materials exist in the house at all times during the winter than would be perhaps practicable, the necessary degree of heat could not be maintained. In an underground Mushroom-house, good fleshy produce can be obtained in the height of summer, which is an impossibility in an ordinary house. Windows are not wanted, but if they are considered desirable, leaded casements are to be preferred to wooden frames.

NAMES OF FRUITS: T. T. Apple Waltham Abbey Seedling.—A. N. G. 1, Apple Harvey's Wiltshire Defiance; 2, Apple Bersdörffer Maschanzker; 3, Apple Norfolk Beefing.—G. W. N. 1, Apple Early Nonpareil; 2, A. Dredge's Fame; 3, A. Scotch Bridget.—A. & Co. 1, White Paradise or Egg Apple; 2, Calville Rouge d'Automne; 3, rotten and unrecognisable.—A. U. S. 1, Apple Smart's Prince Arthur; 2, A. Harvey's Pippin.—F. F. R. No numbers were attached to the fruits, we therefore cannot deal with them. It is so easy to attach a piece of postage-stamp edging to a fruit with the number written plainly upon it, that it is surprising anyone omits this very simple means of identification.—E. L. 2, Pear Beurré Duval; the other was rotten.—S. M. 1, Apple Cox's Orange Pippin; 2, A. Wadhurst Pippin.—J. M. S. The spots are caused by the fungus, *Fusicladium dendriticum*; it is known popularly as the Apple Scab, and attacks the foliage also, early in the season usually. You will find it well described in Massee's *Text-book of Plant Diseases*, p. 303, and he also mentions the usual remedies, i.e., applications of Bordeaux Mixture several times during the season. This has also been referred to repeatedly in these columns. It is very prevalent this season, and so far as we have observed, Stirling Castle suffers the most generally, but it depends to some extent on soil and situation; more varieties are affected in cold, wet soils than in dry positions.—W. R. 1, Pear Chaumontel; 2, P. Beurré Capiaumont; 3, Apple Yellow Ingestre.—J. W. G. It is useless sending Pears so far advanced as yours; we cannot identify them.—M. O. 1, Apple Bramley's Seedling; 2, A. Gloria Mundi.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. T. 1, *Cypripedium* × *Leeanum*; 2, *C. insigne*. The narrow-leaved *Crotons* we cannot name. The variations of one plant are often great.—J. M. B. *Odontoglossum* × *Andersonianum*, with the peculiarity in the lip you mention. We should like to see a flower again when next the plant flowers, to discover if the peculiarity is maintained.—C. E. *Mühlenbeckia complexa*, an excellent plant for conservatory-baskets or rock-work outdoors.—Cape. *Cyrtanthus McKenii*.—P. G. T. Two very handsome forms of *Cypripedium insigne*, probably out of the recent importations. No. 2 is near to *C. i. Chantini*; the other is the best form of a typical *C. insigne*.

T. R. Stenotaphrum americanum, variegated form.

NOTICE TO QUIT SERVICE: Perplexed. We are of the opinion that a month's notice is usual. If the servant's tax is paid by your employer for you it constitutes you an assistant gardener, therefore a domestic servant, and thereby entitled to a month's notice, excepting misconduct be brought against you, when immediate discharge could follow.

POTATOS TO FOLLOW THE EARLIEST VARIETIES: Reader. Jeannie Deans, British Queen (Findlay's), a white kidney, disease-resisting, and ripening in September; The Bruce, and Lady Frances (Findlay's). If you do not mind small croppers, and those liable in some seasons to disease, grow at the least some of the Lapstone, Egyptian Kidney, as mid-season. For late use grow some of Carter's Magnum Bonum, a heavy cropper, and excellent in flavour, if not "balls of flour."

SIX POT-HERBS MOST COMMONLY ASKED FOR: Reader. Thyme, common and lemon; Spearmint, Tarragon, Winter Savory, and Marjoram; tender pot-herbs grown from seed sown in heat from March till June are Sweet Basil and Pot Marjoram.

TABERNEMONTANA FLOWERS DROPPING: A Subscriber, Worksoop. The specimens sent seem to indicate that the plant is in bad health, and possibly the root-action has been arrested. This, taken in conjunction with the fact that the plant has to expand its flowers in dull, sunless weather, may account for their dropping. In districts where fogs prevail these cause similar results.

THREE VARIETIES OF RASPBERRY: Reader. Baumforth Seedling, Superlative, and Yellow Antwerp.

TWELVE DESSERT GOOSEBERRIES: Reader. Red: Ironmonger, Keen's Seedling, Scotch Nutmeg, Warrington. Green: Pitmaston Greengage, Early Green Hairy, Green Walnut, Glanton Green. Yellow: Bright Venus, Broom-girl. White: Crystal, Snowball. Winham's Industry, a red variety, is the most prolific for picking in the green state.

VICTORIA PLUMS AND DAMSONS: D'Heleneveld. These fruits may be grown as half-standards and bushes; it is merely a question of height of stock on which they are budded. The bush is probably the best form for a market gardener, as it admits of the rapid gathering of the fruits and the pruning of the branches. Plant the Plums at 15 feet, Damsons at 12 feet apart. Plums and Damsons do not lend themselves to the pyramidal form of tree. Of course, it can be done. Damsons as screens to other fruit-trees are planted pretty close together, say, 10 feet in double and treble rows, quincunx fashion. For this purpose, the outer row should consist of trees with 6 feet stems; and the inner rows of half-standards and bushes. A space of 12 to 14 feet should be left between the rows for the convenience of gathering the crop. Not much pruning is needed by Damsons thus planted, only as much at the first as to give a sufficient number of main branches as will form the foundation for the head; and as the trees age, the inner useless shoots should be removed yearly. The Victoria Plum needs the same kind of pruning as the Apple; the head being kept open by the removal of intersecting branches and thin sprays; and the leading shoots left at full length—or during the early life of the tree, slightly shortened.

COMMUNICATIONS RECEIVED.—F. H. P.—T. B.—A. H.—W. B.—W. K.—D. L. M.—H. G.—J. K.—S. A.—G. W.—H. T. M.—F. S.—S. H.—P. M. T.—G. H. R.—G. E. M.—W. W.—A. J. L.—D. W. T.—J. Hill (the paragraph you have sent us was quoted in our issue for September 23, p. 248).—R. N.—F. W.—E. Malinvaud.—R. Gadeau de Kerville, Rouen.—R. E. T.—F. D.—William G. S.—V. N. G. James Dobbie.

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is reserved for reference in all the principal libraries.

(For Markets, see p. viii.)



THE Gardeners' Chronicle

No. 678.—SATURDAY, DEC. 23, 1899.

GARDENING 6000 YEARS AGO.

ALTHOUGH the Egyptian soil is extremely fertile, it is a remarkable fact that no country in the same latitude has so poor a variety of indigenous plants. Wild flowers are rare; native trees are few. Owing to the annual inundation of the Nile much of the land is under water for nearly four months in every year; for another four months the valley is green with growing crops, or golden with ripening corn, and the remaining four months of the year the surface of the soil is bare, parched and baked by the burning sun. Of natural shade there is very little. The commonest trees that are met with at the present day on a journey up the Nile are the Acacia Nilotica (the Sunt tree of the Arabs), the Date Palm, the Dûm Palm, the Nebak (*Zizyphus spina Christi*), the Parkinsonia, or Wild Seseban, and the Tamarisk, none of which trees produce much shade.* The only tree of any size bearing dense foliage is the Wild Fig, or Sycamore (the Gimmez of the Arabs), which grows here and there in an isolated fashion. Yet if there be a country where the cool shade of trees is required, that country is Egypt. The native inhabitant longs for it as much as the foreign resident, and during the midday heat of spring, summer and autumn, when the sky is always cloudless, the observing eye will note that the fellaheen men and boys utilise every available shady corner. The ancient Egyptian must have equally felt this need of a cool place wherein he might take his noonday siesta, and with this object in view he undoubtedly first planted trees around his house. Numberless inscriptions record the prayer that a man might sit in the shade of his Sycamores and "inhale the sweet, cooling breeze of the north wind."

The most ancient description of a garden that has come down to us plainly shows that when the garden was laid out the chief object of the designer was to make a shady place to sit in. This description, written in hieroglyphic writing (fig. 149, p. 462), was discovered in a tomb near Abusêr, a little village not far from the modern city of Cairo. According to the inscriptions in the tomb, the garden belonged to a certain wealthy noble named Amten, who owned several landed estates. At the outset of his career, his father obtained for him a Government appointment connected with the Administration of Provisions, and it was Amten's duty to receive, register, and distribute the

The magnificent avenues of the Lebbeck (*Albizia Lebbeck*) around Cairo were planted about thirty years ago. The tree is of Indian origin, and not known in Egypt until the present century.

meat, bread, fruits, and fresh vegetables, which in those early days constituted part of the Government taxes. While still a young man, he became Director of the Royal Flax, which meant that he supervised its culture, cutting, and general preparation for the manufacture of linen. Later in life he was appointed to the rank of a Provincial Governor, and became rich enough to build for himself a magnificent villa upon one of his own estates. Of the garden which he laid out around this villa he has left us a remarkable description, which, though brief, is nevertheless of great interest, as being by far the oldest record of a garden yet discovered. "The boundary-wall," he writes, "was 200 cubits (i.e., 350 feet) in breadth, and the same in width; the garden inside it was planted with beautiful trees, and a very great pond was excavated in its centre, the surrounding garden being planted with Fig-trees and Vines." When the "writing for the royal rescript had been made, a very great vineyard was planted, which yielded me wine in great quantity. I trained 2 acres of Vine hidden in the interior of the wall, and I planted trees around it."

It will be noticed that only two kinds of tree are mentioned. The first is the Fig-tree, called *dab** in this early inscription, but in later writings invariably named *nehat* or the tree *par excellence*—that is, the shade-giving tree of the country. The second is the Vine, called *dareret*, from a word, *dar*, meaning "to bind," "to twist round," "to twine," showing that the Egyptian name of the Vine has the same etymological sense as our European word *vinum*. In hieroglyphics a word was often written with two distinct groups of signs, one group having phonetic—that is sound—values, the other ideographic or picture-values. Sometimes these picture signs have simply a general meaning: at other times they have specific meanings. To illustrate this, let us take the ancient Egyptian name of the Lotus, or Water-Lily, which may be written in two different ways (see fig. 148, A and B). In both

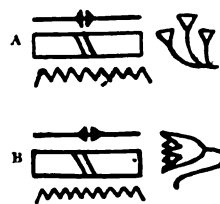


FIG. 148.—TWO WAYS OF WRITING THE NAME OF THE EGYPTIAN WATER-LILY.

examples the word is spelt out—that is, it has three sound signs—(1) a line with two strokes in the middle, which is equivalent to our *s*; (2) a rectangular sign, representing a tank, equivalent to our *sh*, and (3) a zigzag sign, equalling our *n*. These three sound-signs give the sound of the word—*seshen*. The last sign of the two examples of the word, however, differ. The three flowers attached to one stem in the first example (A) is a general picture sign, which may be placed at the end of all flower or plant names, and merely means "a flower," or "any kind of plant;" but the sound-signs before it fix its precise meaning—that is, it is the *seshen*-flower or plant. In the second example, we see the last sign is a Water-Lily, thus proving beyond all doubt

* *Dab* is really the name of the Fig itself; that is, the fruit.

that the *seshen* was the Water-Lily.* In the case of tree-names, the generic picture-sign (or determinative, as it is technically called) is a pointed tree, somewhat like a Cypress-tree. Sometimes, however, merely a single branch of a tree is used as a determinative, though this latter sign is generally confined to such trees as supplied the ancient carpenters with good wood for building or other purposes, and not to fruit-bearing trees. The names of fruits, likewise, are determined generally by three little round balls, or a number of balls in a basket. The names of grains, also, are determined by three grains of Wheat or a number of grains in a basket. From the above-mentioned examples the reader will have obtained some idea as to the system of old Egyptian writing, and the use of picture-signs or determinatives.

On referring to the inscription describing Amten's garden (fig. 149), it will be seen that the word for a vineyard is determined by a little picture of a Vine growing over three upright forked stakes, from between which hang two fine bunches of Grapes (first line to left, fifth sign). This shows that the Vines were trained as at the present day in Egypt and in Italy, over stakes, so as to form a shady arbour. At Luxor I myself had a vineyard nearly 2 acres in extent of this type; and in summer time, when the Vine-leaves formed a thick impenetrable shade, this was by far the coolest place in a well-stocked orchard and garden.

At the time of the pyramid-building kings, the Vine was extensively cultivated in different districts of Egypt, and wine-making appears to have been an important industry. In many of the tombs of this period we have representations of vineyards and scenes illustrating the process of wine-making. In the tomb of Ptah-hetep at Sakkara (15 miles south of Cairo), is preserved a series of scenes of this kind (fig. 150, p. 463—from Paget & Pirie's *The Tomb of Ptah-hetep*). We see first of all a gardener named Ahÿ watering the roots of a trellised Vine, from which two men and a boy are gathering bunches of Grapes, and carefully placing them into wicker or Palm-leaf baskets. The inscription above them reads "plucking Grapes." Following this scene is another, showing the treading of the Grapes, and it is curious to note that among them is a professional wig-maker or hair-dresser. A third scene shows the final process of wine-making, the extraction of juice from the pulp. The latter has been put into a strong bag with a loop at either end, a pole has been passed through each of the loops, and the juice is wrung out with great force by five persons. As early as 3500 B.C., six sorts of wines were made, and in the inscriptions we read of red, white, and black wines, as well as northern wine from the Delta provinces of Lower Egypt; and Sunu-wine, from Grapes grown at Assuan, in Upper Egypt. One of the favourite kinds was the Amt-wine, grown in the neighbourhood of Nebesheh, a town in the Delta, some distance to the north-east of Cairo.

Another important industry in ancient Egypt was the cultivation of the Papyrus plant for the manufacture of papyrus-paper. It was grown in the marshes, and there are several scenes preserved in the tombs showing the Papyrus harvest. It seems to have been chiefly cultivated in Northern Egypt, and in

* Of course, this is not the only way of determining the meaning of Egyptian words. Coptic, the lineal descendant of the ancient Egyptian language, gives the clue to the meaning of numberless words, and the Semitic languages help the enquirer considerably. The above word, *seshen*, for instance, is identical with the old Hebrew *Shushan*, and the modern Arabic *bushûn*.

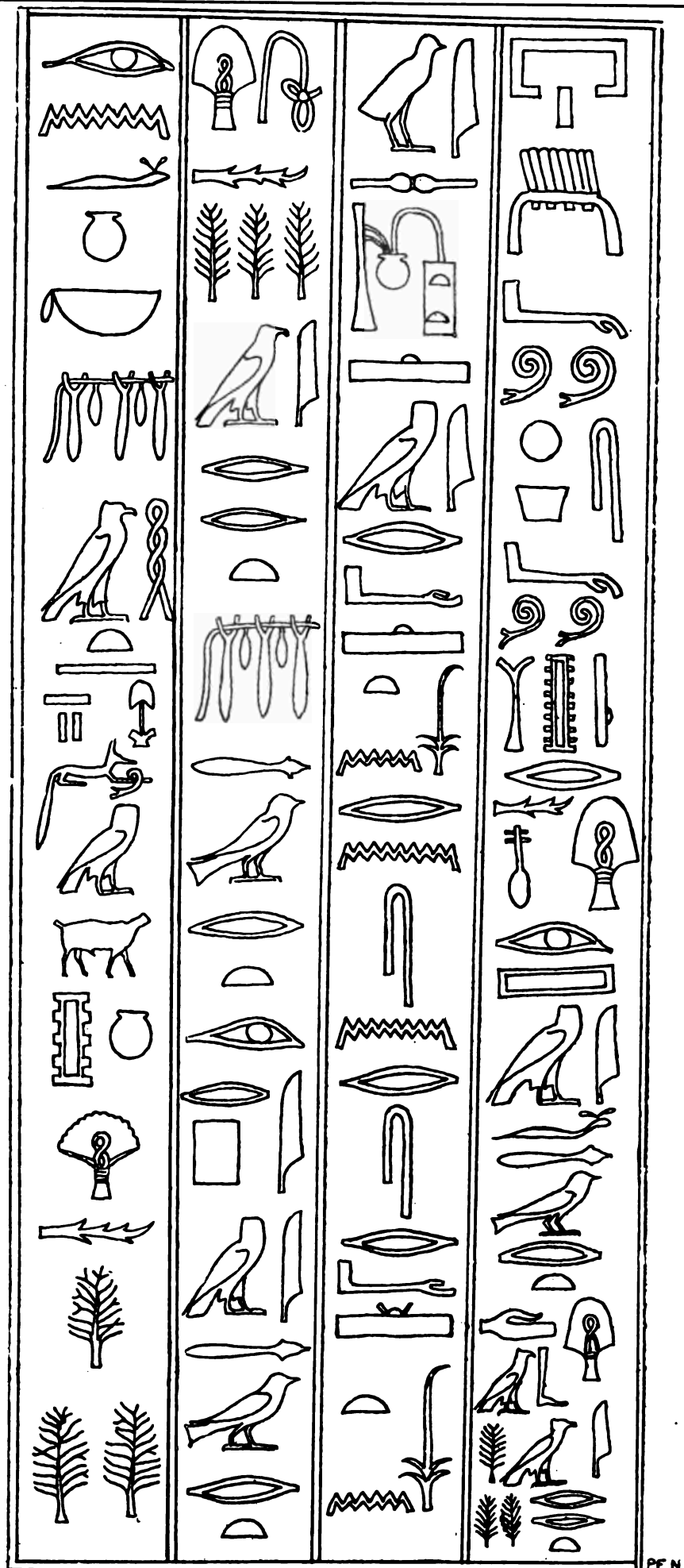


FIG. 149.—DESCRIPTIVE PLAN OF AMTEN'S GARDEN. (SEE P. 461.)

the hieroglyphic writing a Papyrus plant with three stalks signifies Lower Egypt, or the marshy district of the Delta. The corresponding sign for Upper Egypt was a Rush-like plant, perhaps some variety of Scirpus.

In the lists of offerings which are written upon the walls of some of the early tombs, the cultivated Fig, the wild or Sycamore-Fig, the Nebak (*Zizyphus spina-Christi*) fruit, of which a kind of bread was made, the *Balanites ægyptiaca*, and some other fruits, are mentioned. The Onion, called *hez*, "the white vegetable," was extensively grown, and perhaps also the Radish.* Several kinds of grain are named, including the *durrah* (*Sorghum vulgare*), and Wheat and Barley. The names of localities and estates were often, as with us in Europe, taken from the names of trees or plants, and among these we find at the earliest historical period the "village of the Vine," the "village of the Barley," the "*heglig* (*Balanites ægyptica*) town," the "Fig-tree town," and so forth.

A side-light is thrown upon the gardens of the Nubians at this period from a passage in the Inscription of the General Una. He tells us that in one of his expeditions beyond the southern frontier of Egypt, he "cut down the Vines and Fig-trees of the outer barbariana." This general, according to his lengthy biography, which has luckily been preserved almost intact to the present time, began his career as one of Pharaoh's† gardeners. Born late in the reign of King Unas (about 3500 years before the Christian era), this remarkable man tells us that he wore the flower-crown‡ of a boy courtier under King Teta, by whom he was appointed to the post of overseer of one of the royal store-houses, at the same time acting as under-gardener§ to the king. Then, after serving some time as a courtier and an under-priest, he was, curiously enough, appointed judge. So much esteemed was he, that he was ordered by the king to try, "alone with the chief justice and prime minister," several important legal cases, because, as he naïvely tells us, "the king's heart was satisfied with me more than with any of his princes, his officers, or his servants." For the services which he rendered in this connection, he was rewarded by the magnificent gift of a specially-prepared sarcophagus and material to build a fine tomb for himself—a present which may seem strange to our eyes, but was one of the greatest honours that an Egyptian could receive at the hands of his monarch. During the time that he acted as a judge he probably still retained his office as gardener, for he writes: "Now when I was judge, his majesty made me superintendent of the garden of Pharaoh, and I instructed the overseers of the garden that were there." While still a comparatively young man, he was commanded by the king to enquire into certain matters connected with what appears to have been a conspiracy against the life of the ruler of the state. Concluding this enquiry to the king's satisfaction, he was soon after given even more important duties to perform than any of the preceding.

* Herodotus tells us that quantities of Radishes were supplied to the workmen employed in building the Great Pyramid, and I found among the vegetable remains from the ruined town of Kahun (about 2500 a.c.) a single Radish see my paper in Petrie's *Kahun*, p. 64.

† The word Pharaoh means simply the King or Monarch.

‡ Called *mez*, and made of Lotus-flowers tied to the head by a band or fillet.

§ A garden, or perhaps rather an "orchard," was called *Khentesh* in ancient Egyptian; and a head-gardener or "superintendent of the gardeners," was called *mer Khentesh*.

P.E.N.

For the safety of the kingdom it was necessary to organise an expedition against the tribes on the southern frontier, and Una was sent at the head of a great army of many tens of thousands. "I it was," writes the autobiographer, "who planned their procedure, although my grade was that of superintendent of Pharaoh's garden." The expedition was successful, and the General returned to Egypt covered with glory, and was promoted to one of the highest administrative positions in the country, the whole of Southern Egypt from the first cataract to the Fayum being placed under his jurisdiction. Such was the eventful career of one whose "grade," as he expresses it, was at first no higher than that of an "under gardener" to Pharaoh. *Percy E. Newberry.*

ORCHID NOTES AND GLEANINGS.

LINDENIA.

THE plates in the present number are :—

COMPARETTIA SPECIOSA, tab. 673.—It was discovered in the mountains of Ecuador by E. Kladoch, and described in our columns 1878 II., p. 524, by Professor Reichenbach. The flowers are in racemes like those of a *Calanthe*, but

penetrated the horny shell of the weevil. In a few moments the weevil began to stagger, and eventually fell, still with the wireworm attached, to the ground. Both were then carefully pushed on to a piece of paper, and the writer hastened indoors to obtain some boiling water, with a view to killing them both while yet united. On his return, however, the wireworm had entirely penetrated the body of the weevil, and was making its way into the lower right-hand side of it. The consequence was on dropping them into the hot-water, they became separated. I at once despatched the twain to Miss Ormerod with a note of the occurrence as witnessed, and received an interesting reply from her on the subject. From the fact that the wireworm made its way entirely through the weevil, I am inclined to think that the occurrence was accidental; the weevil, as is the habit of the insect, having possibly wedged itself into the caudex of the Fern prior to an intended attack of the wireworm upon the Fern-root itself, at same spot, the result being the penetration of the weevil's skin instead of the Fern caudex, immediately upon which, the weevil attempting to escape, crawled up the rachis of the nearest frond, carrying the wireworm with it at the moment when I chanced to be by. *Chas. T. Druery, F.L.S., V.M.H.*

troops "dipped their weapons in *Malache* (Mallow) poison." The explanation is that this expression is really intended as a satirical reference to the healing, or at least harmless, properties of the herb. It is referred to twice more in this True History. Certain offenders were struck with rods of Mallow; possibly again in reference to the comparatively soft nature of the stems.

The other allusion to Mallow is that roots of it were drawn from the ground and presented to the heroes as a preservative from harm. The annotator seems to consider this use of Mallow suggested by that of the herb Moly, given by Hermes to Odysseus to preserve him from the spells of Circe. It is difficult indeed to identify the plants to which such scant reference is made, but certainly the three uses of *Malache* as a poison, an antidote, and a scourging-rod can scarcely allude to one and the same plant, and decidedly not to that which modern authorities know as Mallow.

ASPHODEL.

Another word used in a significance far different to that which it now bears is *Asphodel*, or rather the adjectival expression, *Asphodel-wood*. Of this, a boat was made from a single piece large enough to carry fifty men, the true rendering must probably be the Corsican Pine, or some variety of it

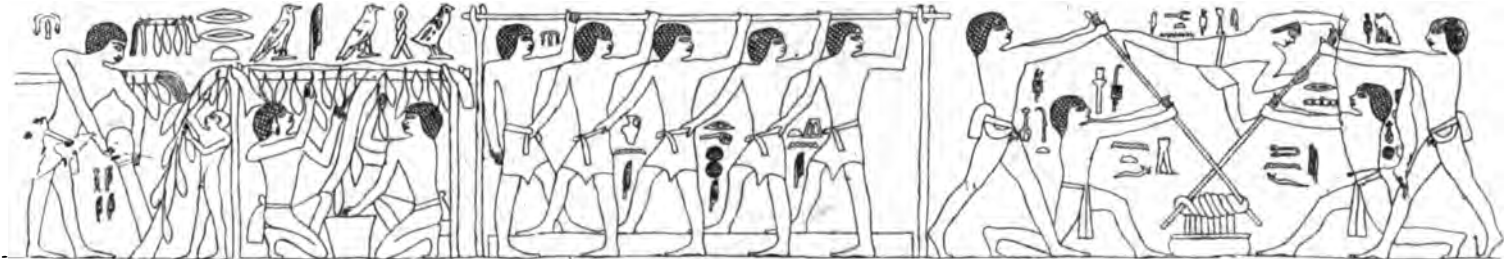


FIG. 150.— GATHERING THE GRAPES.

TREADING THE GRAPES.

THE WINE-PRESS.

(SEE P. 461.)

pendulous. Each flower is about an inch in diameter, orange-red, with narrow segments, and a broad transversely oblong lip. The spur, formed apparently from the sepals, is long and slender.

CYPRIPEDIUM ARGUS, Rehb. f. (VAR. *NIGRIGANS*), tab. 674.—A discovery of Wallis in the Philippine Islands, and described in the *Gardeners' Chronicle* 1873, p. 603. The back sepal or standard is ovate, acute, with numerous spotted stripes, and of a greenish colour; the two petals are spreading, spoon-shaped, greenish, with purple blotches and hairy margins; the lip is brownish-olive, and glossy.

ODONTOGLOSSUM CRISPUM VAR. "ROSETTE," L. Lind., t. 675.—In this variety the flowers are of medium size; the segments are white, flushed with red, and heavily blotched with purplish-brown.

ARACHNANTHE CATHARTI, Benth., t. 676.—Better known under the name *Vanda*, but differs from that genus by the absence of spur at the base of the lip. Its large flowers, with broad deep red segments transversely streaked with yellow, are very remarkable.

WIREWORM TRANSFIXING A WEEVIL.

AMONGST the foes of the gardener, both the wireworm and the weevil figure so prominently, and do so much damage without presenting, apparently, a single redeeming feature, that a sense of satisfaction is experienced when we find them at war with each other in a way that we should hardly have expected. The following evidence to this effect was recently afforded the writer in his own fernery. Despite constant search, both for the grubs and the beetle, the weevil has for many years been a great pest among the writer's Ferns; the wireworm, on the other hand, is extremely rarely seen, which increases the peculiarity of the case observed. A weevil was noticed to be climbing up the stalk of a frond of *Osmunda regalis* with a wireworm firmly attached to it near the upper hinder part of its body on the left side; when first seen, all but the head of the wireworm was visible, that having

TRAVELLERS AND THEIR TALES.

WHAT LUCIAN IMAGINED.—Travellers have frequently been famous for displaying in their tales a knowledge of natural history more marvellous than accurate.

Sir John Maundeville and Othello are widely differing instances of adventurers, whose recitals met with a reception so flattering, that they were tempted to enlarge and dwell upon them until themselves almost persuaded of their truth.

The tale of *Gulliver's Travels* is told in a far different spirit. The author was not himself deceived, nor would he lead others astray by the wonders of Brobdingnag, Lilliput, and Laputa, which were but satirical representations of the manners and customs of the day, and of those who took part in the public business of the time. A book less well known is the *Vera Historia* of Lucian [between A.D. 160-190], of which a translation has been brought out by Professor Church under the name of the *Greek Gulliver*. Between the work of Swift and that of Lucian there is this resemblance: the Greek author's work is also a satire, directed, in his case, against the tales of other travellers. They have vouched for the truth of their adventures; Lucian can out-do them in marvel-telling, and yet make no pretence to veracity, rather glorying in his powers of invention.

The author begins his little book with an account of a voyage to the Moon, where rules King Endymion, then at war against the forces of the Sun, and whose soldiers ride upon Cabbage-Fowls. "Now, the Cabbage-Fowl is a mighty great bird, with Cabbages all over him for feathers; but the swifter have Lettuce-leaves."

MALACHE.

Passing this obviously mythical creature, we are stopped for a time by the statement that the

(*Pinus Laricio*), which would be known to the author, and might certainly furnish a boat of the size mentioned.

THE ELYSIAN FIELDS.

Lucian visits in his travels the Islands of the Blessed and the Elysian Meadow. Round the latter is a "wood of all kinds of trees, very thick, which shade those that sit at the banquet; and under them are couches to lie on, made of flowers." The trees are some of them of glass, with cups instead of fruit, which cups being gathered are of their own accord filled with wine.

Some of the advantages enjoyed by the heroes in the Island of the Blessed are singularly parallel with those mentioned in the twenty-first and twenty-second chapters of *Revelations*, supposed to have been written about A.D. 95. Thus, "Nor have they in their land any night, nor yet the day in its full brightness; but as the twilight is with us when it grows very near to the morning, but the sun has not yet risen, such is the light that prevails continually among them;" the parallel biblical passage being: "And the city hath no need of the sun, neither of the moon, to shine upon it."

The wondrously plentiful harvests in the Elysian land and in the New Jerusalem are, again, not merely the expression of a similar idea, but are chronicled in language showing remarkable similarity. According to Lucian, "The whole land is covered with every kind of flower and shrub, that is, both of the wild and of the garden sorts. The Vines which they have bear their fruit twelve times in the year, so that in every month there is a vintage. As to the Pomegranates and the Apples and all other kinds of fruit, these, they told me, ripened not twelve but thirteen times in the year, for that in one month which they call the month of Minoes they ripen twice." And the account in

Revelation runs thus: "The tree of life, bearing twelve manner (or crops) of fruits, yielding its fruit every month."

The *Vera Historia* describes springs of water, honey and perfume, and rivers of milk and of wine. The Wheat "does not bear ears such as we have among us, but leaves at the end of the stalk, ready made and baked for eating." Many other marvels are mentioned well worth studying by the thoughtful reader.

Now that the English translation has brought Lucian's travels within the comprehension of everyone, it is to be hoped that it will meet with the wide appreciation that it deserves.

The critical may consider the natural history, the satirical or the political points raised therein; or, with the original Greek also before them, may study the language. Those of lighter mood may well take it up merely for amusement, enjoying the descriptions, the sparkling witticisms and comical situations detailed by the author, which are as fresh and apposite now as when first penned by him for the entertainment of a very different public.

A LARGE YEW TREE.

I SEND a photograph (see fig. 151), which I took a few weeks ago, showing a portion of a very large Yew which stands in the churchyard at Loose, near Maidstone. The girth of the stem is 31 feet at a height of 3 feet, and this stem is divided into five large branches, at about 10 feet from the ground, and show remains of other large pieces which have been removed. The crown is in good health, and measures about 60 feet in diameter, and the same in height, at a guess. The parish authorities have surrounded the trunk with an iron fence as a protection against injury, and I see no reason why it may not live for hundreds of years longer. Considering the slow rate of growth of the Yew, this specimen must be very old; but I have no means of ascertaining its exact age. Some of your readers may realise the size better when I say it is 6 inches more in circumference than the trunk of the celebrated Major Oak in Sherwood Forest, inside of which a dozen people can stand. The Buckland Yew near Dover is one of our most celebrated Yews, but this was only 22 feet in circumference in 1890. Does anyone know of a larger tree than the Loose specimen (31 feet)? *W. H. Divers, Belvoir Castle Gardens, Grantham.* [Dr. Lowe, in *The Yew Trees of Great Britain and Ireland*, does not mention the tree at Loose; but he mentions a tree at Hampstead Marshall, in Berks, which had a girth of 47 feet at the ground-level; and one at Hambledon, Surrey, with a girth of 39 feet at 3 feet from the ground. He cites twenty-seven trees in England and Wales with a girth of 30 feet and upwards. Ed.]

THE ROSARY.

NOW, AND THEN.

The New Catalogue of the National Rose Society.—People are very fond of instituting comparisons between the present and the past. It may be the growth of a city, and the increase in the number of its inhabitants. You are told that a few years ago there was a certain number of inhabitants in a place, and now that has been multiplied tenfold; and places which a few years ago were composed of green fields and flourishing trees, are now covered with rows of unlovely houses. The comparison which I now wish to make has been suggested to me by the publication of the new official catalogue of the National Rose Society—*The Then*—with which I want to contrast the present, does not go very far back; in truth, it is only six years since the last catalogue was issued, and yet considerable changes have occurred during those years. A catalogue committee was appointed to consider the whole subject. This committee was composed of some of our most experienced

Rose-growers, both amateur and professional, and this catalogue is the result of their labours; and I am sure that the Rose world ought to feel indebted to them for the trouble that they have taken. That they have been strict and impartial may be gathered from the fact that they have not hesitated to exclude from the list of exhibition-Roses some even of those which had obtained the Gold Medal.

In looking over the present catalogue, I find there are seventy-eight Hybrid Perpetuals, thirty-seven Teas and Noisettes, and thirteen Hybrid Teas. In the last catalogue issued, there were eighty-

Annie Wood, Comte de Paris, Devienne Lamy, Duchesse de Vallambrosa, Ella Gordon, Harrison Weir, Lady Helen Stewart, Madame Henry Persaire, Madame Lacharme, Magna Charta, Marguerite de St. Amand, Marie Cointet, Mons. Noman, Mrs. Baker, Pierre Notting, Pride of Reigate, Salamander, Victor Verdier, and Violette Bowyer. And yet how often has one seen a box of twelve Madame Lacharme's taking a high position! while I well recollect a box of six Annie Woods exhibited by Mr. R. E. West which I thought at the time most perfect flowers.



FIG. 151.—THE LARGE YEW-TREE IN THE CHURCHYARD AT LOOSE, NEAR MAIDSTONE.

seven Hybrid Perpetuals, forty-one Teas, and ten Hybrid Teas; thus the number of Hybrid Perpetuals and Teas has somewhat diminished, while the Hybrid Teas are slightly advanced. Nor is this the only change; there are a certain number of flowers in the old catalogue which have been either excluded or classed as Garden Roses, showing that they are not considered worthy of a place as exhibition-flowers, but may be used for general decorative purposes. Some old favourites will be found amongst the number of those that are excluded, while there are some whose right to be classed as exhibition Roses many have for a long time doubted. Those excluded are as follows:—Alfred Dumesnil, Alphonse Souper,

In the Tea section eleven have been taken out of the list, but several of these being of the Dijon race, have a very questionable position, for they are rarely ever seen in exhibition form. No one could with any confidence rely on Bouquet d'Or, or Madame Berard, &c.; they have a very unpleasant way of expanding and showing their eye before the judges come round to examine them.

The following new hybrid perpetuals have been added to the catalogue, Capt. Hayward, Clio, Comtesse de Ludre, this is a Rose nearly twenty years old, which had somehow or other been overlooked; Duc d'Orleans, Duke of Fife, Helen Keller, Madame Delville, Mrs. R. G. Sharman Crawford, John Wood, and Ulster; and also the following

Teas: Bridesmaid, Golden Gate, Maman Cochet, Medea, Mrs. Edward Mawley, Muriel Grahame, Sylph, and white Maman Cochet; while of the class of hybrid Teas, of which we have heard so much, the only additions have been Bessie Brown, Charlotte Gillemot (this has a very doubtful position, as its constitution is by no means good), Madame Cadeau Ramey, Marquise Litta, Mrs. W. J. Grant, and White Lady.

While upon the subject of Tea Roses I may refer to some observations made by one of your correspondents, in which I was taken to task for not writing favourably of high-coloured Teas. Of course, it is simply a matter of taste, but I think I may say I have on my side the great number of exhibitors. We have had for

Beauty of Waltham, was raised nearly forty years ago. But another fact I think will strike one, that most of the Roses in our catalogue have been raised during the last thirty years, so that out of the seventy-eight hybrid Perpetuals fifty-two have been raised since 1870. It may be thought that there is no further room for improvement, and that the raisers of seedling Roses have but little to encourage them. Yet this is not so, for grand gain would accrue to whomever raised a white Charles Lefebvre, or a yellow A. K. Williams, and the same careful cross fertilisation which has taken place in other flowers might possibly produce this result. The catalogue contains also a good deal of information concerning garden Roses, and the selection of those suitable for various purposes. *Wild Rose.*

manifested in the destruction of human life. It is not a joyful season for the earth. The fields have lost their tender, delicate green; the wayside flowers, those meek children of Nature, no longer arrest our reverential attention, or steal upon our gaze. The trees are bending, as if disconsolately, over their fallen, leafy offspring, fast mouldering to decay. Our gardens wear a forsaken and desolate aspect. The last Rose of autumn that outlived the Viola, and rivalled the Chrysanthemum, is "faded and gone."

But we know by intuition that the latent energies of Nature are sleeping underground. Ere long the bright angel of the spring shall touch them with the glory of his resurrective rays; and they shall rise at the sound of a voice we cannot hear into new and marvellous life. No sooner have the Chrysanthemum and the pallid Rose of Christmas faded from our vision, than the Snowdrop arises to tell us Spring is born.

And thus this hybrid, intermediate season, while expressive of patience and calm resignation, is not destitute of hope. The fair floral children of gracious Nature are not dead; with them this is the period of repose, they are repairing their vitality and renewing their strength, they are resting from their manifold beneficent activities till they experience once more the inspiration of the spring.

I find attractiveness in my garden at all periods of the year. Even at this date (December 1) my Lilac Primroses are beginning to bloom. *Jasminum nudiflorum*, the naked flowering Jasmine, has been for some time in luxuriant beauty, and will continue to unfold its golden treasures till its much-loved successor, the Snowdrop, has appeared. I perceive that the beautiful Madonna Lily (*Lilium candidum*), which is in sheltered situations, such as those which I have given it, a veritable evergreen, has, even on the confines of winter, been steadfastly growing, fearless of all danger, and spreading out with tranquil confidence its green and luminous leaves; exhibiting a vitality which survives, through its strength, the sternest grasp of frost. The Wallflower, which loves to adorn ancient ruins (as I recently saw it adorning the crumbling walls of the Abbey at Luce), is as verdant as the Hollies, which gleam through the naked, environing woods. I watch almost daily, with patient hopefulness, the gradual growth of the pendulous Snowdrop, the first daughter of Nature that rises from the grave of her former beauty, to hail with its purity and unobtrusive loveliness the new-born year. I bend, reverentially, remembering its exquisite sacred associations, over the snowy splendours of the Christmas Rose. And thus to me winter is not desolation. I know from experience not less than observation of her potentialities and achievements, that to Nature it is not death. I rejoice in her white shroud (too seldom witnessed here) of intensely glittering snow; for I feel that beneath this mystic covering, as if enfolded in softest ermine, the heart of Nature is beating still. That this is her own instinctive preservation against the imperious dominion of that element which is the greatest destroyer of vegetative life; and thus it is that when the covering snow has gradually faded into and fertilised the earth, a wondrous transformation, vernal in its freshness and beauty, is disclosed.

Throughout the entire season of winter we can find abundant evidence, especially in the regions of root-formation, of those latent energies which shall hereafter generate the glories of the spring. Nature, while seeming to rest from her labours, is earnestly preparing for the life that is to come—

"In all places, then, and in all seasons,
Flowers expand their light and soul-like wings,
Teaching us by most persuasive reasons,
How akin they are to human things.
"And with child-like, credulous affection,
We behold their tender buds expand;
Emblems of our own great Resurrection;
Emblems of the bright and better land."

David R. Williamson, Kirkmaiden, Wigtownshire,
December 1, 1899.



FIG. 152.—FRUITING SHOOT OF THE OLIVE.

many years one high-coloured Tea Rose, *Souvenir de Thérèse Levet*, yet you may run your eye over the Tea and Noisette sections at our great metropolitan show and rarely see it—so much so, that in Mr. Mawley's careful analysis of Roses exhibited on that occasion, it finds no place, and I talked with some of our most successful exhibitors, both amateur and professional, and they would have none of it. If then I have gone wrong, I have gone in good company.

In looking through the catalogue that is now prepared, one is struck by the position which the production of home-bred Roses has attained; most of those which have been added of late years not being of Continental origin. The late Mr. Bennet set the example, which has been so successfully followed by the firm of Messrs. Alexander Dickson & Sons, of Newtownards, who obtained during the last few years twelve Gold Medals awarded by the National Rose Society for new seedling Roses. It was also interesting to notice that the Rose which has been longest with us amongst exhibition varieties is that lovely tea-scented Rose, *Devoniensis*, raised in Devonshire in 1838; while another English Rose,

FRUIT OF THE OLIVE IN AN ENGLISH GARDEN.

It may interest your readers to know that the enclosed Olive is one of several that have been grown in my garden at Pippbrook, near Dorking, fruiting for the first time this year (see fig. 152). The tree was sent to me by Commendatore Thomas Hambury, from his garden at La Mortola, Ventimiglia. It is planted against a south-west wall, and its only protection in the winter time is some evergreen boughs, which I doubt being necessary. H. Gurney Aggs.

NOTES FROM A SCOTTISH MANSE.

(Continued from p. 290.)

THE INTERMEDIATE SEASON.—Many, and not seldom impressive, are the thoughts instinctively suggested to the earnest horticulturist by this season of the year. It is a period indeed whose outward aspect, notwithstanding the activity that prevails beneath the surface, is by no means expressive of beauty or of hope; especially when we consider its atmospheric influences, so tragically

FORESTRY.

PARK CLUMPS OF TREES.

(Continued from p. 394.)

THE form and size of park clumps should be determined according to which of those objects is in view, and the method of treatment should also vary for the same reason. When a background is wanted to break up and relieve the monotony of a dead level, the clump should act as a partial screen to the view beyond, and must be dense enough below to prevent the eye penetrating beneath or between the branches of the trees. With clumps thrown open to cattle or horses, the browsing-line, or height at which the shoots and leaves are continually nibbled off, is sufficiently high to enable the observer to look under it, and a clump in this condition aggravates rather than relieves the monotony of the aspect. The comparative density of the clump above the browsing-line, and the uniform sharpness and distance from the ground by which it is characterised, make an artificial division between the ground and the trees which stand upon it, only connected by the stems of the trees, which resemble the iron pillars which support a vermin-proof stack stand. This browsing-line can be broken and destroyed by pruning the trees up to different heights, but this only renders the clump more open; and to make it at all effective as a screen, some means must be found for providing trees or shrubs which retain their branches to the ground. A simple method is to retain the fence round the clump so that Thorns, Hollies, Yews, or similar dwarf and bushy plants may be maintained throughout its surface, and when the fence consists of iron standards and wire, it is quite invisible from a moderate distance. If the fence can be removed back a few yards from the outer line of trees so much the better, as a more natural effect is produced, and the sharp contrast between the grazed and ungrazed surface avoided. Another, though more laborious process, is the formation of a sunk fence round the ground which it is desired to enclose, but since the introduction of wire fences this is rarely resorted to.

FORM OF CLUMPS.

As regards the particular shape such clumps should take, a distinction must be made between the actual clump of trees and the fence which surrounds it in the earlier stages of its existence. As already stated, the usual course followed is that of making a circular enclosure and filling up the whole of the enclosed spaces with trees of either the same species or a mixture of different kinds of tall-growing forest trees. The result of this method is a mass of trees in which individual characteristics are entirely lost, and beyond the fact that the marginal trees retain their side branches, it differs in no essential point from ordinary plantations on a small scale. Viewed from any side its appearance is exactly the same, a feature which may possibly recommend it to its devoted admirers, but which does away with all possibility of picturesque variety in form and grouping. In some instances, it is never, or only slightly thinned; in others, the thinning is done with mathematical precision, and only trees which are strictly "proper" allowed to stand. When wind or accidental causes have made a gap here and there, and invested it with some claim to an attractive irregularity, as often as not the gap is promptly filled up by planting a young tree enclosed in a ponderous wooden guard, a practice probably adopted as a precaution lest some careless observer might mistake it as a natural production of the soil. Clumps framed and maintained on this principle do not, as a rule, improve a landscape; and often they are eyesores. Yet how many of our finest deer-parks throughout the country are disfigured by their presence in all stages of growth, and in every degree of ugliness!

No doubt, motives of economy have something to do with a circular form of clump, as more ground

can be taken in with the least length of fence, and so far as the latter alone is concerned, there can be no great objection to its being erected with as few angles as possible. But it is quite unnecessary to fill up the whole of the enclosed area on one uniform pattern, and with the same degree of density. Smoothly-flowing lines are not required when dealing with such material as trees, in which every branch and shoot aims at giving the crown, of which it forms a part, a more or less globular form—a law of growth which effectually prevents any approach to angularity or awkward corners. A round clump of crowded trees is nothing more than a crown of foliage with a base out of all proportion to its height, and cannot fail to have a squat and unpicturesque appearance, and instead of relieving the monotony produced by a large number of round-headed trees, increases it. The larger the clump, the worse becomes the effect in perspective, unless single trees in proximity to the margins obscure the profile, or irregularity of surface takes off some of its formality. A. C. Forbes.

(To be continued.)

HOW THE JAPANESE GROW THE DWARFED TREES IN JARDINIÈRES.

THUJA OBUSA.—"During spring and summer, by preference keep this plant in a sunny, airy situation, where the wind will pass freely through the branches; water once a day, affording just enough to make the soil moist. In dry, hot weather it may be necessary to afford water twice a day, care, however, should be taken not to have the soil wet, and never to apply water unless the plant needs it. Sprinkling overhead in dry weather is bad, but rain is always beneficial. During winter keep the tree in a cold greenhouse, partially shaded, or in an unheated orangery, applying water about once in ten days; the soil, however, must never be allowed to get quite dry. The art of successful culture of all plants in pots consists in the judicious application of water, too much or too little being equally injurious. Treated in this manner, the plant is very ornamental on balconies, terraces, &c. If this plant is kept indoors, it should always be placed out-of-doors at night, and as often as it is not wanted for decoration. Indoors it should never be exposed to the dry heat from a stove or open fireplace, otherwise the leaves will drop off, and the plant perish.

Pinus pentaphylla, and *Pine-trees* in general, growing in jardinières require the same attention in regard to water and general treatment as *Thuja obtusa*, but they are not so much influenced by atmospheric conditions; nevertheless, sun and air are necessary to the maintenance of health. It is therefore good to keep the plants out-of-doors as much as possible.

Maples and other deciduous trees need the same kind of treatment as *Thuja obtusa* as regards water at the root, but are more accommodating than evergreens. In fairly mild climates *Maples* may remain out-of-doors all the winter, but in places where the frost is severe they should be kept in a cool cellar, after the leaves have fallen in autumn; the soil must always be kept moist but not wet. Early in spring put the plants out-of-doors, and fully exposed to all weathers, and when in full leaf use them for decoration indoors as may be needed.

Manuring.—When the trees commence to grow in the spring, we afford manure twice a month, say, in March, April, May, and June, and again in September and October; in the hot days of July and August, no manure is afforded, nor in winter and early spring, the plants then being at rest. The best kind of manure is finely-powdered oil-cake and bone-meal, and to a jardinière 1 foot in diameter, three or four large teaspoonfuls, not heaped, of this dry manure is spread evenly round the edge of the jardinière; and a larger or smaller jardinière will require more or less, for a small jardinière, say, 3 by 6 inches, half-a-teaspoonful will be ample each time.

Repotting.—This is done by us once in two or three years, as follows:—Lift the plant out of the jardinière, and with a sharply-pointed stick remove about one-third of the old soil around the edges and bottom, cutting away a portion of the old, fine roots, but none of the strong roots, then replace the plant in the same jardinière, first looking to the drainage. For a small shallow jardinière, use a flat piece of tin or a flat crock over each hole, and over this spread some rich, fresh soil; neatly balance the plant, and fill up with the same rich fresh soil to within $\frac{1}{2}$ in. of the rims, and make it sufficiently firm around the edges of the jardinière to prevent the escape of water, it being of the first importance that the entire ball of soil be moistened at each application. Should the plant be neglected and the soil become quite dry, put the jardinière in a tub of water for ten or fifteen minutes, and if the dryness is not very great the plant will recover. In the case of large plants, concave crocks should be employed for drainage, such as are used by growers of specimen plants. After several repottings, the plant, having increased in size, will have come into a pot sufficiently large, and as dwarfness is the aim the smaller the shift the better. Repotting should be done in February or March, just before growth recommences. We advise when it is possible to get the above work done by a good gardener, who has been accustomed to the handling of Heaths, New Holland plants, &c. In the case of very shallow jardinières, it is found desirable to replace annually a portion of the old soil in order to maintain a healthy growth.

Pruning.—To maintain dwarfness in the trees, the young growth is pinched from April to the middle of the month of June, and always with the finger and thumb, a practice followed by the late Mr. Thomas Rivers, of Sawbridgeworth, England, with fruit-trees for fruiting in pots. In *Thuja obtusa* we pinch out the points of the young growth all over the plant, so as to maintain the right form; and this practice is also applicable to *Cryptomeria* and all other Conifers except *Pinus*. *Pinus* should have the points of the irregular growth pinched out simply to maintain the shape of the plant. In *Pomegranates*, *Lagerstrœmia indica*, the flowering *Peach* and *Cherry*, &c., we pinch back the non-flowering shoots either before or after blooming. *Wistaria* is pinched in July and August so far as regards the young shoots, leaving only four or five leaves on each. *Maples* and other deciduous trees are pinched back at the same time as *Thuja obtusa*, leaving two to four leaves as may be necessary to maintain the desired shape of the plants. Should a second growth be made, the same rule is followed of pinching out the points.

The following is a list of the names of dwarfed trees:—*Thuja obtusa*, *Pinus pentaphylla*, *P. Massoniana*, *P. densiflora*, *Larix leptolepis*, *Juniperus rigida*, *J. procumbens*, *J. chinensis*, *Podocarpus macrophylla*, *P. Nageia*, *Tsuga Sieboldi*, *Cryptomeria japonica*, *Acer palmatum* (*Maple*), *A. trifidum* (*Maple*), *Styrax japonica*, *Lagerstrœmia indica*, *Pomegranate*, flowering *Cherry*, flowering *Plum* (*Prunus Mume*), *Chamerops Palm*, *Cycas revoluta*, *Wistaria*, *Crataegus cuneata*, *Zelkova Keaki*, *Euonymus alatus*, *Ivy*, *Bamboos*. "The Yokohama Nursery Co., Ltd., Japan."

[*Cupressus obtusa nana* is so dwarf by nature as to need no pinching. We have two flourishing plants about 18 inches high, which have increased very little since they were planted on a rockery some twenty years ago. Near them is a *Maple*, planted about the same time, which has a trunk 39 inches round at 3 feet from the ground, and a head between 30 and 40 feet in height. Ed.]

COLONIAL NOTES.

TRINIDAD.

THE October number of the *Bulletin* contains a portrait of our valued correspondent, Mr. J. S. Jenman, the Government Botanist of British Guiana. Of the seedling Sugar-canes, some were

found, on analysis, to contain over 20 per cent. of sugrose, eleven over 19 per cent., and fourteen over 18 per cent., while the highest cane showed 21.41 per cent. of sugrose. "We are fairly under way to obtain the 20 per cent. required by cane planters to maintain a supremacy over the Beet-sugar industry."

THE MAIDENHAIR-TREE.

SOME of our Japanese friends may be able to tell us the meaning of the work Ginkgo, which by right

catkins on one tree, its female flowers on another. Cunning botanists have secured seed by grafting the male on to the female.

Now as to its history. It is generally known now-a-days that this earth, and our own little island like the rest, has undergone numerous and vast changes in pre-historic times; its surface has been repeatedly altered, now raised mountains high, now depressed to the bottom of the ocean, now covered with thick layers of ice, now basking in a tropical sun. The proofs of all this are seen not only in the varied strata of rock that form the crust of the earth,

fully realised is the fact that we have still among us direct lineal representatives of those palaeophytes—those plants of remotest ancestry.

What should we say if we were to meet in our gardens or streets an Iguanodon, a Megatherium, or any other of the huge beasts whose bones are impressed in the rocks of Wealden or liassic formation? What should we do if a Mastodon—which is relatively a recent inhabitant—were suddenly to appear before us? Probably, if fear did not get the upper hand, we should try to shoot it, as is the deplorable custom when anything new or interesting makes its appearance. Self defence might, nevertheless, supply in such a case as this a justification.

Now the Ginkgo was a contemporary of some, at least, of the creatures we have mentioned, and of many others. Traces of it are to be found as far back as the coal-measures, abundantly in the oolites and miocene formations, in Spitzbergen, in Greenland, in Mississippi, in New South Wales, in Russia, in Siberia, and in our own country in the oolite of Scarborough. Dozens of variations, some of which are of sufficient importance to constitute separate genera, have been found. In any case there is proof that this particularly antediluvian tree, now confined to China and Japan, was once very widely diffused, and that it presented more variety than it does now. The Mastodon is no longer with us, but the Ginkgo is. So much for its history, of which we have only sketched the outline.

That it is attractive in appearance, no one who has seen a good specimen, such as the one at Panshanger, can doubt (see fig. 153). The branches are of two kinds, extension shoots, long and flexible, pushing the leaves into the light and air, and short thick spurs like those of an Apple-tree, which serve to store up food for the tufts of leaves and clusters of flowers, which spring from their summits. These spurs are strictly analogous to the thick stems of Cycads. The long shoots which are more or less pendulous, give an elegant appearance to the tree, whilst the bunches of Fern-like leaves clothe it with deep green verdure, to be replaced by golden-orange as the winter draws near. The male flowers, as we have said, are in catkins, the female flower ripens into an Olive-like berry, of which we shall have more to say by-and-by. It is very nauseous to the taste, but encloses a toothsome kernel. A curious peculiarity of the tree is that it withstands not only cold, but also the smoky atmosphere of our towns, much better than most trees. It may then be confidently recommended as a town tree, if it can be procured in sufficient quantities. Is it permissible to co-relate the endurance of this tree in our towns with its survival through the ages? Surely the same endowments have been favourable to the tree in the one case as in the other. By the way, we may say that it is easily propagated by seeds or by layers. Again, it must be remembered that in its earlier age it is not very remarkable in appearance; its beauties, and they are great, grow with age. "Pulcherrima et procerissima arbor," Bunge calls it. This citation applies to the tree as growing in China. Its native locality was for a time doubtful. The tree is planted in the vicinity of Buddhist temples, and thus protected; but most botanists, even Professor Sargent, were of opinion that it no longer existed, either in China or Japan, in a wild state. Mrs. Bishop, however, met with it in the forests of Yezo; and if we remember rightly, Dr. Henry found it in south-west China.

Fine specimens of the tree are known to occur in various gardens, thus at Whitfield, near Hereford, there was a tree which measured 50 feet in height in 1868. The tree at Panshanger was estimated at 53 feet in 1868, and is now approximately 62 feet, with a girth of 10 feet at 1 foot from the ground. At Blaize Castle, Henbury, is a tree 65 feet in height (figured in *Gardeners' Chronicle*, December 6, 1879). At Broadlands, in 1882, a fine tree with a spreading habit, was 46 feet in height, with a trunk 7 feet in girth at 3 feet



FIG. 153.—GINKGO BILOBA AT PANSHANGER PARK, HERTFORD.

of priority is attached to the Maidenhair-tree. Ginkgo biloba is the accepted denomination, but it has also borne the name of *Salisburia adiantifolia*, in memory of a "critical" botanist, and in allusion to the *Adiantum*-like form of its foliage. It is a tree with a history—attractive in appearance, and full of interest to the student. It is a Conifer, or, more strictly speaking, a Taxad. Some say it is a Cycad, and recent discoveries undoubtedly point in that direction. It has deciduous leaves, wedge-shaped at the base, broad and two-lobed at the apex, with Cycad-like veins. Before they fall, in winter, they turn of a beautiful yellow colour. Its male flowers are borne on

which the expert geologist reads as from a book, but also, and, as some would think, even more decidedly in the remains of animal and vegetable life which they contain. The Isle of Sheppey in the mouth of the Thames is now a mere mud-bank, with the vegetation common to all estuaries along our coast, but its muddy cliffs contain in profusion relics of Palms, of Cycads, of Pandanads, and of scores and scores of plants now only met with in tropical or semi-tropical localities.

Our coal-measures teem with tree-Ferns and gigantic Equisetums, also indicative of warm climates—but it is unnecessary to give more illustrations; the fact is well known. What is less

from the ground (figured in *Gardeners' Chronicle*, July 22, 1892). The tree at Kew, once against a wall, was 60 feet high when we gave its portrait on March 2, 1889.

Our third rubric related to the interest attaching to the tree; perhaps we have said enough on this heading already, but to mention the Ginkgo without alluding to one of the most important discoveries ever made, would be to leave out the part of Hamlet from the play of that name.

The Ginkgo, together with the Cycas, bridges over the gulf between flowering plants and Ferns, and their like, a gulf very wide until two Japanese botanists in 1896, Prof. Ikeno and Dr. Hirase, constructed a bridge across by showing the existence of antherozoids instead of pollen grains formed in the pollen tube of both Ginkgo and Cycas, as they are in the antheridium of a Fern. Here, then, we have plants with the habit and appearance of flowering plants, and with the fertilising apparatus of the higher Cryptogams, a discovery second only in its consequences to the discoveries of Hofmeister, foreshadowed by Robert Brown. The researches of the Japanese botanists have been amply confirmed (in *Zamia*), amongst others by Mr. Herbert Webber, an honoured guest at our hybridisation conference (see *Botanical Gazette*, October, 1897).

Further researches have been made by Mr. Kenjiro Fujii, who describes some interesting malformations, and concludes that Ginkgo should stand as a distinct family between Cycads and Conifers, a view supported by Engler in the Supplement to the *Pflanzen Familien*. So much for the Ginkgo. We sometimes see the announcement, "What may be learnt from a tree." It is clear that in this case very much indeed may be learnt from a tree.

VARIORUM.

Does Kainit Injure Fruit-Trees?—Mr. Cornell, a correspondent of the *Rural New Yorker*, thus describes his experience in relation to this question:—"The use of kainit in moderate quantities as a source of potash on different fruits has given me, in past years good results. I have not used it recently, as muriate of potash is more satisfactory, and cheaper. With my experience, I would not apply kainit to any trees, except when they were in a dormant condition. With the orchard spoken of, where I had such a disastrous experience, it will be necessary to go somewhat into particulars, in order to understand the case. For a number of years we have been afflicted very badly with the Pear-midge—so much so that the fruit of Lawrence, which suffers most from its work, has been entirely destroyed by it. In my efforts to find a remedy for this pest, I saw kainit recommended, so tried it. I made my first application as an insecticide on or about April 15, 1894, on an acre of Lawrence trees. The trees were about twenty years old, and were in thrifty condition. I spread the kainit as evenly as possible all over the ground by hand, using 1 ton in the application. Some time later, I learned that it should not have been applied until the midge-maggot fell to the ground, which occurs the fore part of June. Fearing to use any more that season, I waited until the following year, 1895, when about June 15 I used the same amount in the same manner. The next year I used at the rate of half-a-ton to the acre. During this period this orchard was ploughed and harrowed, but was not given absolutely clean culture. The trees, in the summer of 1894, looked fine, the foliage was exceptionally good, and the trees showed great vigour. The growing season of 1895 showed no bad results except some fire blight, which was quite prevalent with me that year; but the summer and fall of 1896 showed many trees in a bad condition. Late in the autumn, finding some trees dying, I dug them out, when I found the large roots near the surface dead, or nearly so, while the deeper roots appeared healthy. I have continued digging up

trees to the present year. The trees now remaining look healthy, with two or three exceptions. The loss of trees has amounted to fully 50 per cent. I was strongly impressed with this fact—where the moisture was the greatest the loss was the greatest. Part of this plot is somewhat lower than the rest, and is much moister soil; there the loss was nearly total. I could not see but grass and weeds thrived well, notwithstanding this excessive dose of potash salts." In moderation, kainit has been used with great advantage for fruit trees in this country; but it will be seen that Mr. Cornell applied 2½ tons per acre in three years. *Agricultural Gazette*, December 4, 1899.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. YOUNG, Orchid Grower to Sir Frederick Wigan, Bart., Clare Lawn, East Sheen.

Orchids for Christmas decoration.—As flowers of every description are most valuable at this festive season for use in the usual decorations, a few remarks upon species and varieties of Orchids that flower at or about Christmas-tide may be useful. *Cattleya* blooms will be rather scarce, and will consist almost wholly of a few representatives of *C. Trianei*, *C. Percivaliana*, and possibly *C. Dowiana*. *Lælia anceps*, *L. autumnalis*, *L. alba*, are very useful, also *Dendrobium aureum*, *D. atro-violeaceum*, *D. crassinode*, *D. Wardianum*, and *D. formosum*. The last named species is a grand white-flowering *Dendrobium*, and its flowers of much value when cut. *Cypripedium* are very prominent, the commoner and most useful species being *C. insigne* in many varieties and colours; the lovely *C. Spicerianum*, *C. × Leeanum*, *C. × Arthurianum*, *C. Boxalli*, *C. villosum*, *C. venustum*, and the various species and hybrids of the *Selenipedium* section, of which perhaps the finest is *S. × Perseus*, a hybrid from *S. Sedeni* porphyreum crossed with *S. Lindleyanum*. The flowers are uncommonly persistent, and the branching spikes have ten or a dozen flowers expanded at one time. There are numerous other hybrid "slipper" Orchids that are in flower now. It is rather early for *Odontoglossum crispum* to flower, though a few will be in bloom in large collections. *O. Rosii* also is hardly in season; but the pretty, sweet-scented, white-flowering *O. pulchellum* on the contrary is in flower. The genus *Oncidium* furnishes us with an excellent Christmas plant in *O. varicosum*, the golden yellow flowers of which form a beautiful contrast to the scarlet and rose coloured forms of *Sophranitis grandiflora*. In other than foggy districts, nothing surpasses the beauty and utility of the variously coloured forms of *Calanthe Veitchii*, and its parental relation *C. vestita*; but in or near smoke-laden districts, it is impossible to flower these plants with success. In *Masdevallia tovarensis* we have a very useful white-flowering winter plant. *M. amabilis*, *M. × Chelsoni*, *M. Hitchcockii*, and *M. Veitchii* supplying blossoms of grateful colours. Blooms of *Cœlogyne cristata* are sometimes cheaper to buy at this season than scarlet *Pelargoniums*, the reason being that the latter are very scarce, but the Orchid is ill-adapted for use as a cut flower, and is also a "bad traveller." *Cymbidium Tracyanum* is not yet common enough to be grown in quantities, but it will hereafter form a strikingly beautiful addition to the florists' Christmas list. *C. giganteum*, *C. elegans*, and *C. Masterii* are now in bloom, the last two however are of little use as cut flowers. From a misconceived idea of the difficulty attending their cultivation, *Phalaenopsis* are not grown to the extent they deserve to be, for most of the showier species flower in winter. *P. Aphrodite*, *P. amabilis*, and *P. Stuartiana*, are now in bloom, and as their prevailing tone is white they are very acceptable. *Miltonia Rosii* is not common for a similar reason, but where a dozen or more plants are grown, one or other will generally yield a few welcome flowers. This list is by no means an exhaustive one, but it includes most of those Orchids suitable for display in the houses, or for use as cut flowers.

Bletia hyacinthina may now be repotted or top-dressed, the latter sufficing where the tubers are not overcrowded. If however any are overcrowded, turn out the plants and place them in larger pots, or divide them so as to increase the stock. The pots

should be half filled with drainage material, and a rooting medium consisting of one half fibrous loam, one half peat, a little chopped sphagnum moss, and sufficient coarse sand or finely broken crocks scattered in in order to render the whole porous. The tuberous portions of the plants should be covered with the compost when completed, the young growths appearing through it like "Lily-of-the-valley" crowns. Place the pots in a light part of a cool house, and until the flower spikes appear, afford only sufficient water as will keep the soil moderately moist, but afterwards they will need a more liberal supply.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonsbirt, Tetbury, Gloucestershire.

The Hardy Fernery.—As there are so many distinct hardy, evergreen and deciduous species of Ferns, no necessity exists to plant any other in the hardy fernery, and if the method of planting, and subsequent treatment are such as were advised in a previous calendar, the plants will withstand a hard winter, providing all the dry fronds are allowed to remain as a kind of protective covering. Large Ferns should be cleared of all accumulations of leaves, &c., that may have lodged in the crowns, which, if allowed to remain for any length of time, would cause the young fronds to decay.

Hardy species of Ferns growing in pots.—These plants should be plunged in coal-ashes or leaf-mould, in a sheltered place so that the soil will not freeze the pots and burst them. They may also be placed in cold frames (plunged) and be afforded plenty of air when there is no frost, and be kept moderately moist at the root. When hardy Ferns are wintered in a greenhouse they do not obtain sufficient rest, being apt to start into growth prematurely, the fronds then coming weakly, and in many instances the natural character of the plant is changed.

Roses worked on the Briar, and those on their own roots, require, in order to maintain them in vigorous health, to be liberally manured. If the plants have occupied the same spot for several years a top dressing of rotten farmyard manure may be afforded in mild weather when the soil is not frost bound. Let the soil be loosened with a digging fork, after treading the manure evenly to the depth of from four to six inches. The Dog-Rose stocks on which the Rose is budded to form standards, should be procured this month, giving preference to those with green rind, such having more latent vigour than stocks with hard and brown rind. In lifting Dog-Roses from hedgerows, efforts should be made to secure the fibrous roots in quantity, and when replanting the stock the roots should not be planted deeper than four inches. Secure the stems against the wind, make the soil firm about the roots, and shorten the stems to various heights.

Plants growing in Tubs.—Specimens of *Hydrangea*, *Agave*, *Agapanthus*, *Orange*, *Lemon*, *Myrtle*, *Pomegranate*, *Nerium*, &c., winter satisfactorily and in a house having a temperature of 40° minimum, and 50° maximum, being kept moderately dry at the roots. *Rhododendron*, *Sweet Bay*, *Portugal Laurel*, and other hardy trees should be placed where they may be sheltered from the cold winds, the tubs being tilted on one side, and some moss, bracken or straw placed over the soil, in order that frost and snow may not penetrate the latter.

Plants in Frames.—The recent change will call for liberal coverings of litter and mats on pits and frames containing hardy plants, but uncovering them when the temperature rises by day a few degrees above the freezing point, and admitting air for a few hours. If it be found that the frost has penetrated the pits, &c., the plants should, when thaw weather sets in, be gradually exposed to the light; and in severe cases a sprinkling of water a few degrees colder than the air of the pit, &c., will assist in withdrawing frost from the plants.

PLANTS UNDER GLASS.

By G. R. FIELDER, Gardener, North Myms Park, Barnet.

Hydrangea hortensis.—Where a number of this species was raised from cuttings in the early autumn, and afterwards placed in a cool pit, they will now have lost their foliage, and be quite at rest. If it is desired to have a portion of the

plants in bloom as early as possible, one half of the number may be transferred from the small pots in which they were struck singly into others of 5 inches in diameter, leaving the remainder to be similarly treated in a month's time. A suitable compost would consist of three-parts loam, one-part leaf-soil, together with a small quantity of rotten manure, and a sprinkle of sand. In potting, the plant should be kept low, so that, if possible, only the flower-bud remains above the soil. A position near the light, in a house having a temperature of from 50° to 55°, should be afforded them, and water applied sparingly until the plants begin to grow and make fresh roots, when water may be more freely afforded. As soon as the flower-trusses appear, which should be when about four pairs of leaves have been developed, liquid-manure should be applied, and its use continued at frequent intervals till the plants are in full bloom.

Hydrangea paniculata grandiflora.—This plant is largely grown in pots, and forced into bloom for conservatory and house decoration. In the cut state, the large creamy-white flower-trusses are very useful for filling large vases. Plants which have been received from the nursery should be placed in pots sufficiently large to contain the roots comfortably, where this has not already been done. The strongest plants will require 8-inch pots. A similar compost to that recommended for *H. hortensis* should be afforded; and after potting, the plants ought to be plunged in coal-ashes in the open till brought indoors for forcing.

Adiantum cuneatum.—Plants for furnishing an early crop of fronds for cutting purposes, provided they have been resting for some weeks, may be afforded a temperature of from 55° to 60°, and afforded water sparingly until active growth begins. Plants bereft of most of their serviceable fronds should be cut over, and then rested in a house with a temperature of about 45°, and for a few weeks be sparingly afforded water.

Reinwardtia (Linum) trigynum and *R. tetragynum*.—Both species, having now finished flowering, should be cut well back, to furnish young shoots later, for purposes of propagation. The plants should be examined for red-spider, and means taken to thoroughly rid the plants of this pest before cuttings are taken. Cut-back plants, and those which will be cut back in February, should be kept clear of all kinds of insects by the use of insecticides, and be afforded less and less water till an application once a week will suffice. The plants may be rested in a temperature of 55°. Repotting may take place in February and March.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barchin.

Forcing Asparagus.—The supply of heads once begun should be maintained by placing batches of roots in the forcing pits at intervals of two to three weeks. After the new year not much warmth is required to get Asparagus into growth, and a newly-startedinery or Peach-house will do as well as a forcing-pit proper. The roots should be stood close together on the borders, and covered with finely-sifted leaf-soil. Air in small quantities should be admitted in favourable weather to the pits in which the heads have appeared above the soil, so as to impart flavour and colour to them. Materials may continue to be prepared for filling pits and frames for the later forcing of Asparagus, which will be succeeded by Potatoes, Cauliflowers, and Lettuces. Forcing pits dependent on leaves and dung for their heat should be watched carefully, and if the bottom-heat falls below 75°, and the top correspondingly decreases, the dung linings must be renewed wholly or partially as may appear necessary. Only tepid water should be employed when water is needed, and all shoots that are fit for table use cut daily, as to leave them on the roots will make them tough-eating.

Celery should now be protected with a slight covering of long litter or bracken, removing this in mild weather, but keeping it handy. A supply of heads should be lifted and stored in damp soil in a frost-proof shed or cellar, thus ensuring a supply if hard frosts should set in. The same may be said of Horseradish, Chicory, Dandelion, Parsnips, Turnips, Kohl-rabi, Artichokes, &c.

The Ice-house.—If ice be stored at home, the

drags, hooks, mallets, &c., used in doing the work should be put into good order. Having filled the ice-house with clean ice, well rammed down as it was shovelled into it, a large heap may be formed in a cool shady place provided with natural drainage. An enclosure, say 20 feet square, may be surrounded with a wall of slabs of green timber, railway-sleepers, &c., and be filled with ice, well pounded and sprinkled with water, so as to cause it to set in a solid mass, and finish off the heap with a domed top. The sides and top may be covered, the former with sawdust and the latter with straw 2 feet in thickness. This heap will afford a supply of ice for five months, saving that in the ice-house for late summer and autumn use.

Potatoes.—Afford ample protection to the stores of Potatoes in clamps out-of-doors, and in sheds and cellars, so that neither frost nor light reaches them. On wet or snowy days an examination should be made of all Potatoes stored indoors, and those in clamps be inspected, and the decayed tubers extracted in fine mild weather.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORTESCUE, Esq., Dropmore, Maidenhead.

Dressing and pruning Orchard Trees.—During such frosty weather as that which we are experiencing at the time of writing, nailing and pruning of wall trees cannot well be carried on excepting when the sun shines for a few hours in the middle of the day, and the opportunity this frosty weather affords, should be utilised in thinning of the heads of orchard trees, that is, taking out the branches where these are crowded together. The operation should not be carried out severely, although it may seem to be much called for, but be carried out in several successive winters till the crowns are sufficiently thinned. The first job should be the removal of the interior spray, and the intercrossing branches, sawing the latter off low down, and smoothing the jagged edges left by the saw, with a knife or chisel. The main idea for the pruner should be a symmetrical crown with not too many branches which the sun's rays can readily penetrate when the trees are in leaf. While pruning, look out sharply for American blight, a pest which has been rather prevalent this year, and afford infested trees a dressing of soft soap, petroleum, or the trade petroleum emulsion. In making the former at home, use half-pint of petroleum, and four gallons of boiling rain water with sufficient soft soap to form a good lather. This may be applied with a new scrubbing-brush, working it into the crevices of the bark. A lather made with Gishurst's Compound-soap is likewise an efficient dressing. Trees which are badly infested should be cleared of the soil around the stems to the depth of three or four inches, dressing the stems with the mixture. The old method of lime-washing the stems and branches is not to be condemned as a remedy, especially on lichen-covered trees. Used of the consistency of cream and put on warm with a little size dissolved therein, it forms a useful winter dressing.

Delayed Planting.—Owing to the sudden fall in the temperature, accompanied by snowfall in places, planting may be somewhat retarded in some gardens, and it is better to wait than to plant whilst the soil is covered with snow, and perhaps frozen. Bundles of fruit trees which may have arrived from the nursery should be unpacked without delay, laying them in temporarily till suitable planting-weather arrives. To lay them in properly, let a good sized trench be thrown out in which the roots should be laid and covered with unfrozen soil, burying them fairly deeply, afterwards covering the whole with litter, but leaving the tops exposed.

FRUITS UNDER GLASS.

By W. STRAUSS, Gardener to Lieut.-Col. RALPH VIVIAN, Rood Ashton, Trowbridge.

The Cucumber House.—The late spell of wintry weather has not been good for winter Cucumbers under ordinary conditions, but any loss of vigour in the plants should be counteracted by occasionally sprinkling the beds with fresh loamy soil mixed with finely sifted leaf-mould and bone-meal in small quantities, and failing these, with loam and fresh horse-dung. Neither liquid nor artificial manure are much needed if there is due attention paid to top-dressing the beds. The roof glass should be kept bright by removing the deposits due

to fog, plenty of sunlight being of great importance in the winter months. Water should be applied when needed. When bottom heat is derived from the hot-water apparatus, the soil is apt to get rapidly dry, and needs applications of water at short intervals of time; but when bottom heat is derived from fermenting materials wholly or partly, great care must be observed in affording water, or the roots will become inactive, and the soil sour. Syringing should only be practised on sunny mornings, but damping down of floor and wall spaces may be practised daily, and the evaporating troughs kept filled with water with which a small proportion of manure-water may be mixed. The temperature of the fruiting-house should be kept at a not lower figure than 70°, except in severe weather, when it may be allowed to fall a few degrees. With sunshine the warmth may rise to 80°, and whenever the air is mild a small amount may be admitted when the thermometer in the house indicates 80°. The temperature of the water applied to the roots or foliage should not be less than 75°. Let attention be constantly paid to the pinching of the young shoots, without which it is impossible to keep up a regular supply of fruits. The latter, as fast as they become of a useable size should be removed, keeping them in a warm place with their stalk-ends immersed in water.

Sowing Cucumber-seed.—If winter Cucumber culture is not practised, but the season begins at an early date in the spring, seeds may now be sown. If a propagating-bed made of fermenting materials is available, and it has a steady bottom heat of 80° and top heat of 70° to 72°, Cucumber seeds may be sown 2 in a 60, or 6 in a 48-pot, which should be plunged wholly or partly in the plunging materials overlying the bed. Moist loam and leaf-soil should be used to fill the pots, and no water afforded before the rough leaves appear on the seedlings. The seedlings in the 60's may be singled to the stronger in each pot, or they may remain together and be shifted intact into 48 or small 32's. Those in 48's may be lifted with a ball of earth and potted in 60's or 48's, singly or in pairs. Be careful to use quite warm soil, replacing them in the frame directly, and keeping close for a few days. If no leaf-soil is available, use Mushroom-bed dung, and be sure to use new or clean pots for sowing and potting. Slightly press the soil before sowing the seeds, but do not press that which is used in the filling of the pots. Keep the glass bright, as full sunshine strengthens the plants, especially when air can be afforded simultaneously. A shelf near the glass is not a good place for growing these plants, as it is usually one to which draughts of cool air have access, and the hot-bed frame or propagating-pit is a much better place for them.

HARD WEATHER IN THE NORTH AND MIDLAND COUNTIES.—Some of our correspondents state that cold of 27° was experienced in Northamptonshire on Friday, December 15; and 1° less at Wylam-on-Tyne on the same morning. Lincolnshire has been visited with severe cold.

ANNUAL DINNER AT THE TURNFORD HALL INSTITUTE.—The little village of Turnford, near Cheshunt, is sometimes called "Rochfordville," because it owes its growth, almost its very existence, to the nursery industry introduced there some fifteen years ago by the three Rochford brothers, Thomas, John, and Joseph, who rank among the most successful market-gardeners in Britain. There was a large gathering on the 16th inst., at the Workmen's Institute associated with the Turnford Hall Nurseries, over whose destinies Mr. THOS. ROCHFORD, the eldest of the three brothers, presides. Mr. THOS. ROCHFORD, who is president of the club, occupied the chair, and was supported by a number of influential gentlemen. The most pleasant feature of the banquet was the amicable relationship so unmistakably manifest between that gentleman and his great army of employees. Mr. F. W. MARTIN gave the most popular toast of the evening, "Our President;" and Mr. ROCHFORD in responding said he was proud of his staff of men, and proud of the club, and the uniform respectability which had characterised it ever since it was opened. The speeches were interspersed with musical and humorous selections.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, DEC. 25—Christmas Day.
TUESDAY, DEC. 26—Bank Holiday.

SALES.

FRIDAY, DEC. 29.—Dutch Bulbs, Japanese Lilies, Rose &c., Imported and Established Orchids, at Protheroe Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period December 10 to December 16, 1899. Height above sea-level 24 feet.

1899.		DIRECTION OF WIND.		TEMPERATURE OF THE AIR.				TEMPERATURE OF THE SOIL AT 9 A.M.				RAINFALL.	TEMPERATURE ON GRASS.			
DECEMBER 10 TO DECEMBER 16.	At 9 A.M.				DAY.	NIGHT.	At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	Lowest	Highest		Wet Bulb.	Dry Bulb.		
SUN. 10	S.E.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.						
MON. 11	N.	34.0	30.3	36.2	30.9	...	30.7	44.5	48.9	21.2						
TUES. 12	E.S.E.	33.7	32.0	33.9	26.5	0.04	37.9	43.9	48.5	21.6						
WED. 13	S.E.	32.0	29.1	32.5	31.8	...	37.9	43.1	48.1	20.6						
THU. 14	N.E.	28.8	27.0	31.7	21.9	...	37.8	42.8	47.7	12.7						
FRI. 15	N.W.	27.1	27.0	34.1	24.1	...	36.8	42.2	47.4	13.3						
SAT. 16	S.E.	34.8	33.2	42.9	24.1	...	36.5	41.9	47.1	12.5						
MEANS...	...	37.6	29.8	35.0	26.8	0.04	37.8	43.3	48.1	18.8						

Remarks.—The weather during the week has been very foggy and frosty. Snow fell on the evening of the 12th inst. to the depth of 1 inch. A partial thaw set in on Saturday, followed by a sharp frost at night.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—37.3°.

ACTUAL TEMPERATURES:—

LONDON.—December 20 (6 P.M.): Max. 42°; Min. 36°.

East wind; dull; cold.

PROVINCES.—December 20 (6 P.M.): Max. 47°, S.W. Ireland; Min. 39°, E. Counties.

At this season of the year in particular we think of our friends, past and present, with more than ordinary sympathy and pleasure. Unless we are very unfortunate, or very morose, which comes to the same thing, it is astonishing to find, on calling the muster-roll, what a goodly fellowship of friends we horticulturists find ourselves connected with. As the years spread out, no doubt some go, never to be replaced, but their memory remains a valued possession indeed. We are reminded of this right good-fellowship when thinking of Mr. HARRISON WEIR. Who that knows him will not set him down as a right good fellow? and the number of people who know him, in some way or another, must be vast indeed. How many

years he has been at work adding to our pleasures and enjoyments, inciting us to an appreciation of Nature's works, guiding our taste, and stimulating our love of the beautiful, we do not care to count. Suffice it to say, that the portrait we now offer was taken on May 5 of this present year, when Mr. HARRISON WEIR completed his seventy-fifth birthday, and the

and the artist work together, no doubt, but it is the born naturalist that has the precedence; and what he sees—aye, and what he feels—is reflected on his canvas.

There is hardly a branch of natural history in which Mr. WEIR has not interested himself. He is an excellent judge of poultry, dogs, and pigeons; he is the historian of cats; he knows



HARRISON WEIR.

look of that genial face seems to indicate that Mr. WEIR has yet more, and of good quality, in store for us.

Mr. HARRISON WEIR is an artist by profession, a member of the new Society of Water Colours, and the author and designer of illustrations innumerable in books and in the press; but it is not in that respect that we would here speak of him, even were we competent to do so. It is rather as a naturalist that we would think of him in this place. The naturalist

the little ways of birds, and beasts, and fishes; and he has written more articles and books about them than we could count. More than that, he is an enthusiastic and a progressive gardener, revelling in "wild gardens" before the name was invented, ever seeking to let a particular plant develop itself to its best, so that its beauty and exquisite adaptation to circumstances (environment we call it now-a-days) may be seen, studied, and pondered over, after the way of plant-lovers. On the other hand,

the faultless symmetry of florists' flowers, and their exquisite gradations of colouring, find in him a warm admirer, and no one knows better how to gain effect by grouping and massing. As an experimentalist he has always been at work. As a cross-breeder he has raised new

"The Floral Art of Japan." THIS is a second and revised edition of the *Flowers of Japan*, and the *Art of Floral Arrangement*,* by Mr. JOSIAH CONDER. A notice of it at this season is opportune when we western barbarians are apt ourselves to recognise the

Significance and simplicity are the two leading features in Japanese floral decorations. Significance in that there is a definite meaning or purpose in what these deft-handed people do, whereas we inexperienced Westerners cram as many flowers as possible into our vases or our wreaths without thought of underlying purpose other than that of making a display.

Subtle harmonies, striking contrasts, beautiful compositions, and appropriate combination, if they occur at all do so with us by accident. This is all very different from the Japanese plan. The Japanese go to the other extreme, and attach undue importance to trifles—push significances to absurd extremes, and becloud the art of flower arrangement under a veil of tedious and irksome etiquette; or so it seems to us. To them it may be as important as sundry details of ceremonial are to some among us. The Japanese are intense in their love of flowers. The pages of the book before us show how they make high festival when the Plum, the Peach, and the Cherry, are in bloom; how they revel in the beauties of the Wistaria, the flat-petalled Iris (Kämpferi), the Pæonies, and Azaleas.

In autumn the cult of the Chrysanthemum, and of the coloured foliage of the Maples, is practised with fervour. The coloured illustrations in the book before us are delightful as representations of Japanese manners and customs with relation to flowers; and the text gives us full details as to the flowers suited for this or that occasion, ceremonial, festive or funereal, specifying what may be used and why, and noting what may not be used for equally good reasons. To follow out these suggestions fully, the decorator would have to be thoroughly imbued with the religious feelings, the romance, the history, the sentiments and sympathies of Japan—in fact, he would have to be a cultured Japanese. All floral designs are made with the object of giving pleasure to visitors. The arrangement is placed to the best advantage in a special recess, in front of which the visitor squats with his knees bent, and the body resting back on the heels. He is supposed to take in the spectacle with careful deliberation and rigid ceremonial. He is to begin at the top and examine from the left and then from the right. After such inspection at close quarters, the guest slides backwards to regard the whole composition from an appropriate distance. He may then express his admiration, but he must do so only in the formulas which etiquette prescribes; and then the unlucky morning-caller may be invited—not to write a copy of verses in a lady's album, but to form a floral arrangement for himself. Materials for the purpose are provided, and the guest proceeds on his task under somewhat painful circumstances, and hampered with an infinitude of embarrassing rules of etiquette.

The general principles of Japanese flower arrangement are easily seized. They are founded on love of and imitation of Nature, and on simplicity.

See, for instance, how, in the cheap hangings or kakemonos now so common in our shops, the character of the stems of the trees is indicated by a few vigorous strokes of the brush, and with such verisimilitude that it is often quite possible to see what particular species of Pinus the artist has copied. Notice, too, how in the book before us, the rugged stems of the wild Plum are, as it were, emphasized in floral decorations, only a branch of wild Plum in a vase, but so arranged that, simple as it is, the material it forms an artistic composition. Our author gives copious details and illustrations of



FIG. 155.—PERISTERIA ELATA, THE DOVE ORCHID: FROM THE GARDEN OF J. BROOME, ESQ., SUNNY HILL, LLANDUDNO. (SEE P. 473.)

Cacti and new Pelargoniums, of which "Kate Greenaway" was the best; and he has also paid considerable attention to the variation in fruits induced by single, double, and treble grafting.

Long may he continue to be as one—

"Who loveth well
Both man, and bird, and beast."

symbolism of flowers, and to decorate our dwellings with less or more taste. It is evident from a mere glance at this interesting and beautifully illustrated volume, that we have much to learn from the Japanese in the way of utilising flowers for decorative purposes.

* Sampson, Low, Marston & Co., St. Dunstan's House, Fetter Lane, E.C.

these compositions, and of the means the Japanese make use of to secure due balance. As we have said, they are very simple in the abstract, but they require an inborn taste and a trained eye to carry out in the concrete. The following extracts will show what association the Japanese connect with flowers:—

"There are said to be in Japan 269 colour varieties of the Chrysanthemum, of which 63 are yellow, 87 white, 32 purple, 30 red, 31 pale pink, 12 russet, and 14 of mixed colours. A fancy prevails that in this flower the same tint is never exactly reproduced, and that it thus suggests the endless variety of the human countenance. Blooming longer than most flowers, the Chrysanthemum has come to be associated with longevity. In the province of Kai, a hill, called the Chrysanthemum Mount, overhangs a river of clear water, into which the petals fall, and a belief exists that long life is assured by drinking the water of this stream. A favourite motive of decoration, which may be seen in numerous conventional designs, is the Chrysanthemum blossom floating in running water. A custom also survives of placing small blossoms or petals in the cup during the wine-drinking which takes place on the festival of the ninth day of the ninth month.

"The ordinary varieties of Chrysanthemum are to be seen in great abundance in the street fairs during the autumn months. Dango-zaka, in Tokio, is a favourite popular resort during the Chrysanthemum season, but here the flowers, mostly of the smaller kind, are used, artificially, modelled into groups of figures and animals representing historical subjects, scenes from popular theatrical performances, and even the battle scenes of the China-Japan war."

"For the floral decorations of the New Year, it is customary to adopt a combined arrangement of Pine, Bamboo, and Palm-branches in a large bronze or porcelain vase. These flowers are, however, sometimes used separately, in which case the Pine is displayed on the first, the Bamboo on the second, and the Plum on the third day of the year. In some cases a vase of green Bamboo, with twigs and leaves left on, is used to hold branches of Pine and Plum-trees, the floral triad being formed by including the vase itself. The Willow is a favourite tree for use in hanging compositions at this season, and plants such as the *Adonis amurensis* (Fukujuso), *Rhoeo japonica* (Omoto), and *Ardisia japonica* (Yabukoji) are often employed in combination with the Plum."

* * OUR ALMANAC.—According to our usual practice we shall shortly issue a *Gardeners' Chronicle Almanac* for the year 1900. In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical and allied Societies, or any of our correspondents, will send us IMMEDIATE INTIMATION of all fixtures for the coming year.

NEW GARDEN PLANTS, 1898.—The Appendix II., 1899, to the *Kew Bulletin* (Eyre & Spottiswoode), is a record of all the plants introduced into gardens during the year, compiled from the various publications foreign as well as British. Many of these names are merely temporary or provisional, destined it may be, to be changed when more knowledge has been obtained. Such names are published necessarily without full botanical details, and should therefore be treated simply as "garden" names. They should be recorded, and the place and time of publication given, but no author's name should be given in the absence of any authentic botanical description or adequate illustration.

JAMES MARTIN MEMORIAL FUND.—It is intended to raise a fund for the purpose of placing a child on the Orphan Fund. The fund will be known as the MARTIN Memorial Fund, and will perpetuate the memory of a zealous and conscientious man, and at the same time relieve the neces-

sities of some unfortunate child. Messrs. ARTHUR SUTTON and HARRY VEITCH are the Treasurers; Mr. WOOLFORD, East Thorpe, Reading, and Mr. H. C. COX, Fernlea Junction Road, Reading, are the Secretaries.

PRESENTATION TO MR. T. W. SANDERS.—At the recent annual dinner of the National Amateur Gardeners' Association, held at the Holborn Restaurant, rather more than ordinary interest was evinced in that gathering. For some time past the members have expressed a wish to recognise the valuable services rendered to the association by their president, Mr. T. W. SANDERS, who, during nine complete years has freely given his advice and help in many ways. On behalf of the members, Mr. D. B. CRANE, deputy-chairman, presented a handsome gold watch and chain, engraved on the outside with Mr. SANDERS' monogram, and with the following inscription engraved on the inside of the case:—"Presented to T. W. SANDERS, Esq., by the Members of the National Amateur Gardeners' Association, as a token of esteem and regard, and in recognition of his long and invaluable services [as their President: December, 1899." Reference was made to the founding of the association on the initiative of Mr. SANDERS, whose many years of service had been ungrudgingly given.

OOM PAUL AS A GARDENER.—OOM PAUL KRÜGER has inherited from his forefathers a love for floriculture. Strange to say, he cares little for Tulips, less, in fact, than for any other flowers, perhaps because the South African climate is scarcely suited to the development of these gorgeous bulbs. He does not dislike all bulbous plants, however, for the Daffodil is one of his favourites. For many years he has imported Narcissus bulbs from Europe, but alas, he cannot make them grow. OOM PAUL has consequently announced with due gravity that he has given up the Narcissus, which is probably equivalent to saying that it cannot be grown in South Africa with success. To one accustomed to imagining this obstinately powerful Boer as ever subjugating or resisting some one or something, it will be strange to picture him as having trowel in hand, fussing with loam in flower-pots and watching the seeds sprout. His Phlox garden is the pride of Pretoria, and every morning early when the good burghers drop into the Executive Mansion, they find their President sitting or standing by a table which invariably bears four vases of these flowers, red, white and pink, in outlandish contrast with the bottlegreen tablecover resembling an immigrant's scarf, and occasionally some visitor will be honoured with a *boutonniers* of white and red flecked Phlox. There is one colour that Oom Paul cannot abide in his garden, and that is purple, and if such a flower of that hue chances to intrude he will cast it out as if it were a rank weed. When KRÜGER is not fussing about his trees he is attending to the potted plants, which are his especial delight. He has many of them in variously shaped receptacles, most of which are of tin. Even the tomato-can is made use of, as several Ivy-vines just being trained go to show. When one steps on to the piazza of OOM PAUL's cottage, he encounters long rows of shelves laden with potted plants. Red Geraniums are especial favourites, and he always points to each new budding stalk with pride. Azaleas of some size bloom about the house in their season, and in the early spring one may see a box of sprouts as carefully tended as an occupied cradle. OOM PAUL's eldest living son inherits his father's love for almost everything, but plant-culture has never taken his fancy. It is related that an Englishman who had travelled in the Transvaal had learned of OOM PAUL's fancy for plants, and played the practical joke of sending him some seeds of the obnoxious Russian Thistle, which has become the pest of the farmers of Europe. OOM PAUL was pleased with the stranger's courtesy and immediately planted the seed, not knowing what it was. Only one seed sprouted and then died a melancholy death. Thereupon, in

all innocence, and not to be balked in his attempt to grow anything, he wrote and asked the courteous stranger for more of the seed. *Evening Sun*.

"A MOST SUCCESSFUL GARDENER."—MR. CHAMBERLAIN was recently described in perfrigid Latin as "*florum ipse cultor felicissimus*." The occasion was when an honorary Doctor's degree was conferred by the University of Dublin, on the eminent Minister and well-known orchidist.

WEST EUROPEAN MINTS.—M. ERNEST MALINVAUD, who is well known as the French Mint specialist, sends us a short paper on the genus extracted from the *Comptes Rendus* of the learned societies for 1898. M. MALINVAUD published in 1877-8 four fasciculi containing twenty-five specimens each, collected principally in France. He places in a distinct sub-genus *M. Palegium*, *cervina*, and *Requienii*, and considers that the primary species run into numerous sub-species and varieties, and that they hybridise copiously, the primary hybrids sometimes hybridising again. In this country very little has been done in the genus since the publication of Mr. J. G. BAKER's monograph in *Seemann's Journal of Botany* for 1865. In Germany the Mints have been studied carefully by MM. F. SCHULTZ and WIRTGEN, who also have published a fasciculus of specimens; in Belgium by M. DURAND and the Abbé SHAIL; and in France by MM. BOREAU and DÉSÉGLISE. The third edition of BOREAU's *Flore du Centre de la France*, contains descriptions of fifty-five species, and the Abbé SHAIL's monograph of the Belgian Mints in vol. xxvi. of the *Bulletin of the Royal Botanic Society of Belgium* (pp. 63-168) of 134.

JAFFA ORANGES.—The *Revue Horticole* of November 16 has an article from the pen of M. ANDRÉ, and an excellent coloured figure. Our excellent colleague tells us that this variety is not mentioned in that curious old book, FERRARI's *Hesperides*, nor in RISSO & POITEAU's famous *Histoire Naturelle des Orangers*. The variety is cultivated in the coast region about Jaffa, but M. ANDRÉ has succeeded in introducing it to the Riviera, and the illustration now given is taken from a fruit produced in his garden at Golfe Juan.

MOUNT KOSCIUSKO.—In the *Agricultural Gazette* of New South Wales for October, Mr. MAIDEN narrates how he made the ascent of this mountain, which reaches an altitude of 7328 feet. After leaving the pastures, the travellers passed through a dense scrub of Snow Gum (*Eucalyptus coriacea*), the trees being about 20 feet in height. Intermingled with this were large patches of *Dianella tasmanica*, bearing a profusion of blue flowers, of whose beauty Mr. MAIDEN speaks enthusiastically. A list of the plants collected is also given.

THE FRENCH FORCING GARDENERS (PRIMEURISTES).—A deputation from the Syndicate of the French Market Gardeners (Primeuristes) visited the kitchen garden of the National School of Horticulture to see the preparations for forcing Strawberries in 1900. The deputation found 25,000 pots or plants, a number against which they protest as being much larger than is requisite for the tuition of the pupils. According to the *Bulletin of the Syndicate*, France sent us fruit to the value of 12,173,000 francs in 1899, far more than to any other country. Personal interests alone, therefore, should induce her to keep the peace with a neighbour who is so good a customer.

UNWHOLESOME FRUIT.—The magistrate at the Southwark Police-court recently fined a well-known firm of fruit-brokers the sum of £149, with £10 10s. costs, for having a quantity of unsound Strawberries and Raspberries at the premises of LIPTON, Limited, Rouel Road, London.

DEVON AND EXETER GARDENERS' ASSOCIATION.—The lecture with further experiments with garden-manures, by Mr. F. W. SHRIVELL, of Tonbridge, which was to have been given on Wednesday last, is unavoidably postponed to the spring session.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lecture-hall of the Institution on Monday, Jan. 15, 1900, when a paper will be read by Mr. JOHN NISBET (Colonial Fellow), entitled "Forest Management, with Suggestions for the Economic Treatment of Woodlands in the British Isles." The chair will be taken at 8 o'clock. Notice is given that the Institution will be closed from Thursday evening, the 21st inst., to Thursday morning, the 28th inst. Members who are graduates of any of the recognised universities of the United Kingdom are requested to intimate the fact to the secretary of the Institution, in order that the same may be indicated in the next issue of the list of members.

WOUNDED AT MAGERSFONTEIN.—The many horticulturists who know Mr. NEIL FRASER, Rockville, Edinburgh, for so long the genial Treasurer of the Royal Caledonian Horticultural Society, will sympathise with him over the regrettable news from Magersfontein, where his son was wounded on the 12th inst. He is attached to the Highland Light Infantry, and only in October last received his commission, and proceeded at once to South Africa. The young Lieutenant's great-grandfather was one of the originators of the Royal Caledonian, and early in the century wrote an account of gardening in Holland, &c.

DINNER AND ENTERTAINMENT TO THE EMPLOYEES OF MESSRS. HURST & SON.—This annual function took place in the King's Hall, Holborn Restaurant, on the 16th inst., a party of some 120 persons being present, including the representatives of business houses who have dealings with the firm, and others who were present in the capacity of visitors. Mr. N. N. SHERWOOD, the head of the house, presided, supported by his two sons, Messrs. WILLIAM and EDWARD SHERWOOD, some of the heads of departments occupying the vice-chairs. A few of the employees were unavoidably absent. The proceedings were greatly enlivened by the orchestral band connected with the firm, of which Mr. EDWARD SHERWOOD is the leader, and their excellent performances were greatly appreciated. In the course of the evening, Mr. HUGH AITON, on behalf of the employees of the firm, presented him with a silver baton and some musical scores, he having recently come of age. Abundant testimony was forthcoming during the evening showing the admirable relations which exist between Mr. SHERWOOD and his two promising sons and their employees. In an excellent speech Mr. G. M. INNES proposed success to the firm of HURST & SON, to which Mr. SHERWOOD made a feeling response, making special reference to several of the employees by name, who had been in his service for many years, bearing testimony to the high value he set upon their services, and expressing the hope they would remain in the house for many years to come. Mr. HUGH AITON, an old and trusted servant of the firm, proposed the health of Messrs. W. and E. SHERWOOD, each of whom made suitable response. The visitors, the Press, the representatives and heads of departments were similarly honoured, as was also the cricket-club and the musical society. The musical programme was well carried out, and gave great satisfaction.

GOLDER'S HILL.—The pictorial estate adjoining Hampstead Heath has been secured for the public benefit by the London County Council. It is one of the most picturesque gardens near London, and was the residence of the late Sir SPENCER WELLS.

STOCK-TAKING: NOVEMBER.—The chronicle of last month's trade as recorded in the Trade and Navigation Returns for November is a very pleasant and encouraging one; for is not there an increase in imports amounting to £2,175,997, and in exports of £4,751,733? In the appended table it is satisfactory to note that our food supplies continue to increase in quantity if not always in value; and should supplies run short from one

locality, the loss is made up in excess from another—the ever-open door receives all comers with ready welcome. So also with material for textile fabrics, and, in fact, in all subjects outside of food and drink supplies. The following is our usual extract from the Summary of Trade:—

IMPORTS.	1898.	1899.	Difference.
	£	£	£
Total value ...	42,068,814	44,244,811	+2,175,997
(A.) Articles of food and drink—duty free ...	14,531,024	14,862,986	+331,962
(B.) Articles of food & drink—dutiable	2,843,111	2,787,304	—55,807
Raw materials for textile manufactures ...	7,805,385	7,180,881	—624,504
Raw materials for sundry industries and manufactures	4,127,950	5,178,602	+1,050,652
(A.) Miscellaneous articles ...	1,637,147	1,858,378	+221,131
(B.) Parcel Post ...	97,367	105,735	+8,368

The value of the imports for November is £44,244,811, against £42,068,814, a gain of £2,175,997. And now we come to the figures relating to the imports of fruit, roots, and vegetables, to be found in the annexed table.

IMPORTS.	1898.	1899.	Difference.
Fruits, raw:—			
Almonds ... cwt.	36,151	31,818	—4,333
Apples ... bush.	811,788	765,477	—46,311
Currants, dried.. cwt.	185,165	202,697	+17,532
Raisins " " "	123,234	137,830	+14,596
Grapes ... bush.	199,407	159,156	—40,251
Lemons ... "	109,122	80,710	—28,412
Nuts, as fruit ... value	£157,188	£120,766	—£36,422
Oranges ... bush.	742,718	732,921	—9,797
Pears ... "	47,092	28,904	—18,188
Plums ... "	1,194	1,486	+292
Unenumerated... "	108,804	104,831	—3,973
Roots and Vegetables:—			
Onions ... bush.	665,631	648,056	—17,575
Potatoes ... cwt.	180,680	351,868	+221,188
Vegetables, raw, unenumerated ... value	£112,612	£112,231	—£381

Quite a row of minus figures, but Currants and Raisins for home consumption show plus quantities, and in a marked degree. So also do Potatoes. By the way, the total imports for the eleven months just closed foot up £444,339,264, against £425,283,431 or a gain of some £19,055,833. Come we now to the—

EXPORTS,

the figures relating to which are of a most satisfactory character. There is an almost all round increase—the total being £4,751,733—thus gained: total for month of November, £24,571,940 against £19,820,207 for the same period in the previous year. A line may be spared to China, where our markets is widening, and will widen still more under the new Chinese Department of Commerce, which may yet achieve the "open door" and save dismemberment. All other items in the returns indicate a prosperous condition of things in most of the home industries. The exports for the eleven months foot up £242,622,158, against £212,412,384 for the same period in 1898—or a gain of £30,209,774.

PERISTERIA ELATA.

The Dove-plant as it is called in British gardens. El Espiritu Santo of the Spanish settlers in its native habitat in Central America, has always been a favourite in gardens, where, since its first introduction in 1826, it has commanded a fair amount of attention, and when in flower never fails to be admired by all who see it, the event being usually marked in olden times by the visits of all the gardeners and others interested in gardening to behold

its stately, wax-like white flowers. In the days when large specimen Orchids used to be exhibited at the Royal Horticultural Society's great shows at Chiswick, those of the Dove-plant often formed the most important of the exhibits, and in those days probably, on the average, finer specimens were seen than in our times, though the art of growing *Peristeria elata* to perfection cannot be said to be a lost art, for the grand specimen shown by Mr. Owen Thomas, the Queen's gardener, at the Royal Horticultural Society, September 6, 1893, when it was awarded a Silver Floral Medal, will rank among the best observed in recent years. The plant in question was about 8 feet in height, and bore a number of stout flower-spikes, having an aggregate of over 300 flowers. Mr. Joseph Broome, of Sanny Hill, Llandudno, whose gardener is Mr. A. C. Axtell, and by whose courtesy we are enabled to give the accompanying illustration (fig. 155, p. 471), succeeds in growing and flowering the plant well, and with regularity, the plants in his collection being of the best type imported from the isthmus of Panama, that form having the largest flowers, and of a more clear white, than those obtained from other regions.

Every gardener does not succeed in growing *Peristeria elata* in a satisfactory manner, so that a few cultural remarks will be valued by some of our readers. It is a native of the tropics, and must, therefore, find a place in a warm-house, such as a moist plant-stove; and the plant should be potted and treated in a somewhat similar manner to the larger *Phaius*. That is to say, that the material used in potting should consist of two-thirds turfy loam and one-third fibrous peat, both materials being broken up by the hand, so as not to have too much fine soil in the compost. To this should be added a good sprinkling of well-decayed and dry cow-manure. After the plants are potted (the pseudobulbs being not raised, as with epiphytal Orchids, above the rim of the pot), afford them a surfacing of live sphagnum-moss. When in active growth, plenty of rain-water at the roots should be applied, and once or twice a week weak liquid-manure. When the bulbs are fully developed, water should be restricted in amount, and liquid-manure withheld entirely.



HOME CORRESPONDENCE.

MARKING POTATO-BAGS WITH THE VENDORS' NAMES.—If, as is doubtless assumed, it is likely to lead to good business, when bags of Potatoes have the names of the foreign vendors fixed on to them, why should not such plan be good for home-growers or vendors also? The foolish people who, in their desire to restrict foreign trade, insisted in having all imported goods branded with the name of the place from whence it came, did the very thing they desired to prevent, by publishing everywhere the name and address of the foreign merchant. If the result has been a boon to foreign trade, why should not a similar course be made a boon to home trade? But is there any better trade-mark than is found in excellence of samples or of material? Are German Potatoes better than our own? If they are, so much the worse for our growers. But it has to be shown not only that they are better, but as good. After all, trade is very much a matter of intelligence and enterprise. Those who go to sleep must expect to be overmatched by the wide-awake. A. D.

GARDENERS' ROYAL BENEVOLENT FUND.—As the present rule of the above society stands, no men are eligible for joining unless in the position of head gardener or foreman. It has occurred to me that it would be advantageous to the society, and

also to the gardening community in general, if the managers and committee could see their way clear to include also all journeymen. By so doing young gardeners could commence earlier, and if the thing were well explained to them, and they were allowed to subscribe the usual guinea in two instalments—one at Midsummer-day, the other at the end of the year—it is possible some would join, and they would not miss the money so much then as later on. For example, supposing a young man begins to subscribe at twenty years of age, he would be only thirty-five years when the allotted time of fifteen years had expired. I think most of your readers will agree with me that it is easier to subscribe at an early age than when a man is married and has, perhaps, a family to maintain. I am aware that in most cases the individual would be married long before the term expired; however, if permitted to join at an early age, he would have made a good start, and the well-known words "well begun is half done" would be applicable. A. J. L., *Gardens, Wyfold Court, Reading.*

ROSE SOILS.—This subject of soils the most suitable for the Rose is an interesting one, but we should have a care that in arguing from insufficient premises we do not discourage the cultivation of Roses in gardens which do not happen to consist of an ideal "Rose soil." What should the average Rose-grower look for? Is it Roses so fine in substance, form, and colour, that they are pre-eminently exhibition blooms, and that, too, with no very great attention on the part of the grower? These can be found only on the deep, clayey loams where gravel-beds, chalk or green-sand, lay many feet below the surface. We cannot all live on such strata, and some of us are fain to content ourselves with light land overlying chalk, or sand, or gravel, as it exists in many parts of southern England. Still, by the addition of heavy loam brought from a distance, and mixed with the staple, very fair Roses are obtained. In these light soils made heavy, the wood of the Rose gets well matured, and the plants bloom abundantly, but the flowers are often thin of petal. Another class of medium loams is met with overlying basaltic or limestone rock at no great depth. This is met with in the northern counties of England and southern Scotland. In these soils the Rose is very floriferous, with vivid colouring and large-sized flowers, and owing to its good drainage and the warmth of the soil consequent thereon, the second flowering of H. P.'s, Teas, and H. T.'s is extremely good. The goodness of the Roses grown in the neighbourhood of Aberdeen, especially on Messrs. Cocker & Sons' land, which probably overlies granite, is due to the same causes, although usually attributed to good culture alone. The Rose-soils *par excellence* are the Oxford and Essex clays, the first overlying the oolite and the latter the London clay. We see this at every Rose-show where the Messrs. Cant from Colchester, and Mr. Prince from Thame and Oxford, compete, their flowers being of great excellence in every point, Mr. Prince usually excelling in Teas and Hybrid Teas. Excellent Roses are grown in Messrs. Veitch & Sons' nursery at Coombe Wood, the soil of which is far removed, as regards its constituents, from Oxfordshire and Essex loams or that arising from the abrasion of granitic and basaltic rocks. The fact remains that Roses in gardens are mostly cultivated on "made soils," and their growth, and the goodness or otherwise of the blooms, are chiefly due to the sort of cultivation pursued, and very little to local climatic conditions. With field culture it is different, the very extent of the area devoted to Roses precluding any attempt at much amelioration of the soil. Hence, under ordinary cultivation in fields, and without special aids, the undisputed superiority of Essex, Oxford, and Aberdeen Roses. F. M.

BEGONIA "CALEDONIA," OR THE WHITE GLOIRE DE LORRAINE.—Since Mr. Forbes of Hawick exhibited this charming new winter-flowering Begonia at the Drill Hall, I have had the pleasure of inspecting his by no means limited stock of these plants. Mr. Forbes is fortunate in being the possessor of this decided novelty, a novelty not like many that are introduced, which are here to-day and away to-morrow, but one which has undoubtedly come to stay, and which is indeed worthy of a foremost place in every collection of winter-flowering plants. It is the exact counterpart (except in the matter of colour, which is in this case pure ivory-white) of the now extensively cul-

tivated Begonia, Gloire de Lorraine, which has risen by leaps and bounds in the estimation of the flower-growing and flower-loving public, and no doubt it will be as extensively cultivated, or even more so, than its parent Gloire de Lorraine. It is a sport from that variety; and Mr. Forbes informed me that it is a decided break, as it had not in a single instance reverted to the original type. The houseful of plants is a sight well worth a visit; and arranged, as it is, in combination with the pink variety, the effect is gorgeous. Small plants are as floriferous as those in larger pots, and the cultivation is as simple, and its wants as few, as Gloire de Lorraine. There is not the slightest doubt that this new Begonia, named appropriately Caledonia, has a bright and lasting future before it, and the demand for plants will tax the resources of the Buccleuch Nursery to the utmost. I examined the lot of plants after their long journey to and from London, and they had stood the test of railway travelling extremely well. R. T. S.

THE WEATHER IN NORTHAMPTONSHIRE.—Our thermometer registered on the night of the 13th inst. 27° of frost, Fahr. The glass is 15 inches above the ground, and faces S.E. This district has an elevation of 465 feet. H. Kempshall.

MISLETO GROWING ON OAK.—A friend of mine, an ornithologist, visited Slavonia for the purpose of noting the birds. He says that he saw the Mistletoe mostly growing on the Oak there. In an extensive forest, almost entirely consisting of Oak, near the town of Semlin, on the Danube, he noted that the Oak was the tree mostly infested by the parasite, whose green, luxuriant growths were conspicuous by their lofty situation. Unfortunately, he did not bring a specimen. I have looked into Wagner's *Deutsche Flora*, Ludwig's *Biologie der Pflanzen*, and Engler & Prantl's *Pflanzen Familien*, &c., but cannot make out whether it was *Loranthus europæus* or *Viscum album*, that my friend saw. He was there in May. I shall feel greatly obliged if you can give me any information on the subject through the columns of the *Gardeners' Chronicle*. A. B. Hall, *Edinburgh*. [Both *Viscum* and *Loranthus* are wild in Slavonia. Ed.]

SOILS AND LOCAL CONDITIONS.—The remarks of my valued friend "H. J. C." (p. 456) form very interesting reading to me. Having had the great advantages of serving under him 25 years ago, I can fully bear him out with regard to Poinsettias being well grown at Grimston Park at that time. His modesty however must not be allowed to attribute all the credit to soil and local conditions, as from experience gained under him, the following season (viz. 1875), I took the same subject in hand at Heckfield Place, under the late Mr. Wildsmith, and the plants produced bracts 18 inches in diameter, some of which Mr. Wildsmith sent to the Editor of the *Gardeners' Chronicle*. Of the influence of soil and local conditions upon certain subjects, I am quite convinced. As an instance of this, I may relate, that for about five years I had grown a batch of *Chrysanthemum Princess Victoria* at Maiden Erlegh, hoping to meet with the same amount of success which other gardeners had obtained with the variety. Each year I met with the same sort of failure—the plants merely producing a few weakly blooms in the month of January, being assured by my present foreman at Sherborne Castle, who was with my predecessor, that C. *Princess Victoria* had always been flowered satisfactorily. I have grown a good batch of it, and I am more than pleased with the result. The plants are blooming as freely as C. W. H. Lincoln, and although in bloom for the last three weeks, they will remain well over the Christmas season. T. T., *Sherborne Castle, Dorset.*

THE KEEPING CAPABILITY OF COE'S GOLDEN DROP PLUM.—My experience in keeping the above Plum (*Quard. Chron.*, p. 456) has been limited to a few weeks only. I can however corroborate the remarks of "D. T. F." with regard to it being grown successfully on any aspect of wall—at the least, in the South and West of England. At Maiden Erlegh, Reading, a tree on a N.E. aspect never failed to produce a crop of fruit of the finest quality, some of which each season were exhibited at the Crystal Palace Fruit Show, and once at least they were awarded a 1st prize. Here it is grown on S. and N. aspects, and the fruit from the latter aspect is as fine as that from the S. aspect, and more useful, as they afford good dishes for the

dessert throughout the month of October when Peaches are becoming scarce. T. Twiston, *Sherborne Castle, Dec. 18.*

CHINESE CABBAGE.—This plant has been cultivated at Kew since 1887, when seeds of it were presented by Mr. George Hughes, late Commissioner of Customs at Chefoo, China. An account of it was published in the *Kew Bulletin*, 1888, p. 138, and also in the *Gardeners' Chronicle*, May 19, p. 619, which contained a description of the several varieties, and their uses as a vegetable in China, together with a few particulars of its behaviour under cultivation at Kew. Since then it has annually ripened seeds at Kew, which have been included in the list of seeds for distribution published every year. In 1890, Mr. Charles Ford, of Hong Kong, sent seeds of two varieties, which were called White and Green Shantung Cabbages. These were shared with the Royal Horticultural Society, and Messrs. Pailleur & Bois, Paris. The *Kew Bulletin* for 1893 contains the following note, which was contributed by Mr. Milne Redhead, of Holden Clough, to the pages of *The Garden*:—"Being specially fond of vegetables, I tried a few years since some seeds of Shantung Cabbage, for which I was indebted to Kew. For two years I thought it worthless, its open heartless head running up to seed very quickly. But this year I sowed the remains of my seed, and yesterday a dish of what appeared to be beautifully white Cos Lettuce was brought to me. Boiled, for dinner, I found it most insipid and worthless, simply so much tender green vegetable between the tongue and teeth, with absolutely no flavour to the palate. To-day I have tried it as a salad, and I find it excellent, white, crisp, and sharp as the best summer Cos Lettuce. Worthless as a vegetable, but of great value as supplying an excellent late autumn salad." W. W.

EUCALYPTUS OUT-OF-DOORS IN KENT.—Against my house is an Eucalyptus, which I planted in May, 1897, in a north-west aspect, and which has never been otherwise sheltered in the least. It is now 20 feet high. There are also six specimens in the open, in the kitchen garden, which are 15 feet high, and look well, although we have had 17° of frost. Wm. Lewis, *East Sutton Park Gardens, Maidstone.*

MUSHROOM GROWING IN OLD WINE CELLARS AT LEITH.—Your correspondent writing over the initials "W. H. M." has proved little further than that he is thoroughly acquainted with the topography of the town of Leith. Volumes of words in themselves are by no means convincing arguments. I did not say that Mushroom growing was a nauseous business, nor did I say that underground cellars were unsuitable for their cultivation. What I did say, was, that when Mushrooms were grown in thickly populated districts the culture became nauseous. And no matter whether there are dwelling houses in the same street or not. One has only to look at the population of Leith, and the number of acres the town covers, and I think he will be convinced that Leith has a fair portion of human beings residing within its boundaries. As to the prizes given for town-grown Mushrooms, I think the least said about it the better. Not so very long ago I visited one of the largest Mushroom growing establishments in the country, carried on in a tunnel beneath a city. And from what I saw then leads me to the belief that such Mushrooms could be, if anything, bought cheaper than of those growers out in the country. Mr. Fish seems to have run away with the idea that I want to suppress Mushroom growing; far from that, I would like very much to see it considerably extended, but not in towns. Mr. Fish gives a graphic sketch of how the manure should be prepared, and of the cleansing power of Mushrooms. But what about the steam and noxious gases evolved during the period of the preparation. They are not just what one would care about having within a few yards of a dwelling, more especially in a town. In the rural districts it is altogether different because there is plenty of fresh air to counter balance the bad effect, and carry away the products of fermentation. It has often surprised me how the authorities in London permit Mushroom growing within the Metropolitan district. I have seen men and women working at the manure when they could hardly be seen for steam, and the stench could by no means be pleasant. And strange to say the London authorities are very particular that the manure should be taken

away before it gets time to accumulate or ferment in the mews. The one is hardly consistent with the other, yet it is the case. As for getting machinery set up for this forcible suppression of dung-hills about large farms and gardens, nature has already provided the necessary machinery for the destruction of refuse, in the way of manure. Bring the manure to the farms and gardens and grow the Mushrooms there, and they will be good, sweet and pure, and the price will be equal to if not better than those grown in towns. D. L. M.

CHRISTMAS POTATOS.—It is generally conceded that Potatoes are not good this year. But to the rule there are exceptions, as I have found, some soils turning out quite nice, dry-eating, starchy tubers, whilst in other cases there has been a great lack of finish, and in many instances tubers of varieties ordinarily excellent show evidence of blackness when cooked. That defect is doubtless largely due to the excessively dry nature of the season, which prevented in tuber formation that full deposit of starchy matter without which all Potatoes are imperfect. Even the famous Ashleaf is not free from this defect, as in many tubers there is at the stem end an unmistakable evidence of blackness when cooked that shows how imperfectly that portion of such tuber has been matured. There are, no doubt, myriads of cases in which Potatoes would greatly benefit were lime and wood ashes more freely used. Still, these ingredients fail to compensate for lack of moisture of which the Potato plant needs enough, but is equally undesirable of too much. But it may be questioned whether the common practice of cooking Potatoes by boiling them does not materially help to create this offensive blackness. Water varies very much in the elements it contains, and if there be objectionable constituents, Potatoes in the course of cooking suffer. But where tubers with all possible care still fail to boil so well as to be presentable at table, no doubt well washed then partially baked in a slow oven, the produce becomes much more acceptable. But it is doubtful whether any Potato is more pleasant eating in a cooked state than when baked in its coat, especially if so cooked in hot peat or wood ashes. So prepared, then well cleansed of dust, cut in halves, and neatly removed from the hard coats, and dished up, Potatoes are delicious eating. No better method of serving up tubers to table at Christmas can be devised. But after all, good or indifferent, what Christmas dinner would be regarded as complete devoid of a dish of Potatoes? A. D.

ODONTOGLOSSUM CRISPUM.—My twenty years' experience has taught me to grow *Odontoglossum crispum* to perfection. Air in abundance, shade in summer, plenty of moisture in the house, particularly in the summer months, in fact you cannot keep the house too moist during hot weather; loose potting, for the roots require air, as much so as bulbs and growths; no fire-heat applied, or only sufficient to keep the temperature from falling below 40°, and 2° or 3° lower in severe weather. The above methods I have followed for years, and have had spikes bearing from twenty to twenty-four flowers. I have frequently had *O. crispum* flower from the apex of the pseudo-bulbs, caused, I should suppose, through the extraordinary vigour of the plants, certainly not through weakness or checks. Our *Odontoglossum*-house is 50 feet long, and in severe weather it is covered with mats, over the lath blinds. I do not employ much artificial heat, which is the ruin of *O. crispum*. H. Garnett, gardener to R. G. Fletcher, Esq., Mount Harry, Brighton.

APPLES PEASGOOD'S NONSUCH AND ALFRISTON.—About three years ago I sent you a photograph representing a crop of Peasgood's Apple upon Espalier trees, which you subsequently published on March 7, 1896. During last autumn I again had the crop photographed, and now enclose a copy. Many gardeners call here who seem to think the Peasgood Apple a shy cropper, and they cannot understand why the variety crops so freely here. Many years ago, when at the Duke of Beaufort's gardens (S. Wales), and when at Capt. H. Goschen's, Heathfield, Addington, near Croydon, I was told not to prune this Apple hard, but my own experience is exactly opposite to this. I spur them very closely, except in the case of the leaders, which are cut to half their length. Then again, many have the impression that this Apple is not a good keeper, therefore I am sending

you a few fruits, so that you may see their condition at Christmas. As to cooking qualities, I do not know any better Apple, although I grow some eighty-five varieties. I also send you a few "Alfristons" gathered from a tree forty years old, which had quite as good a crop as Peasgood's. Alfriston is a grand keeper, if gathered at the proper time. It will never decay, but it shrivels. I measured a fruit of "Peasgood's" which was 13 inches in circumference. The length of the "Peasgood's" espalier is 50 feet, and its height 5 feet. Wm. Lewis, *The Gardens, East Sutton Park, Maidstone*. [Our correspondent grows exceptionally fine Apples, and none succeeds better than the variety "Peasgood's Nonsuch." The fruits received with the above note were handsome specimens, and as fresh as possible. We do not reproduce the photograph, because the one published in 1896 sufficiently illustrates the magnificent crops obtained. A description of this garden was given in our pages on October 15, 1898, p. 283. Ed.]

SEEDING OF BEGONIA GLOIRE DE LORRAINE.—In reference to the subject of Mr. Hemsley's article (p. 423), which I had overlooked, I may state that I was not successful in obtaining fertile seed from this *Begonia*, although every female flower which I pollinated, in all about thirty, responded to the influence of the pollen by closing its petals over the stigma. Flowers which I purposely left alone showed no difference, the petals



FIG. 156.—GLOOSKAP TURNING A MAN INTO A CEDAR-TREE.

remaining open till the flower perished. I used pollen from several varieties and species, principally *B. coccinea*, *B. Knowsleyana*, a pretty pink, fibrous-rooted variety, and others, and with all the ultimate result was the same. The ovary of one of the flowers swelled more rapidly and became larger than any other, and I had hopes of getting fertile seeds from that one, but I was disappointed. I tried every method I could think of, and hoped that bright sunshine might assist me in March and April by ripening the abundant apparently good pollen grains; but although all the conditions seemed favourable to successful fertilisation, nothing but non-germinating seeds were obtained. Although I frequently sought after it, I obtained no good pollen grains from the staminate flowers wherewith to pollinate other varieties; so it would seem that both male and female organs have lost their reproductive powers for the time. No doubt some one will be successful in getting good seed, if this has not yet been accomplished, and he will be a fortunate man who first succeeds. A. F.

A VETERAN GARDENER.—Few gardeners can lay claim to such a long period of service as Mr. James Clarke, who, as far back as December, 1837, became head gardener to G. Beauchamp, Esq., Ford Place, Thetford, and on the death of that gentleman in 1838, Mr. John Buxton having hired the place, he was re-engaged. Mr. Buxton, succeeding to the title on the death of his father, Sir R. J. Buxton, brought Mr. Clarke with him to Shadwell Court in September, 1844, at which place he served the family for three generations in the capacity of gardener. The Shadwell Court estate was sold in October, 1898, to J. Musker, Esq., and

after remaining under the new owner until August, 1899, Mr. Clarke left his old home at Shadwell, having been there for fifty-five years, and is now with one of the old family, Miss Buxton, who, when Shadwell was sold, hired Icklingham Hall, the property of Lord Iveagh. Mr. Clarke is one of those hearty, jovial, and enthusiastic gardeners, taking an active interest in all that concerns his profession, as may be judged from the fact that in a letter to me the other day he describes in detail the Chrysanthemum Show at Bury St. Edmunds in November last, and regrets that at his advanced age, and in a new place, he cannot manage to exhibit Chrysanthemums. Our old friend, who is now in his eighty-third year, was married in 1842, and Mrs. Clarke is still enjoying fairly good health, and is as happy and cheerful as her husband, who, although now occasionally troubled with rheumatism, is still managing a place, having had a lease of active service which very few indeed get. We trust that Mr. and Mrs. Clarke may spend their remaining years in happiness, and heartily wish the aged and worthy couple every good wish of the season. J. M.K.

FERTILE FROND OF ADIANTUM CAPILLUS-VENERIS IMBRICATUM.—On p. 414, Mr. Hemsley writes of *A. c. v.*, variety *imbricata*, as being barren or producing bulbils in the place of spores. I have several plants of that variety under my care, and I would have no difficulty in supplying him with fronds that are loaded with spores. The original plant, which was obtained of Mr. Cripps, of Tunbridge Wells, sometimes produces fronds equal to those of *A. Farleyense*, and some may be selected that are facsimiles of the variety *A. Farleyense alcorni*. E. Sandford, 20, Argyll Terrace, Bognor, Author of "*Exotic Ferns and Selaginellas*."

—Replying to the above letter from Mr. Sandford, I may say that the frond sent by him is quite distinct to any that I have seen of this variety; and if it is from the true variety it has evidently reverted to the normal form. I send you a frond which was given me by Mr. Masters on October 12, 1886, when it received a First-class Certificate from the Royal Horticultural Society. I have had plants under my personal observation from the time it was first distributed, but I have never seen a fertile frond. Mr. Schneider in his *Book of Choice Ferns*, writes as follows:—It is interesting to note that this plumose form of the common Maidenhair-Fern, like most other forms of a plumose character is entirely barren." But I had not read this before writing my former communication. Like most British Ferns, *A. capillus-veneris* varies very much, and there are quite a number of distinct varieties. In looking over a batch of seedlings of the type, I find a great variation, both in size of pinnules and shape of fronds. I enclose a fertile frond taken from quite a young plant, which would appear as large in the pinnules as the variety *grande*. [Yes, that is so. Ed.] I may add that I find on further reference, Mr. E. J. Lowe obtained a First-class Certificate in June, 1872, for a variety under the same name, but I do not know if this was ever distributed, Mr. Masters' variety being the first I met with under the name. A. Hemsley.

MYSTICAL TREES.

IN running the boundary between British Columbia and the United States, the axe-men had in one locality the herculean task of hewing out the line through patches of gigantic Douglas Spruce, many of which were 30 feet in circumference and from 200 to 250 feet in height.

In Eastern Canada some years ago two old Pines of remarkable size enjoyed a local fame as the Old Man and Old Maid of Kempenfelt, on the shores of the bay of that name.

There is an Indian legend that shows very well how the aboriginals, the children of the forest, esteemed the Pine and Cedar for their size, stability and length of life. Glooskap was a divinity. "Hearing that they could win the desires of their hearts there went forth men unto him; and all got what they asked for in any case, but as for having just what they wanted that depended on the wisdom with which they wished and acted.

"Three brothers journeyed from afar to the land of enchanting beauty, where in three wigwags

dwelt Glooskap with Cubkeo, the Earthquake and Cool-pig-of-a-man without any bones. The first of the brothers who was very tall and was vain of his comeliness, asked to become taller than any Indian in all the land. And the second wished that he might ever remain where he was, idly gazing on the beauty of the scene. The third wished to live to an exceeding old age, and ever be in good health.

"Then Glooskap called Earthquake and bade him place them with their feet in the ground, and as he did so they became, as one tradition declares, Pines, and another, Cedars. The head of the first now rose above all the forest, and he who listens in the wood may hear him murmur—

"Oh, I am such a great man !

Oh, I am such a great Indian !"

The second, too, has his wish, being fast rooted in the ground and obliged to stay there ; whilst the third, who wished for long life, is still standing as of yore." *A. E. Michle, in Canadian Horticulturist.*



NOTICES OF BOOKS.

LA CONSERVATION DES FRUITS, DES LÉGUMES, DES GRAINES ET DES RACINES BULBEUSES.
Par Henri Coupin. (Paris: Octave Doin, Place de l'Odéon, 8.)

THE preservation of fruit and vegetables is a matter of such great importance that we cordially commend to those who read the French language this eminently practical treatise. The first section, devoted to the preservation of fruit, is arranged alphabetically from "Abricots" to "Sorbier," while the same idea is carried out in the next part that is devoted to vegetables. Most fruits can be preserved in one of three ways : they can be dried, bottled in syrup, or bottled in spirit. Dr. Coupin gives detailed receipts for preserving Cherries that, with slight variations, apply equally to other fruits. Bottled Cherries are, he says, prepared by enclosing them with powdered sugar in corked bottles, and standing these in a saucepan of water that is allowed to boil for nearly half an hour. The corks are then sealed over, and the fruit will keep good for about two years.

One method of preserving fruits in brandy is to first prepare them by boiling in syrup for twenty-four hours. The fruit is then taken out and mixed with the spirit, while the syrup is boiled for another half hour, then added to the fruit and spirit, and the whole is corked down and sealed. Cherries (and other fruits) are sometimes dried by keeping them for twelve hours in a baker's oven until the skin appears sufficiently toughened, yet is still soft and yielding.

For drying fruit (and certain vegetables also) there are now several kinds of evaporators. These, our author describes and recommends, as by their use the necessary current of hot dry air can be maintained and regulated round the fruit far more satisfactorily than by any hand process and with very little labour. As regards Apples there is much to be said. There are many ways in which they may be dried ; and by modern machinery, as our readers know, the fruit is peeled, cored, and evenly sliced in a very brief time.

Vegetables are usually preserved in bottles or are dried and sent out in boxes, their preparation being in the main similar to that of fruit, "pick-

ling" being much the same as preserving in spirit, except that vinegar is substituted for brandy and syrup.

The preservation of seed, to protect it from insect and fungoid enemies, and to check premature germination, occupies another section of this book. We have not space to repeat the author's remarks here, but may refer those specially interested in the subject to his table of the duration of the vitality of seed. After a certain time the germinating power of seeds naturally diminishes in proportion to the period that they are kept above ground.

The preservation of bulbs and tubers is not an elaborate matter. Dryness and protection from frost are the most important considerations, any sudden changes of temperature being injurious.

Dr. Coupin's work may be seen, by the above brief summary of it, to be comprehensive in its treatment of the subjects discussed. His recipes are adaptable to small or large quantities of fruits, and hence to household as well as to trade purposes. He enters also into such details as the arrangement of a fruit-room, the keeping Grapes fresh by suspension, or by keeping the stalks in water ; he also furnishes useful hints on the subject of packing fruit and vegetables. In fact, we can recommend this book to the consideration of all to whom such matters are of interest or importance, by reason of the excellence of the methods recommended, and the lucidity and conciseness with which they are explained.

MORE POT-POURRI FROM A SURREY GARDEN.

By Mrs. C. W. Earle. (London: Smith, Elder & Co., 15, Waterloo Place.)

WE need scarcely say that this is a sequel to a former book of similar name, to the readers of which the authoress has dedicated it. It is discursive, even bewilderingly so, yet herein lies its charm, as the womanly kindness of the writer shines out through the medley of gardening rules, cookery recipes, and educational advice that she has put together. Many people keep such a note-book as is this, and it is now-a-days not uncommon to see it published ; certainly the volume before us is good of its kind, being one of the comparatively few interesting to the general public as well as to the compiler. The subject-matter is arranged in twelve chapters, one for each month of the year, and it is in part classified to bring it appropriately into one or other of these divisions. Needless to say, the jottings made by Mrs. Earle of her own garden are the most interesting part of the book, for no extracts, however delightful in themselves, can be so valuable as is original observation. Thus, we really do not care to see the often-published and widely known salad receipt by Sydney Smith brought up yet again, but the following chat about familiar plants will awake an answering note in many an amateur gardener :—

"April 10.—I have never had Forsythia suspense so good in the garden as this year. The shrub is one golden mass, and when picked in long branches it is quite admirable in water. I suppose its being so good is partly an accident of the weather, partly that after flowering last year it was cut back hard, and partly that we twisted black thread about it to prevent the birds eating the buds in February, which they invariably do here, both with this plant and with *Prunus pissardi*. *Spiraea Thunbergi* responds in a most delightful way to constant pruning. The more the dear little thing is cut the better it seems to do. That is the real secret of all these early-flowering shrubs : they do not exhaust themselves then with leaf-making and growth . . . Nothing, I think, tempts me so much to neglect all duties and to forget all ties as gardening in early spring weather. Everything is of such great importance, and the rush of work, that one feels ought to be done without a moment's delay makes it, to me at least, feel the most necessary thing in life."

The interest thus shown in certain plants is elsewhere expressed for others ; for Roses, Lilies,

greenhouse plants, in fact, for all and sundry. The writer may not have a very large, nor a well stocked, nor a rare garden, but it is obviously a satisfactory one, on the excellent principle she herself sets forth, that "the best gardens are those where the master of the house superintends the gardening himself." In this case the mistress has both knowledge and enthusiasm, and we commend her book to the notice of other amateurs. As said before, there is a great deal in it, and if all the pages do not please many, at any rate, are sure to charm.

WILD FLOWERS FROM PALESTINE. Collected and Pressed by Rev. Harvey B. Greene, B.D., with an Introduction by the Very Rev. S. Reynolds Hole, Dean of Rochester. (London : Edward Arnold, 37, Bedford Street.)

THIS book is the embodiment of a pretty but not very original idea, fairly carried out. It contains seventeen pressed flowers from Palestine, neatly stuck down, and each with a brief description appended to it. It may well be imagined how charmed many persons will be with such a souvenir of the Holy Land. The book contains, further, as frontispiece, a picture of the Mosque of Omar, Jerusalem, and some accounts of the plants of Palestine in general, and of those within in particular, and of how they were collected. So much pains has been taken, that it is a pity that still a little more care was not bestowed by the author on his work. Considering that Mr. Greene was assisted by a "large number of native Arabs, and a most faithful dragoman," with whom for three springs he travelled in search of flowers, he might certainly have selected rather better specimens. Thus, three tiny flowering-heads represent the grass of the field, and an Anemone-flower (leafless) is given for the Lily of the Field. As there are 120 different plants mentioned in the Bible, it would have been interesting to have made selections from these, and excluded such as could not be accompanied by a text. The identity of the Lily of the Field with an Anemone coronaria is very doubtful. Indeed, the whole book is open to much criticism, and that not only concerning plants whose identity is rendered uncertain owing to the indefiniteness of the descriptions that have been preserved to us, but also as regards those species of which modern research has made the true recognition more probable. But these difficulties will not trouble the average reader, who will welcome the book for its appearance and associations, and not for its accuracy.

The Dean of Rochester speaks, in the short introduction to the work, of the charm of these real souvenirs from Judea, Galilee, and Samaria.

L'INDUSTRIE DES FLEURS ARTIFICIELLES ET DES FLEURS CONSERVÉES. H. L. Alph. Blanchon. (Librairie J. R. Baillière & fils, 19, Rue Hautefeuille, Paris.)

THIS book deals with an industry, the various branches of which have seldom, if ever, been previously detailed within the scope of a single volume. The writer has collected information concerning the manufacture of flowers in silk and velvet, in paper, wool-work, and wax ; and he deals also with the processes of reproducing portions of plants by nature-printing and by moulding. Further, there are pages relating to the preservation of natural flowers and grasses, and to the ways in which these may be arranged.

First as to artificial flowers, usually so-called. Full accounts are given as to the stuffs used in their manufacture ; we are told how these are bought by the piece and are dyed, cut, gauffered, and moulded by hand, the labour expended upon each blossom being in proportion to the closeness of its imitation of Nature. Most of the best artificial flowers come from Paris, from the neighbourhood of the Rue St. Denis, where it is calculated that forty-thousand "hands" are employed in their production, and at wages varying, in the season, to from three to

twelve francs a day. There may be said to be five classes of manufacturers engaged in this business—the specialists who send out, some only *Mimosa*, others *Myosotis*, and yet others *Roses*; secondly, makers of various flowers for decorative, funeral, or church use; thirdly, there are the foliage manufacturers; fourthly, fruit-makers; and lastly, the mounting houses, where the productions of all the other makers are put together. Those who make flowers on a small scale usually buy the several portions required ready-made, instead of colouring and forming them on their premises, where their work is that of putting together and mounting only. It may well be believed that the production of really high-class artificial flowers requires no small amount of both knowledge and skill.

Passing over the making of flowers in beads, paper, wool, and wax, we come to descriptions of nature-printing, and to electro-chemical and galvanotype processes of reproduction.

The last part of this book deals with the preservation and mounting of natural flowers. Among the hints given for prolonging the existence of cut flowers are the following:—The stems should be cut with a knife rather than with scissors, as the latter are apt to bruise them. Before mounting cut flowers, they should be laid in or under damp moss for a time, or be wrapped in a damp cloth and covered with a bell-glass or box. In opaque vases, damp sand is preferable to water, or, if water is used, it should be changed daily, and should contain a lump of charcoal or of camphor. Cut Ferns and foliage generally last fresh longer if plunged into water for an hour or two before being used. The fertilisation of flowers should be prevented by taking out or gumming over the stamens or pistil.

In mounting flowers, such kinds should be selected for use together as will last fresh for about the same time. It is better to cut flowers before they are fully expanded, and to keep them in water for some hours before packing them.

M. Blanchon devotes much space to the subject of drying flowers and foliage for decorative purposes. Grasses, various flowers known as *Immortelles*, and *Gyneriums*, keep sufficiently well, if gathered dry before they are fully expanded, and hung, blooms downward, in a dry but well-ventilated place, shaded from all light. Certain grasses and rushes are improved if, when dry, they are lightly shaken out before a briar fire.

Pansies, Violets, Cornflowers, Clematis, Delphiniums, Pelargoniums, and various other flowers, can be dried in sand in the following manner:—The stems are placed in water for some hours, then the wet tips are cut off, and the flowers stuck in the bottom of a deep box. Sand that has been sifted, washed, and then soaked in boiling water to destroy any possible germs, is dried, mixed with stearine or other fatty matters, and sifted cautiously into the box until the flowers are wholly covered. The box is then subjected to stove-heat, until the plants within are thoroughly dried, when the solid bottom is removed, and the greased sand is allowed to trickle out.

Besides the above, and other methods for drying flowers, we find here an explanation of the ways in which plants are coloured or dyed. Certain foliage plants, such as *Reeds*, *Gyneriums*, *Cycas*, and *Palms* are plunged into a boiling bath of carefully-prepared dye, and afterwards to restore their flexibility are passed through glycerine. Semi-artificial plants of *Dracena*, *Ficus*, *Begonia*, and *Cycas* are made up of individual leaves of these plants, carefully mounted round a wooden core to imitate a growing plant. These leaves are slightly varnished before being made up.

The mounting of bouquets and sprays is dealt with by M. Blanchon, but beyond a few general hints this art is not one that can be taught in writing.

An interesting account is given of the manufacture of the straw foundations for wreaths of *Immortelles*, so much used in France. These foundations are made by a machine which is,

briefly speaking, a revolving wheel, fed by a workman with straws, which the rotation of the wheel forms into a cylindrical band of the desired size, and at the same time secures with wire paid out by the wheel from a reel. The straw band moves into a cylindrical mould, which gives it the required circular shape. Before the machine has done with the straw it has woven it into the wreath, into which the flowers are mounted by hand.

These shortened extracts from the book, an English edition of which is desirable, will give some idea of its scope, and will show how valuable it will be found by both amateur and professional florists. The information is clearly given, and there are illustrations that help on the text.

PRACTICAL INSTRUCTIONS. By James Dobbie, Rothsay ("Buteman" Office).

To cite the whole title is to give a full table of contents—here it is—"Practical Instructions to Procure Shelter for the Animal and Vegetable Kingdom, and kill Caterpillars, Snails, Worms, Insects, Green-Fly, Parasites, &c., that destroy Plants." Mr. Dobbie has, in fact, given us in these pages a few disjointed memoranda relating to his practical ex-



THE LATE W. M. WELSH.

perience during fifty-five years, and most valuable they are. Do you want to increase the size of your Apples? Mr. Dobbie will tell you how to accomplish it. Do you want to know how to plant shelter-hedges? Mr. Dobbie will tell you. Are you troubled with millepedes or snails? You need be so no longer if you put into practice the recommendations of this pamphlet. Do you want to grow Leeks, Onions, Parsnips, Cabbage, or Beetroot, to perfection? Mr. Dobbie's instructions will enable you to do so if you follow them out properly. As may be inferred, the directions are of a practical character, and as such we may thoroughly commend them to the notice of young gardeners and amateurs. But they have a scientific interest as well as one of great importance to students of variation. The following extract will indicate what we are alluding to:—

"Names of vegetables and flowers which have been raised from the seed tend to mislead many of the inexperienced, as they generally believe that the quality as well as the variety raised year after year from the same class of vegetables and flowers remain the same, while it is well known to intelligent professional gardeners that the varieties change for the better or worse, as often as they are raised from seed. Those who may doubt this

will be convinced of the truth thereof by purchasing a small quantity of seed—say, the *Muscelburgh*, or any other *Leek*—from half-a-dozen growers (not sellers, as they may get all the seeds from one quarter), who have, in different localities, raised the seed of it, as they may suppose. After testing the whole of the seed, they will, in all likelihood, find at least six varieties from which it will be difficult to select the *Muscelburgh*, or any other variety of *Leek*." A more instructive sixpenny-worth it would be hard to find.

Obituary.

MR. WELSH, whose death on the 8th inst. we briefly alluded to in our last issue, was the senior partner in the well-known house of Dicksons & Co., Waterloo Place, Edinburgh. He was born in 1838 at Ericstane, near Moffat, as we learn from the *North British Agriculturist*. He commenced his career with Mr. John Shaw of Manchester, from whom he derived his knowledge of landscape-gardening. In 1862 he entered the firm of Dicksons of Edinburgh. The nurseries of the firm have a well-earned repute; but it is not so well known that Mr. Welsh was also a fruit-grower on an extensive scale. Mr. Welsh was an active member of the Scottish Arboricultural Society, and of the Royal Caledonian Society.

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 19.—The last meeting of the Committee of this Society for the present year, which was held in the Drill Hall, Westminster, on Tuesday last, was not a very brilliant event. Probably there were good reasons advanced for holding more frequent meetings during the winter months than had been the custom in previous seasons, but the results, so far as they have been at present observed, have hardly justified the policy of continuing the meetings fortnightly in the very darkest months of the year. The Society is now given such support by its Committee and by the press, that the holding of a meeting necessarily brings together a considerable number of horticulturists, many of whom travel some distance to be present at Westminster, and do so at some personal inconvenience. Unless, therefore, it is fairly certain that all meetings will be well supported, and sufficiently interesting to repay those who attend, the Society would be wise to arrange a smaller number. In the case of the meeting on Tuesday, the unsatisfactory weather was probably to blame to some extent for the pooriness of the show, and the date was so near the Christmas festival that many establishments were already busy preparing decorations.

It is worthy remark that of the three Committees, Orchid-Floral, and Fruit and Vegetable, not one of the Chairmen was present, two of them, we believe, being indisposed. The Orchid Committee made several awards to novelties; and a new species of *Dendrobium* was shown in flower by Major JOCEY.

The FLORAL COMMITTEE made no award other than Medals; and the only one granted by the FRUIT AND VEGETABLE COMMITTEE was to a new culinary Apple.

Floral Committee.

Present: George Gordon, Esq., in the chair; and Messrs. R. Dean, J. F. McLeod, C. B. Fielder, H. J. Outbush, E. Brckett, E. H. Jenkins, D. B. Crane, C. T. Drury, H. J. Jones, H. Turner, E. Molyneux, J. Fraser, and E. T. Cook.

Messrs. W. WELLS & Co., Ltd., Earlswood Nurseries, Redhill, Surrey, had a group of *Chrysanthemums* in pots. The variety was a white decorative one, named *Letrier*. It is a capital late-flowering variety, and just the one to supply white blooms of good size and wide petals for decorations at Christmas. Cut blooms were shown of a number of additional varieties, also of great decorative value, including *Sunset*, of a soft shade of yellow, and very charming. A golden sport from *Good Gracious*, obtained from Australia, and a similar one from Princess Victoria was also observed; the latter will doubtless prove acceptable (*Silver Banksian Medal*).

Messrs. W. CLIBRAN & Son, Altrincham, Cheshire, again showed several varieties of single-flowered *Chrysanthemums*, but none of them was valuable as represented.

Sprays of *Bouvardia* blooms were shown by Mr. J. Pitt, gr. to F. W. CAMPION, Esq., Colley Manor, Reigate. The two double varieties, *President Garfield* (pink) and *A. Neuner* (white), were grandly represented; and there was a fine bunch of the single variety *President Cleveland* (brilliant scarlet).

Messrs. JAR. VEITCH & Sons' *Javanico Jasminiflorum* hybrids of *Rhododendron*—which have been represented at so many meetings during the year, were capitally shown at the

"Christmas" meeting. That fine trusses of these beautiful flowers may be cut in London during the week preceding Christmas, is a very striking testimony to their value. The colours included several shades in yellows, reds, crimsons, and pinks, as well as pure white, like Princess Alexandria; and in Numa, a deep red variety, may be observed the result of crossing these Rhododendrons with a variety of *Azalea indica*. This variety, and its progenitors, was figured in these pages on February 1, 1896, p. 183.

Orchid Committee.

Present: Henry Little, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), A. H. Smees, R. Brooman-White, J. Gabriel, H. J. Chapman, W. H. Young, F. J. Thorne, H. T. Pitt, J. Jacques, E. Hill, W. Cobb, J. Colman, De B. Crawshaw, and T. W. Bond.

The show of Orchids was a small one, though there were a good number of remarkable exhibits to go before the Committee. The only group was a small but interesting one, staged by W. M. Apperrow, Esq., Tyn-y-Coed, Weston-super-Mare, and in which was a remarkable variety of *Cypripedium* insignis named "Oddity," exhibiting a constant case of peloria, or what is called trilabellia, the centre being composed of three more or less perfect labellums, arranged like the standards in an Iris, all the flowers being alike. In the group also were *Cypripedium* × *Mortoni* (Lecanum Maserebianum × Chamberlainianum) with singularly elongated reddish lip, the upper sepal being narrow, green at the base, with dark chocolate lines, and pure white in the upper half; *C. insignis* Macfarlanei, C. L. Tyn-y-Coed variety, and a fine plant of *Laelio-Cattleya* × *intermedio-flava*, Golden Queen. A Silver Banksian Medal was awarded.

REYNOLDS YOUNG, Esq., Linnet Lane, Sefton Park, Liverpool (gr., Mr. Poynts), showed an interesting collection of cut *Cypripediums*, the finest of which was *C. x Minos*, Young's variety (*Spicerianum magnificum* × *Arthurianum*), a very fine flower, with the upper sepal broader than high, white in the upper part, emerald-green at base, with fine dark radiating lines and dots running into the white; the petals and lip yellowish, with red tinge. Another interesting exhibit was shown as *C. callosum*, as it closely resembled that species, although it is the result of a cross between *C. callosum* and *C. x microchilum*, the latter being suppressed in the progeny, which, however, exhibits unusual colour in the upper sepal. Other pretty hybrids were *C. x Lachesis* (× *Crossianum* × *marmorophyllum*), *C. x Belus* (*Harrisianum nigrum* × *Mastersianum*), and *C. x Endymion* (*barbatum grandiflorum* × *Mastersianum*).

J. T. BENNETT-POE, Esq., Holmewood, Cheshunt (gr., Mr. Downes), showed a grand branched spike of *Oncidium tigrinum*, and a form of *Laelia anceps*.

J. GURNEY-FOWLER, Esq., Glebelands, South Woodford (gr., Mr. Davis), sent *Cypripedium* insignis *Fowlerianum*, a very finely-formed and distinctly-coloured variety.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, showed a grand specimen of *Cypripedium* insignis *Sandere* with six flowers (Cultural Commendation), and the beautiful *C. x Lord Roberts* (see list of Awards).

M. JULES HYE, Oupure, Ghent (gr., Mr. Coen), showed *Cypripedium* × *Madame Jules Hye* (*Spicerianum* × *tonsum*), a massive flower with white upper sepal tinged with rose, and with a purple mid-rib. (Illustrated in the *Gardeners' Chronicle*, January 26, 1896, p. 103.)

Messrs. HUGH LOW & Co., Enfield, showed *Cypripedium* × *Lord Roberts* (a different cross to that shown by Messrs. CHARLESWORTH, this being *C. nigrum* × *venustum*), a pretty yellowish-white flower, the petals finely spotted with purple.

W. E. PADBURY, Esq., Langley Park Farm, Beckenham, sent *Cypripedium* × *Antigone*, Padbury's variety; a good white flower, tinged and spotted rose-purple.

Major JOICEY, Sunningdale Park, Sunningdale (gr., Mr. F. J. Thorne), showed for the first time the extraordinary *Dendrobium spectabile* (see Awards). *D. atroviolaceum*, with four spikes; and the white *D. Johnsonia*.

Awards.

Dendrobium spectabile.—From Major JOICEY, Sunningdale Park (gr., Mr. F. J. Thorne). This is the fine plant figured in *Rumphia* as *Latourea spectabilis*, the flowering of which, out of Messrs. Bander's recent importation from New Guinea, has been looked forward to with interest. Mr. Thorne, who grows this class of *Dendrobium* and other difficult Orchids well, being the first to show it. The flowers, which are produced on upright spikes, are large, and singularly formed, the labellum taking much the same form as the other segments, though being the largest. The sepals are triangular at the base, extended into a long, wavy apiculate tail; the petals are narrower, both pale yellow in colour, and prettily marked with purple. The labellum has the side lobes erected hood-like, the front being elongated, wavy, and apiculate, white in colour, with a beautiful veining of clear purple. A very fine addition to our gardens (First-class Certificate).

Cypripedium × *Hera*, *Euryades splendens* (Boxall × *Lecanum* × *?*).—From Messrs. JAS. VERRILL & SONS. A very distinct form, having the middle area of the lip of a rich rose-purple, and not spotted. The broad petals were greenish-white, tinged on the upper halves with brown-purple, and spotted with the same colour on the lower halves. The lip yellow, tinged outside, and spotted inside with purple, in some respects it resembles the fine *C. x Beckmanni* (First-class Certificate).

Cypripedium × *Lord Roberts* (*Charlesworthi* × *Oreon*), from Messrs. CHARLESWORTH & Co., Heaton, Bradford. A fine example of flower colouring, and the best *Charlesworthi* hybrid

yet shown. Upper sepal broad and flat, amethyst-purple, darker in the veining, the upper part showing a pure white spotting between the richly-coloured feathered lines. Lower sepal orbicular, greenish, with some purple lines. Sepals ovate, oblong, rose-purple, with brownish veining. Lip surface brownish-rose; staminal pale lilac, with a yellow base in the centre, all the parts shining. A very fine hybrid (First-class Certificate).

Cypripedium × *conco-callosum*.—From Captain G. W. LAW-SCHOFIELD, New-Hall-Hey, Rawtenstall, Manchester (gr., Mr. Shill). Upper sepal white, with green veining at the base; the upper portion, except a narrow white margin, being flushed with rose-colour. Petals greenish at the base, white at the tips, flushed with rose, and bearing minute purple spots. The lip greenish-yellow, the upper part tinged brownish-rose (Award of Merit).

Laelio-Cattleya × *Wellsiana ignescens* (L. purpurata × *C. Trianae* × *?*).—An improvement on previous varieties in shape and richness of colour. Sepals and petals rosy-lilac, with silver-white base. Lip ruby-purple, with pale yellow centre (Award of Merit).

Zygo-Colax × *Amerisana* (*Z. brachypetalum* × *Colax jugosus*).—From Messrs. F. SANDER & Co., St. Albans. A pretty hybrid with flowers larger than those of *Colax jugosus*. Sepals and petals apple green, heavily marked with purple; lip white, with narrow, violet-coloured lines radiating from the base (Award of Merit).

Cattleya × *elstior* (*Schilleriana* × *Mossie Reineckiana*).—From C. L. N. INGRAM, Esq., Elstead House, Godalming (gr., Mr. T. W. Bond). Flowers much resembling those of *C. x Parthenia* Prince of Wales. Sepals and petals bluish-white, lip hand-somely marked with bright rose-crimson, some orange and brown lines being at the base (Award of Merit).

Fruit and Vegetable Committee.

Present: Jos. Cheal, Esq., in the Chair; and Messrs. W. Wilks (Rev.), W. Poupert, M. Gleeson, A. F. Barron, Jas. H. Veitch, A. Dean, S. Mortimer, W. Bates, Robt. Fife, J. Willard, F. Q. Lane, and Jas. Hudson.

Very fine and perfectly ripe fruits of the Persimmon (*Diospyros kaki*) were shown by Mr. T. Edington, gr. to Lord DUCIE, Tortworth Court, Faldfield, Gloucestershire. They were grown upon a south wall out of doors (Cultural Commendation).

A collection of sixteen bunches of fine Grapes in eight varieties was shown by Mr. W. Taylor, gr. to C. BAYNE, Esq., Tewkesbury Lodge, Forest Hill, London, S.E. There were two bunches of first class Gros Colman, with berries of extraordinary size, a mammoth bunch of the white variety Mrs. Pearson that was certainly remarkable, two of Black Alicante, two of Trebbiano, three of Muscat of Alexandria, three of Mrs. Pince's Muscat, one of Gros Guillaume, and two of Lady Downe's Seedling (Silver-gilt Knightian Medal).

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, Sussex, contributed a large collection of Apples, consisting of eighty dishes in as many varieties, and including a fine dish of the variety Paroquet, to which an Award of Merit was recommended on October 24. It is a very showy fruit of high colour. Amongst the numerous specimens of well known sorts that were represented, we noticed fine samples of Queen, Peasegood's Nonsuch, Bismarck, Cox's Pomona, Emperor Alexander, Lane's Prince Albert, Beauty of Kent, Mabbot's Pearmain, Newton Wonder, Chelmsford Wonder, Bess Pool, &c. (Silver-gilt Banksian Medal).

Another collection of Apples was staged by Mr. J. Butler, gr. to the Earl of ANCASTER, Normanton Gardens, Stamford. There were about seventy dishes from this garden, and a large number of well known varieties was included. These fruits were fringed with a single growth of *Lygodium scandens*, 16 feet 4 inches in length. About a score varieties of Potatoes was also shown (Silver Banksian Medal).

Mr. CHAS. ROSS, gr. to Capt. CARSTAIRS, Welford Park, Newbury, exhibited a dish of capital fruits of the old Northern Greening Apple (Vote of Thanks). Also dishes of three new seedling Apples, one from a cross between Golden Reinette and Lane's Prince Albert, and another from Peasegood's Nonsuch and Duke of Devonshire.

Award.

Apple Stanway Seedling.—Fruits of good average size, and somewhat conical in shape; colour yellow throughout. Eye closed, or nearly so, inserted in a moderately deep basin, slightly ribbed. Stem short, and in a green and russet-lined cavity, with swelling upon one side. A good kitchen fruit. From Mr. T. H. KETTLE, King's Ford, Colchester (Award of Merit).

THE NATIONAL CARNATION AND NATIONAL AURICULA.

FLORICULTURE, as applied to the cultivation of special subjects denominated florists' flowers, appears to be on the up grade, judging from the proceedings at the annual meeting of the National Carnation and Plootee, and the National Auricula Societies. The members of the first-named met at the Horticultural Club, Hotel Windsor, on the 18th inst., Mr. Martin R. Smith presiding. The annual report set forth that, everything considered, a very satisfactory year with the Carnation had been experienced. The annual exhibition at the Crystal Palace was very much better than was expected; there had been a satisfactory addition to the membership, though they had experienced losses. The financial statement showed a

good balance on the right side; subscriptions had amounted to £251 2s. 6d. Prizes were awarded to the amount of £228 0s. 6d., and a balance of £229 10s. 10d. was carried forward.

During the year the Society had taken up the classification of the true yellow-ground Picotees as distinct from the yellow-ground Fancies. A special Floral Committee consisting of leading growers was appointed, and the results of their work was seen in the valuable report presented on this occasion. The lists of classified flowers will be published in the schedules of prizes as a guide to exhibitors. The President, Mr. Martin R. Smith, was re-elected by acclamation, and also the Vice-Presidents and Committee. The annual exhibition was fixed for July 25, though this date is subject to change, according as the incidence of the season may determine. Changes were made in the schedule of prizes, mainly in the direction of adding new or desirable classes. The Secretary, Mr. T. E. Henwood, to whose exertions so much of the success of the Society is due, was, on re-election, heartily thanked for his services.

The report of the Committee of the National Auricula Society was also satisfactory. Subscriptions amounted to £75 7s. 6d., and prizes were paid amounting to £56 17s. 6d. being carried forward. In the course of his statement, Mr. T. E. Henwood, the Secretary, said that sixteen new members had joined during the year, and already two for 1900; and there was not wanting evidence that the Auricula was growing in favour, and cultivators for exhibits were steadily on the increase. The officers and Committee were re-elected, only one change being made in the latter body. The annual exhibition, as usual in connection with one of the Royal Horticultural Society's meetings at the Drill Hall, was fixed for April 24.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

DECEMBER 14.—The severe weather prevailing on this date was not conducive to a good meeting, and there was a poor display in consequence.

T. BAXTER, Esq., of Morecambe (gr., Mr. Roberts), however, brought a few very choice plants of *Odontoglossum crispum*, of which O. c. Baxteri was the best, and bore a handsome spike of about fourteen flowers. The flowers are small, and have a distinct leaning towards the shape of O. Hunsellianum, the sepals and petals incurving somewhat, and are slightly larger than in that species; the segments brilliantly marked with irregular spots (First-class Certificate). *O. crispum* sulphureum was another pretty and distinct variety, of a pale primrose tint (Award of Merit). *O. crispum* var. "Morecambia" was a plant flowering from the apex of a newly imported pseudo-bulb, only one flower being on the spike (Award of Merit). *O. crispum* "Heaton Beauty" was another good form, of a large size, and spotted all over with crimson (Award of Merit). A Vote of Thanks was given for the group.

G. W. LAW-SCHOFIELD, Esq., Rawtenstall (gr., Mr. Shill), showed a hybrid between *Cypripedium Charlesworthi* × *C. tonsam*.

T. STATTER, Esq., Stand Hall (gr., Mr. Johnson), exhibited *Laelia Cattleya* × "Mrs. Astor (Award of Merit). From the same collection came also *Laelia* × *Tresederiana*, and a good form of *Cattleya labiata*.

E. J. LOVELL, Esq., Alderley Edge (gr., Mr. Garner), exhibited a very handsome form of *Cattleya aurea*, with segments of an unusual size and substance; the lip was of a peculiar shade of pale rose.

W. DUCKWORTH, Esq., Shawe Hall, Flixton (gr., Mr. Tindall), sent *Dendrobium Phalaenopsis* var. *Statteriana*, a fine form; and also a magnificent white variety of *D. P. Schroderiana*, called Shawe Hall var. (Award of Merit). P. W.

BRISTOL AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

The fortnightly meeting was held at St. John's Parish Room, Redland, on Thursday last. A large attendance was provided over by Mr. G. BROOKS.

Mr. J. H. DAVIS, of Redland, read a paper on the cultivation of the *Bouvardia*, *Polargonium*, *Begonia*, *Primula*, and *Cineraria*. He urged the cultivation of flowering plants as one of the most important branches of the gardener's work, and claimed that some one or other of the plants forming the subject of his paper could be had in bloom all the year round. In a careful manner he dealt with the culture of each species, giving his opinion as to the time suitable for sowing seeds or striking cuttings, soil in which they were likely to succeed and hints as to potting, affording water, and ventilation.

LINNEAN SOCIETY OF LONDON.

DECEMBER 7, 1899.—Dr. A. GENTHER, F.R.S., President, in the Chair.

Dr. OTTO STAPP, A.L.S., exhibited specimens of *Malayan* and *African* species of *Kickxia*, Blume, to show the difference which exist between the two forms. As the name *Kickxia* would have to be retained for the *Malayan* species, he proposed the name *Funtumia* for the *African* species, from *Funtum*, a vernacular name for *F. elastica*. He further pointed out, by means of flowering and fruiting specimens of *F. africana*, *Sapp* (*Kickxia africana*, Benth.), and of *F. elastica* (*Kickxia elastica*, Presl), that the latter, and not the former

as was originally assumed, was the source of the so-called Lagos rubber, thus confirming the conclusion to which Dr. Preuss had come with regard to the origin of this rubber.

Dr. STAFF also showed, on behalf of the Director of Kew Gardens, a large infructescence of *Musa Ensete*, Gmel., lately received from the Azores.

Mr. GILBERT CHRISTY, F.L.S., exhibited a preparation of India-rubber by a new process from *Castilleja elastica*, and also specimens of rubber obtained from *Kickxia elastica*.

Mr. J. W. FAWCETT read a paper on some "Vegetable Poisons used for the Capture of Fish by the Aborigines of Australia."

Mr. B. DAYDON JACKSON pointed out how widespread was the practice of obtaining fish in this way, and gave a brief review of the literature bearing on the subject.

SHIRLEY & DISTRICTS GARDENERS' & AMATEURS' MUTUAL IMPROVEMENT ASSOCIATION.

DECEMBER 18.—The monthly meeting of the above Society was held at the Parish Room, Shirley, Southampton, on the above date, there being a good attendance of the members, presided over by Mr. B. LADHAMS.

Mr. H. J. JONES, Ryecroft Nursery, Lewisham, gave a lecture entitled "The Raising and Producing the most useful *Chrysanthemums*." The lecture was a capital selection of useful hints for the successful culture of this plant.

CARDIFF GARDENERS'.

DECEMBER 12.—Over one hundred members belonging to the Cardiff Gardeners' Association, *Chrysanthemum* Society, and Horticultural Society sat down to a banquet at the Park Hotel, Cardiff, presided over by W. P. PIKE, Esq., Chairman of the Horticultural Society, supported by the Mayor of Cardiff (Councillor S. A. Brain), James J. Graham, Esq. (Chairman of the Association), and F. G. Treasder, Esq. (Chairman of the *Chrysanthemum* Society), and the two Hon. Secs., Messrs. H. Gillett and J. Julian; besides many other influential members of the Cardiff Corporation. After the dinner a short toast list was gone through.

The toast of the evening, viz., "The Three Horticultural Societies," proposed by the Chairman; the chairman and secretaries of each society responded. The chief item alluded to was the progress Cardiff horticulturists had made this year, first, in visiting the Royal gardens at Windsor in August last; and secondly, in having a collection of fruit sent to our autumn exhibition by Her Majesty's gardener at Frogmore.

Councillor Gashold during the evening recited the "Tenth Hussars" and the "Absent-minded Beggar." After the latter £3 10s. was collected towards the Mayor's fund for the wives and children of soldiers now in South Africa. Other toasts—songs, and solos were rendered.

This was the first occasion on which these three societies have amalgamated at a function of this kind, and it has turned out to be an unqualified success. *John Julian, Hon. Sec.*

EDUCATIONAL INSTITUTE OF SCOTLAND.

STUDY OF PLANT LIFE.

THE subject most recently added to the Educational Code—Nature-Knowledge—continues to receive the earnest attention of teachers in Scotland. At a recent meeting of the Aberdeen Branch of the Educational Institute of Scotland, held in Aberdeen University, the chief business was a lecture on "Nature-Knowledge in School-Plant Life," by Mr. JAMES WILSON, M.A., B.Sc., Lecturer on Agriculture, Aberdeen University.

Mr. Wilson, after a few preliminary remarks on the work carried on in connection with the Agricultural Department of Aberdeen University, indicated, first, how plant-life should not be taught to the children. The two great points to be kept in view, then, were to teach as full a knowledge of plant-life as the opportunity afforded, and to teach it in such a way as to maintain and develop the interest of the pupils in it. To do so, he would have them begin at the very beginning—that was to say, they ought to begin with the seed of the plant.

Mr. Wilson here brought into use an array of a dozen or so of small tubes, in each of which was a Bean-seed, suspended in water, and each at a different stage of germination. And he suggested leguminous seeds as specially suitable for purposes of illustration. Taking up the first tube, he urged that the pupils should first be familiarised with the appearance of the seed prior to the illustrative operations. Then it was to be suspended by a wire in the water, and in a few days (another tube was here shown) the seed would be seen to have become bigger. What had happened? Water—and with it food for the young plant—had been taken up. A few more days and the coat of the seed bursts, and in due time one bit of the young seed emerged, and took its way upwards the stem; and another forced its way downwards. Here was now the teacher's opportunity to explain what a seed really is—a young plant, with a store of food. As the growth of the plant went on, the teaching would gradually become wider in its scope. In due time the pupils would discover that the seed had become empty, the store of food had all been used up (and by this time the plant should have been put into the ground); and now came the opportunity of showing how the plant supplies

itself with food, and how that food is extracted partly from the ground and partly from the atmosphere, and how it is turned into a form in which it provides sustenance for the plant. The food itself would be an interesting study too, for the elements extracted from the earth and air were turned by the plant into exactly the same food-stuffs as are required by human beings—albumen, starch, and fat. Having been taken thus far, the attention of the pupils might profitably be directed to the flower, and particularly to the young pod inside the flower, when they would find that they had again reached the seed, and so completed the cycle of plant-life. Naturally, as the pupils went on, they would be fit to go more fully into the different branches of the study. By simple experiment they would readily come to understand that in order to obtain food, plants must be given daylight, and that biennial plants, like Turnips, store up food one year to be used the next; that some plants store their food in the root; some, like the Onion, in the leaf; and others, like the Potato, in the stem. They would also come to know the variations in the manner of growth of different plants. They would be able to deal intelligently with the commonest plants and grasses they found growing in the meadows or by the wayside, and these lessons would yield them a new and practical interest in Nature. Mr. Wilson's lecture was illustrated also by lantern-slides.

NATIONAL DAHLIA.

DECEMBER 19.—The Committee of this Society met at the Horticultural Club on the above date, Mr. E. MAWLEY in the Chair, the principal business being the annual report and financial statement. The former set forth that the summer of 1898, as of 1899, was a very dry one, drought and sunny days being particularly felt in August. Still, the annual exhibition was a satisfactory one, there being as many as 300 entries. Allusion was made to the supplemental show at the Royal Aquarium, at which prizes were offered to the amount of £26 5s. As many as seventy seedlings were submitted for certificates, and ten of the First-class was awarded. The report is in favour of more classes being provided for the decorative Dahlias, and also for improved methods of exhibiting. The membership of the Society had been maintained but an accession of new blood was most desirable.

A mournful reference was made to the death of the late President, Mr. T. W. Girdlestone, and the great loss sustained by the Society.

As far as the financial statement is concerned, it is estimated there will be a balance in hand of from £5 to £6. The report was adopted for presentation at the annual general meeting on January 16. The Society having hitherto been without bye-laws, some were proposed for confirmation at the general meeting. Mr. E. Mawley was nominated for President; Messrs. W. Marshall and Geo. Gordon as Vice-presidents, and it was resolved to recommend that the Committee be limited to thirty persons. The idea of a second show was generally approved, but it was left to the annual general meeting to determine if one should be held, and where. It is proposed that a fund be opened for the purpose of providing some memorial of the late President, and it was generally considered that a specially-struck Commemorative Medal would be most appropriate.

COVENT GARDEN MARKET.

THIS finest of the London markets, where the best productions of the earth are to be found, has now assumed the appearance which it usually does at this season. It is truly a big business that is transacted at Covent Garden, and no one knows better than Mr. Asbee, the Duke of Bedford's superintendent, the enormous extent of it. The Floral Hall, with its auction sales, is a great place; and the old, or market proper, built in 1830, on the site of the old market, has seen several improvements in recent years in the way of glass and iron roofs, and the adjustment of the ground-levels; and very recently, a new covered section eastward, extending to Bow Street, has been built, besides a large section on the south side, open to the sky, contiguous and adjoining the Flower-market. The latter is a modern building, constructed for the sale of flowers in pots and out bloom (roots are sold in another section), which when viewed in the spring-time, when it is well stocked with flowers, is a wonderful sight. At all times, however, a good supply of plants and flowers can be observed between the hours of 5 and 7 A.M., the best time to view this market, and one which well repays the visitor for his pains; it is necessary to be in good time, as the building is closed at 9 A.M. In the open market at this season are to be found enormous lots of Holly, Mistletoe, Laurel, Ivy, Spruce Firs, for Christmas-trees, and decorative-plants in abundance.

In the old market proper, the covered section, and some of the shops and warehouses, will be

found the fruits and vegetables, amongst which, first and foremost, are the home-grown Grapes, consisting of Black Alicante, Gros Colmar, and Muscat of Alexandria, the best class having fine large berries; besides second quality Grapes in plenty, namely Belgian, Channel Islands, and the well-known Almeira, which come in barrels. Bananas will be found in abundance, the supply in the past few years having grown enormously; the same remark applies to Tomatoes. Those of home growth are about at an end for a short time, but the supply from the Canary Islands is large, and the fruit is well grown, and consists of smooth varieties of good colour, which arrive in fine condition, owing to the excellent method of packing adopted. It is a trade that has made wonderful progress. The business done in St. Michael Pine-apples is extensive, and fine, well-grown fruit can be bought at very moderate prices.

There are now dried Figs, Dates, and Lychees from China, and a curious little fruit enclosed in a nut-like brown shell, which has apparently come to stay; and Custard Apples from Madeira. Of Oranges, there are Jaffa, Lisbon, Murcia, Valencia, Jamaica, Teneriffe, Tangerine, &c. Lemons from Naples, Messina, Malaga, Murcia, &c. In Nuts there are home-grown Cobnuts and Filberts, the others are foreign. Sweet Chestnuts are mostly of French and Italian origin. Brazil, Walnuts, Almonds, Barcelona and Sapucaia form the remainder. Home-grown Apples are found in great variety and in large quantities, some very good ones among them. The best culinary varieties are Wellingtons, which are and have been arriving in very good order; Blenheim Orange, Warner's King, and others. For dessert, there are Cox's Orange, Ribston, King, and Fearn's Pippin, Golden Knob, and others; the Knobs are small this year. Then there are Canadian Newtown Pippins in barrels, Californian Newtown in cases, and Nova Scotian Ribstons, and King of the Pippins—in market parlance, Kings, in barrels.

Among Pears, the chief are foreign, French Glout Moreceau, packed in single layers in what are called crates, a cage-like box, made of thin strips of wood, with space between each piece in which the fruits are packed, and in which also Asparagus and other things are sent over. These boxes are lined with paper, and they are extensively used for French goods. There are also Californian Pears, such as Glout Moreceau, Duchesse, Beurré Diel, Easter Beurré, &c.

Among vegetables may be found Asparagus, Seakale, French Beans from the Channel Islands, France, and Madeira, whence large supplies are obtained; new Potatoes of home-growth, and from Teneriffe; Globe and Jerusalem Artichokes, also Cress, Cardoons, Rhubarb, Brussels Sprouts, Spinach, Celeriac, Chicory, Salsify, Cauliflower, Broccoli, and other green vegetables and roots to suit all classes, with Cucumbers, Celery, Lettuce, Endive, Monkabead, Chicory, and various other salads in variety. There are also some very grotesque-looking heads and faces of tattooed New Zealanders, carved and manipulated on the outer husk of the Cocoa Nuts, to be seen in a shop in the North Row.

The supplies all round are of good quality, and prices are very moderate, some indeed being very low. *T. P., December 21.*

CATALOGUES RECEIVED.

PLANTS.

JAMES VEITCH & SONS, Ltd., Royal Exotic Nurseries, King's Road, Chelsea.—Hardy Trees and Shrubs, Conifers, &c. JNO. FRED & SON, Rousell Park Nurseries, West Norwood, London, S.E.—*Chrysanthemums* and Begonias. LETELLIER, SON, & CO., Cern, France.—Wholesale List of Nursery Stock. CROSBY, AINSIE, FILLS & CIE, Hyères, France.—Cannas.

SEEDS, ETC.

SAMUEL DORIS & SON, Heathfield Gardens, near Chester. DICKSON, BROWN, & TAIT, 43 and 45, Corporation Street, Manchester. DICKSON & ROBINSON, Manchester. JAS. VEITCH & SONS, King's Road, Chelsea. CHR. LORENZ, Erfurt, Germany (Wholesale). E. WEBB & SONS, Wordsley, Stourbridge.

MARKETS.

COVENT GARDEN, DECEMBER 21.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arum Lilies, dozen blooms ... 14 0-18 0	Narcissus (yellow) doz bunches ... 3 0-4 0
Asparagus "Fern," bunch ... 2 0 2 6	— (double) doz. beh. ... 3 0-7 0
Carnations, per doz. blooms ... 2 6-5 0	— (white) doz. ... 3 0-4 0
Cattleyas, per dozen ... 15 0-18 0	Odonoglossums, per dozen ... 4 6-9 6
Chachias, per dozen ... 8 0-10 0	Poinsettias, dozen blooms ... 15 0-18 0
Gardenias, per doz. ... 3 0 6 0	Roman Hyacinths, doz. bunches ... 6 0-8 0
Lilac, white, bunch ... 5 0-7 0	Roses indoor, per dozen ... 3 6-7 6
Lilium Harrisii, per dozen blooms ... 10 0-14 0	— Tea, white, per dozen ... 3 6-7 6
Lilium longiflorum, per dozen ... 12 0-16 0	— Yellow, Perles, per doz. ... 3 6-7 6
— lancifolium album, per dozen ... 6 0-4 0	— Safrano, per doz. ... 2 6-3 6
— lancifolium rubrum, per doz. ... 3 0-4 0	Smilax, per bunch ... 3 0-4 6
Lily of Valley, per doz. bunches ... 10 0-20 0	Tuberose, per doz. blooms ... 0 0-1 0
Maidenhair Fern, per doz. bunches ... 4 0-6 0	Tulips, per bunch ... 1 3-2 0
Marguerites, p. doz. bunches ... 3 0-4 0	Violet, Parma, per bunch ... 8 0-12 0
Mignonette, dozen bunches ... 4 0-6 0	— dark (French), per doz. beh. ... 2 6-4 6
	— (English), per doz. beh. ... 4 0-5 0

PLANTS IN POT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantum, p. doz. ... 5 0-7 0	Foliage plants, var., each ... 1 0-5 0
Arbor-vita, var., doz. ... 6 0-8 0	Lily of Valley, each ... 1 0-2 6
Aspidistra, p. doz. ... 18 0-36 0	Lyopodium, doz. ... 3 0-4 0
— specimen, each ... 5 0-10 6	Marguerite Daisy, per dozen ... 8 0-12 0
Crotons, per doz. ... 18 0-30 0	Myrtles, per dozen ... 6 0-9 0
Dracenas, var., doz. ... 18 0-30 0	Palms, various, ea. ... 1 0-15 0
— viridis, per doz. ... 9 0-18 0	— specimens, each ... 1 0-3 0
Eriodendron, var., per doz. ... 18 0-36 0	Pelargonium, scarlet, per dozen ... 4 0-8 0
Eucalyptus, various, per dozen ... 6 0-18 0	Poinsettias, p. doz. ... 18 0-30 0
Evergreen, var., per dozen ... 4 0-18 0	Primulas, per doz. ... 5 0-8 0
Ferns, small, per 100 ... 4 0-6 0	Roman Hyacinth, per doz. ... 8 0-10 0
Ferns, in variety, per dozen ... 4 0-18 0	Tulips, per doz. ... 1 6-2 6
Ficus elastica, each ... 1 6-7 6	

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, in sieves:	Grapes, Gros Colmar, lb. ... 1 0-1 6
— Kings ... 2 0-3 0	— Class A., per lb. ... 1 9-2 0
— Ribston ... 4 0-5 0	— Muscats, Cl. A., per lb. ... 2 6-5 0
— Blenheim, beh. ... 4 0-6 0	— Almetra, dz. lb. ... 5 0 —
— Nova Scotia, various, barrel ... 17 0-20 0	— barrel ... 16 6-32 0
— Californian, cases, New Town ... 9 0-11 0	Lemons, Messina, 16 0 —
— Canadian New town Pippins, barrel ... 24 0-30 0	— Murcia, 2 0 ... 11 0 —
— Cox's Orange Pippin, sieve ... 6 0 —	Lyches, Chinese, new, p. 1 lb. ... 1 0 —
— Wellingtons, beh. ... 4 0-6 0	— Tangierine, bxs. ... 0 10-1 6
— Sourings, per bushel ... 3 0-4 0	— Valencia, case of 714 ... 11 0-16 0
— Fearn's Pippin, per bushel ... 4 0-6 0	Pears, stewing, per sieve or bkt. ... 3 6-5 0
— Golden Knobs, per bushel ... 4 0-6 0	— French Easter Beurre ... 6 0-7 0
— Various Cooking, per bushel ... 2 0-6 0	— Californian Easter Beurre ... 15 0-20 0
Bananas, per bunch ... 6 0-12 0	— Glout Moroccan, crates of 18, 21 or 15 fruits ... 6 6-10 0
Chestnuts, per bag ... 6 6-16 0	Pine, each ... 2 9-6 0
— in sacks, Spanish ... 13 0 —	Sapota Nuts, lb. ... 1 3 —
Gobnuts, per lb. ... 0 7-0 7 1/2	Walnuts, Naples, kiln-dried, per cwt. ... 44 0 —
Oranges, case ... 10 6 —	
— American, per qt. ... 0 5-—	
— Kops (Russian), 2 0 —	
Grapes, English, Alicante, per lb. ... 0 10-1 6	
— Belgian ... 0 6-1 0	

POTATOES.

Main Crop, Up-to-Date, &c., 65s. to 90s.; Dunbar Up-to-Date, 90s.; Dunbar Main Crop, 100s. Other varieties, 65s. to 80s. John Bath, 82 & 84, Wellington Street.

REM. MKS.—The recent severe frosts have seriously damaged green vegetables, and quite spoiled the trade in Brussels Sprouts, Savoy, and Cauliflowers, most of the latter being absolutely destroyed; those quoted above are from St. Malo, Cherbourg, and Cornwall and their qualities are in accordance with the order of their names. Some Brussels Sprouts and Savoy found a very poor market on Tuesday last, owing no doubt to their condition. Home-grown Apples are plentiful, and prices low. Pine-apples are abundant, at various prices; some of these St. Michael's Pines weigh 6lb. and upwards. Citrons of Guernsey growth are fairly plentiful, at prices ranging from 6s. to 12s. per dozen, and the quality is varied. The Chow Chow is not seen this season in the market. Mistletoe and Holly are abundantly berried.

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe, per doz. ... 3 0 —	Mint, new, Ch. Is., p. doz. bunches ... 6 0 —
— Jerusalem, per sieve ... 1 0-1 6	Monks' beard (Barb de Capucine), p. bunch ... 0 4-0 5
Asparagus, Spruce, per bundle ... 0 10 —	Mushrooms, house, per lb. ... 1 3-1 6
— Paris, Green, per bundle ... 6 0 —	Onions, bags ... 4 0-5 0
Beans, Channel Islands, per lb. ... 1 6 —	— picklers, in sieves ... 2 6-3 0
— Madeira, per bushel ... 2 6-3 6	— Valencia, cases ... 7 0 —
— French, lb. p. 0 5 0 6	— English, cwt. ... 6 0 —
Beetroot, new, doz. in bush. ... 0 6-1 0	— Albanian, bags ... 5 0 —
Broccoli, Cornish, crates ... 9 0-12 0	— Dutch ... 4 6 —
Brussels Sprouts, p. sieve ... 1 0-1 6	Parley, per dozen bunches ... 1 6-2 0
— per bushel ... 1 6-2 0	— per sieve ... 1 0-1 8
Brussels Sprouts, Tops, per bag ... 1 6-2 0	Parsnips, per dozen ... 0 6-1 0
Cabbage, waxy ... 0 6-0 0	Peas, New Green, lb. ... 2 0 —
— dozen ... 1 0-1 8	Potatoes, Snowdrop, &c., per ton ... 65 0-90 0
— Savoy, p. tally ... 4 0-7 0	— Dunbar Main Crop, per ton ... 100 0 —
Carrots, English, p. dozen bunches ... 2 0-2 6	— New French in boxes, lb. ... 0 3 —
— good, cwt. bags, washed ... 3 0-3 6	— Tenerife, in boxes, cwt. ... 12 0-20 0
Cauliflowers, dozen ... 1 6-3 0	Radishes, Long, pr. doz. ... 1 0 —
Celeriac, per dozen ... 2 0 —	Rhubarb, Yorks, pr. dozen bunches ... 1 6-1 9
Celery, red, per roll ... 1 0-1 6	Salad, small, punnets, per dozen ... 1 2 —
— white, do. ... 0 8 —	Salisbury, bundle ... 0 4 —
Chicory, per lb. ... 0 8-0 3 1/2	Scotch Kale, bush. ... 1 6-2 0
Colewort, p. bush. ... 1 0-1 8	Seakale, per dozen punnets ... 12 0-21 0
Cress, per dozen punnets ... 1 6 —	Shallots, per lb. ... 0 3-0 3 1/2
Cucumbers, doz. ... 4 0-10 0	Spinach, French, crates ... 2 6-4 6
Endive, new French, per dozen ... 2 0 —	Spinach, Winter, per bushel ... 3 6 —
— Batavian, doz. ... 1 6 —	Tomatoes, English, per lb. ... 0 3 —
Garlic, new, per lb. ... 0 2 —	— Canary, deeps. ... 1 6-3 6
— per cwt. ... 14 0 —	Turnips, per dozen bunches ... 2 0-2 6
Horseradish, English, bundle ... 1 6 —	— cwt. bags ... 2 0-2 6
— foreign, v. white ... 1 6-1 2	Turnip Tops, bags ... 1 6 —
— loose, fine, doz. ... 1 9 —	Watercress, p. doz. bunches ... 0 6-0 6
Leeks, per dozen bunches ... 1 6 —	
Lettuce, French, Cabbage, p. doz. ... 1 0-2 0	

SEEDS.

LONDON: December 20.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that a fair quantity of English Clover-seed has been changing hands this week. Germany is still a buyer of this description, if however at moderate rates; any attempted advance would at once check sales. There is no notable change in either Alsike, White or Trefoil. Rye-grasses, meantime, keep steady, and full prices are asked for Koenigsberg Tares. Birdseeds move off slowly on former terms, but there is an improved inquiry for Haricot Beans and Blue Peas. The market for Mustard and Rape-seed is firm; Linseed, however, remains quiet.

CORN.

AVERAGE PRICES OF BRITISH CORN (per imperial qr.), for the week ending December 16, and for the corresponding period of 1898, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1898.	1899.	Difference.
	s. d.	s. d.	s. d.
Wheat ...	27 2	25 4	- 1 10
Barley ...	28 5	25 7	- 2 10
Oats ...	17 0	16 1	- 0 11



A KITCHEN-GARDEN BOUNDARY-HEDGE: N. R. A mix-d one of Holly and Beech will afford protection against intruders and wind. The leaves of the Beech will remain on the hedge all the winter. It will readily bear clipping, and may be allowed to reach a height of 8 feet, and extend to a width of 2 to 3 feet at the bottom. Growth is quick if the land be manured and trenched previously, and well-tended after planting. You ought not to plant trees closer to the hedge than 10 feet, or it will suffer from being over-shaded, growing thinly and weak where the shade is dense. Small-growing fruit would be the best to plant (bush-trees). Hornbeam may be substituted for Beech if preferred; it is equally good, making a rigid hedge. Plants of both species, 3 to 4 feet high, are usually quoted in lists at 5s.

per 100, or 40s. per 1000. Both may be planted at 10 to 12 inches apart. Holly of the same height, about 90s. per 100; and it may be planted at the same distance in the line. The trees planted alongside the hedge may be as far apart as they stand distant from the hedge—say 10 to 12 feet. These may consist of Apples, Medlars (Nottingham), Damsons, the hardier Plums and Pears, Quinces, Cob and Filbert-nuts.

APPLICATION OF LIME TO GARDEN SOIL, &c.: J. B. Quicklime may, with advantage to future crops, be dug into the land during the late autumn and winter, but not immediately before planting or sowing. Powdered fresh lime may be used as a top-dressing at any season in moderate quantities when the land is under crop, or at other times. Annual dressings for a series of years may be applied to land in which lime is naturally deficient, and it may take the form of mortar and plaster rubbish, or fresh unslaked or slaked lime, the unslaked being preferable in stiff, unctuous loams, and soils containing much inert vegetable matter, as is often the case in gardens which have been long under cultivation, in which no manure should be afforded for three or four years. It forms a suitable dressing for peaty soils for the same reason. We will give a list of suitable shrubs in our next issue.

CARNATION SEEDLING: H. E. Your seedling from the variety Miss Jolliffe is a valuable one. It is an effective colour—a rather uncommon shade of red—very fragrant, and has a satisfactory calyx.

CHEMICAL MANURES: Mixture. Your question being incomplete, does not admit of an answer being given. All of the manures cited are useful if applied in proper quantities, but it is necessary to know upon what area of land you propose to use them, and whether it is intended to apply them separately at different times, or as a "mixture." If as a mixture, and you suggest the quantities to be afforded per acre, the amount is excessive and wasteful. But much would depend upon the kind of crop for which it is intended. In any case, we should not care to use a greater quantity of sulphate of ammonia than 2½ cwt. per acre.

NAMES OF FRUITS: W. The Pear is Reine des Poires. The Apple is Barton's Incomparable.—J. T. 1, Reinette Grise; 2, Calville Rouge d'Hiver; 3, Mela Carla. This is said to be of Italian origin, and is often cultivated in continental gardens; we have seen it at several places in Switzerland. It is occasionally grown here, but usually does best in an orchard-house, or in warm positions.—F. W. Scarlet Nonpareil.—A. H. 1, Cellini; 2, Belledge Pippin.—W. R. 1, Fearn's Pippin; 2, Cornish Aromatic; 3, Ribston Pippin; 4, Cox's Orange Pippin.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—C. J. P. 1, Leucothoe axillaris; 2, Retinospora ericoides of gardens; 3, Taxus baccata; 4, send when in flower; 5, Juniperus communis; 6, Prumnopitys elegans alias Podocarpus anomala.—Major B. Leonotis dysophylla, Natal.—Fisher, Son, & Sibray. A Panicum, probably sulcatum. Send again when in flower.

THE DAMAGED HEAD OF A YOUNG LORD SUFFIELD APPLE-TREE: P. M. T. The injury points to hail having been the cause. The wounds are all on one side of the stem and branches, which seems to show that the tree was bent over at the time the injury was done—probably by the wind. The bark was in places detached, in others bruised, as also the wood below it, sufficiently severely as to destroy its vitality. Such injury would in all likelihood favour the appearance of canker, and greatly check development. Nothing can be done of any real utility beyond cutting away damaged parts, so as to permit of new wood covering the bared spaces.

COMMUNICATIONS RECEIVED.—A. E. T.—F. C.—S. F. M.—A. Hope.—M. L.—Attwood & Co.—P. E. N.—Prof. Eugler.—Sir W. T. D.—Mysore.—W. H. M.—Cardiff Association.—J. M. T., Santa Barbara.—Conservator of Forests, Cape Town.—W. E. G.—R. W. R.—J. B.—J. C.—J. K.—W. H. W.—A. O'N.—W. H. L.—T. O.—G. B. M.—G. H.—W. B.—S. A.—C. W.—C. H.

SPECIMENS AND PHOTOGRAPHS RECEIVED WITH THANKS.—J. M. T., Santa Barbara.—M. Schofield.

(For Weather, see p. x.)



THE Gardeners' Chronicle

No. 679.—SATURDAY, DEC. 30, 1899.

OBSERVATIONS ON THE COLOURS OF FLOWERS.

A PAMPHLET with the above title has been published by Mr. E. W. Hervey, of New Bedford, Mass., U.S.A. It deals chiefly with the supposed evolutionary sequence of colours, as expounded by Grant Allen; and the relationship of insects to the production of colours, in which the author criticises Müller's and Lubbock's conclusions.

The author regards as "glaringly erroneous" the following statement of Grant Allen:—"As flowers advance in type they pass from yellow, which is the lowest colour, through white, pink, red and lilac, to purple and blue, which are the highest. And when through any special cause they begin to retrogress, they pass backwards through the same stages in inverse order."

To support this criticism he mentions several species of Cypripedium and other flowers, which are mainly green, but more or less associated with white, purple, rose, as well as yellow; similarly of Ranunculaceæ (the simplest types of flower), there are many greenish-white, purple, or blue flowers. Again, of Polygala, two sepals are at first green, then purple, and then green again.

The above shows that individual flowers do not necessarily pass through the series mentioned by Grant Allen, a fact of which he was probably quite aware. He, however, is referring to plants as a whole; and here we do find the first colour to have been yellow, as seen in the male catkins of Pines, which preceded the existence of petals and sepals. Now, as yellows are produced by solid granules, and reds, purples and blues by liquids, it seems that the latter are not, as a rule, produced out of yellow, but that this must be more or less got rid of, if present, before making the former, hence white intervenes; but in the development of individual flowers, no yellow need have been made at all, so that petals pass from the colourless condition in the bud to any bright colour on expansion.

Still, as Grant Allen says:—"Most early and simple flowers are yellow, because the stamens are generally yellow, and when they developed into petals they naturally retained at first their original colouring." A Buttercup may illustrate this fact. But when he says "The Corollifloræ betoken in their shape high modifications, yellow is a comparatively rare colour, while purple and blue become almost the rule," he apparently forgets the very numerous yellow Composites; the Compositæ being regarded as the most differentiated of all orders. He also makes a slip in saying: "It is not remarkable that the Pinks should never be yellow, as the five principal [*sic*] carpels have completely coalesced into a five-celled ovary." *Dianthus ochroleucus* and *D. ferrugineus* are yellow, and there are not five, but two carpels in this genus. Moreover, there are plenty of yellow flowers with syncarpous

pistils, as *Hypericum*, *Hibiscus*, *Rhododendron*, *Iris*, &c.

Grant Allen was rather apt to generalise from too few data; thus taking the Ranunculaceæ as a primitive type, we find purple in *Clematis*, scarlet in *Pheasant's Eye*, deep blue in *Aconite* (as well as yellow), scarlet in *Ranunculus asiaticus*, crimson in *Pæony*, &c.; and in *Corollifloræ* there are yellow Primroses, *Calceolarias*, *Allamandas*, &c. Scarlet can retrograde at once into yellow, as occurs in *Kniphofia*, "the young flowers at the top being scarlet, and the older at the lower end of the spike being yellow." A not uncommon variety of *Adonis vernalis* is called *citrina*, in which the petals are yellow and rather smaller, indicating a degenerate form, apparently reverting to an ancestral condition in which the flowers were yellow. Yellow sports in *Chrysanthemum* are also reversions.

Though yellows and reds may follow the disappearance of chlorophyll in *Caltha* and *Helleborus*, in which the sepals become coloured, it is a question how far the actual chlorophyll-grains themselves become changed. The first is possible, as we see green leaves becoming yellow by oxidation in autumn; but in red leaves, as of Beet, Beech, &c., the green granules are obscured by the coloured fluids present in the cells, and known as erythrophyl. Reds, however, can probably result from chlorophyll itself, as Mr. Sorby observed, "It appears to me extremely probable that reds, often found in leaves, are products formed by the action of light on chlorophyll under conditions which have not been reproduced artificially." Whether this be so, and experts' opinions are still doubtful, the red fluid, or at least certain constituents of it, run through all the reds in vegetable bodies, and are certainly independent of chlorophyll in most, if not all, cases of petals in flowers which were never green in the bud.

The author, therefore, would seem to be correct when he says:—"It is apparent that when a chlorophyll green is the foundation, the first colour to follow is not restricted to yellow, but may be red, purple, or blue." This is the case now. But when petals were first evolved out of stamens, the probability is that they were yellow.

Taking yellow as the ancestrally primitive colour of flowers, the author recognises Grant Allen's series, viz., yellow, white, red, purple, blue; but truly observes that any colour may spring from white.

In the fifth chapter he enumerates a large number of flowers in which the colours change from yellow to some shade or compound of red, or from white to such colours, as well as reversions back to yellow, thus showing that Grant Allen's sequence often holds good for individual flowers, though the sequence of colours is not invariably the same, some being wanting.

As further illustrations of the fact "that original colours develop in different ways," i.e., in existing flowers, the author gives numerous examples in which different colours characterise different whorls. Thus, "*Delphinium nudicaule*, sepals red, petals yellow; *D. variegatum*, sepals purple, petals white; *Bilbergia vittata*, flowers indigo-blue, tubular calyx carmine; *Strelitzia regina*, orange sepals, ultramarine-blue petals."

The probability seems to be that, although the first colour acquired by stamens (as stated) appears to have been yellow, and that this might have been transferred to the first corollas, of whatever plants they were, yet

Nature can now at once proceed to make reds and purples without this intermediate yellow at all. Thus, numerous leaves are more or less coloured, as *Coleus*, but there may be no trace of yellow present.

Mr. Hervey devotes a chapter to the colours of honey-guides in flowers, and refers to Henslow's *Origin of Floral Structures* (p. 182), where that author says:—"It has been observed that the 'spots' are more persistent than the base colour of the flower. Whenever they occur as guides or path-finders they have been determined by insects, and have become hereditary." Mr. Hervey adds:—"Not a hint is vouchsafed of the manner in which they are determined. . . . I shall, therefore, offer the following as an original [*?*] elucidation of the subject."

The following is his description of the process:—"This richness of colour is occasioned by the irritating influences of the bees in traversing the same route to and from the nectary, thus stimulating the flower to send more of its peculiar pigment to this point."

As Mr. Henslow had said (only four pages preceding the above quotation):—"The guides, like obstructing tangles of hair and nectaries, are always exactly where the irritation would be set up; and I take them to be one result of a more localised flow of nutriment to the positions in question." Mr. Hervey's "original elucidation" is a curious instance of unconscious assimilation and appropriation of Mr. Henslow's theory!

The twelfth and last chapter is an answer to the question—Are the colours of flowers the result of insect selection? Contrary to Lubbock's, his own observations tend to prove that there is no special selection:—"Honey-bees have absolutely no regard for special colours; they go readily everywhere that nectar is accessible, naturally taking shorter tubes to probe than bumble-bees." It would seem, therefore, that whatever is sufficiently brightly coloured or white will attract insects as well as scent, as bees can readily discover the honey-glands of *Aucuba japonica*, and on leaves of *Laurel*. Insects can be deceived, too, for a white butterfly was noticed hovering in front of a closed window in Holborn, behind which was a China vase with flowers painted upon it!

FARMYARD AND STABLE- MANURE.

THE crop-producing capacity of a soil is greatly dependent on the presence therein of microbes, which render available for the plant the inert food in the soil. Our view of the nature of fertile soils has, during the last few years, become considerably enlarged, and instead of regarding it simply as a porous mass of clay, sand, and humus, we now look on it as a medium full of life. Professor Warington aptly says—the soil beneath our feet is, in fact, not dead, but thickly peopled with a variety of organisms, with the particular functions of which we are only gradually becoming acquainted. The multiplication of these microbes, or silent workers in the interest of the gardener, is largely dependent on the humus in the soil and the nature of that humus. Experiments have shown that farmyard and stable-manure conduce largely to the multiplication of these microbes; not that commercial fertilisers have no such effect, but the variety of microbes which do the work in the latter case is different.

The organisms which effect the oxidation and nitrification of organic matter are abundantly present in surface-soils, but are probably absent, or nearly so, in subsoils; in surface-soils they will most probably be abundant in proportion to the richness.

of the soil in organic matter or humus. The oxidising power of soil is always considerably greater in summer than in winter, consequently the increased temperature of the surface-soil to which large dressings of farmyard or stable-manure have been applied is greatly engendered by the decomposition or oxidation of such large amounts of organic matter within it, whilst the carbonic acid evolved in the decomposition will, with the aid of moisture, serve to render the mineral resources of the soil more soluble. In this way, the mineral elements will act as bases to be combined with the liberated organic nitrogen, and thus form available plant-food.

If for no other reason, therefore, than what has been stated above, there are few subjects connected with horticulture of greater interest and importance to the gardener than that of farmyard and stable-manure.

Professor F. T. Shutt, M.A., chemist to the Dominion Experimental Farms of Canada, in a recently issued *Bulletin* upon the subject of farmyard manure, says, in this necessary and naturally large product of every farm, the agriculturist should recognise his home supply of plant-food, the chief means by which he may maintain and increase the fertility of his soils. That this truth is not fully realised is evident from the wasteful neglect so frequently to be seen in the care of the manure. Through carelessness, or ignorance, or both, the most valuable part of the manure—because the richest in available plant-food—is allowed to drain away. The following facts are given on soil fertility:—

Factors necessary for Plant Growth.—Since the object in applying farmyard and stable-manure—or, indeed, any manure—is to increase a soil's fertility, it is important to have a clear understanding at the outset as to what constitutes this quality or condition. A soil's fertility, or crop-producing power, is dependent upon various factors, chief among which undoubtedly is the presence of an abundance of assimilable—that is, more or less immediately soluble—plant-food. There are, however, other factors or conditions that tend toward soil-productiveness, and since farmyard and stable-manure, besides supplying the elements for the nourishment of crops, affects directly or indirectly these conditions it will be well to consider them, if only briefly.

Light and Air.—In the absence of light and air plants cannot thrive, for while the latter supplies the greater portion of their nourishment (about 94 per cent.), the former serves to convert such nutritive matter within the plant into vegetable substances. Since, however, light and air are abundantly provided by Nature, it will not be necessary here to dwell at any length upon their horticultural functions.

It is, however, important to point out that plant-roots, as well as stems and leaves, require air. Water-logged, badly-drained soils, especially when in garden-pots and heavy plastic clays, exclude the air, and consequently have a low degree of fertility by reason of the de-nitrification which takes place in the plant-food. Farmyard and stable-manure, and all organic manures and composts, do yeoman service for such soils, by rendering them more porous and permeable to air and to the development of surface plant-roots.

Respecting the value of light, it will only be necessary to state that the full effect of manure is not obtained when crops are too thickly sown or planted. An excellent illustration of this is afforded by the Turnip or Onion crop. Carefully conducted experiments have shown that the amount of marketable growth furnished by these crops, sown broadcast, is very much less than that obtained from a similar area planted in rows and properly thinned. The same is true with regard to fruit-culture; it has been demonstrated time and time again that no work in connection with a fruit-orchard pays better than judicious thinning.

Warmth and Moisture.—With these the control of the gardener is more direct than that of the

farmer, owing to the smaller area of land with which he has to deal. In out-door work it is well to remember that suitable culture may vastly increase and also regulate a soil's warmth (so necessary, especially in seed-germination and the younger stages of plant growth), as well as affect beneficially its capacity for holding moisture. Between 50 and 70 per cent. of every growing plant in the garden is water, and sometimes the amount is much higher than this. The whole of the water, and much more which is transpired through the leaves during the life of a plant, is drawn by the roots from the soil. The presence of organic matter, as furnished, for instance, by farm-

the same parentage as the one now under notice, though the matter was always considered more than doubtful on account of its exhibiting so little trace either of the yellow colour or the form of *C. Dowiana aurea*. It is barely possible that *C. x Massiliensis* of M. Maron may have been the reverse cross to this, and the variable *C. labiata Trianæi* bearing the seed may have caused the difference, but if such is the case it is a remarkable departure from the generally accepted rule. In the production of *C. x Maggie Raphael* a superb form of the Popayan type of *C. Trianæi* was used, and that made a difference in the fine form of the flower, though it is not easy to see why it should



FIG. 158.—CATTLEYA x MAGGIE RAPHAEL.

(See Royal Horticultural Society's Report, December 9, 1899, p. 441.)

yard and stable-manure, is instrumental in controlling a right degree of soil moisture during seasons of drought, and, as previously stated, by its germination and decomposition raises the soil's temperature. *J. J. Willis, Harpenden.*

(To be continued.)

CATTLEYA x MAGGIE RAPHAEL (DOWIANA AUREA ♀, LABIATA TRIANÆI ♂).

THERE is a special interest about this fine hybrid, which we here illustrate (fig. 158), raised by H. S. Leon, Esq., Bletchley Park, Bletchley (gr., Mr. Hislop), and shown at the Royal Horticultural Society, Dec. 5, this year, as it is not only a very fine and distinct hybrid, but it also serves to check an error in a previous record, viz., *Cattleya x Massiliensis*, which was said to be of

be so very different in colour from other crosses botanically analogous, as for example the fine *Cattleya x Lord Rothschild* (*C. Dowiana aurea x C. labiata Gaskelliana*), illustrated in *Gardeners' Chronicle*, October 24, 1896, p. 489, which has sepals and petals freckled with rose colour, nearly resembling *C. Gaskelliana*; or the natural hybrid *C. x Hardyana* (*C. Dowiana aurea x C. Warszewiczii*) which has since been home-raised by Mr. Norman C. Cookson, and which exhibits but little of the yellow colouring of *C. aurea*. On the other hand, *C. x Maggie Raphael* has the yellow colour of *C. Dowiana aurea*, with the addition of a bronzy-rose tint towards the edges of the petals, and a number of purple spots along the veining on each side of the mid-rib. The lip is of a rich purple colour, lighter towards the margin and apex, and with some yellow lines running from the base to the centre. It is a very distinct and beautiful flower.

CYPRIPEDIUM × HERA VAR. EURYADES.

OUR illustration (fig. 159) represents the finest form of the many varieties resulting from crossing *C. × Lecanum* and *C. Boxalli*, and for which Sir Trevor Lawrence, Bart. (gr., Mr. W. H. White), was awarded a First-class Certificate at the Royal Horticultural Society, on December 5, this year, it having previously secured an Award of Merit as *C. × Euryades*, but since that time had greatly improved. As with other hybrids between parents exhibiting great variation in themselves, there is great dissimilarity in the progeny, in this case as in others, resulting, perhaps excusably, in some amount of confusion in the nomenclature. In 1892, Messrs Jas. Veitch & Sons flowered one of the

coloured flowers being among the best of its class. The upper sepal has a greenish base, a pure white upper portion; the whole spotted with dark purple, almost black at the base. The petals and lip are greenish-yellow tinged with brown, the petals bearing dark purple blotches.

ROOTS, ROOT-STOCKS, AND ROOTING-MEDIUMS.

A SUITABLE root environment is of the utmost importance in the cultivation of all plants. Apart from the value of soils in their power to support plant-life, they must show such mechanical and hydrometric conditions that roots, in whatever form, may be preserved from extreme drought on

once debilitated through loss of roots are a long time regaining health, and frequently exhibit traces of the ordeal through which they have passed—for a time, at least—spoiling them as objects of ornament.

Any study, therefore, that will lead to the right temperature, the right kind of soil, and the right amount of moisture being afforded to plants at the right period, is time well spent. Orchid cultivators have made remarkable strides in the cultivation of what were once known as difficult plants to grow, mainly because they have diligently studied, imitated, and in instances improved upon, the natural conditions under which these plants thrive. On the other hand, plants, other than Orchids, have not received such marked attention. It is not suggested that they have been systematically neglected, but that there is yet much to be learned. It is far too general a practice to pot up a variety of plants in the same kind of soil, grow them together in the same house without any assortment, according to their nativity (save in a very rough way), or according to such evidence of the treatment they require, as may be found in either the root, root-stock, leaf, or stem. Happily, the majority of plants thrive in ordinary compost, consisting of leaf-soil, loam, and sand; or in ordinary garden soil, provided such fair and uniform amount of moisture is maintained, as would be in accordance with the amount of leafage they carry; and in the case of deciduous plants, such moisture as will keep the roots in a healthy state.

It is those plants that live on high mountain ranges, on dry or arid plains, and those tropical plants which live partly or wholly in an epiphytal state, which prove most puzzling to the cultivator. Take true alpine plants as instances: they are, for the most part, accustomed to such rooting-material as crude, disintegrated rocks (which may or may not be covered with an inch or so of turf), and their own dead tissues. Many root into the fissures of rocks, and are thus preserved from excessive heat, drought, and cold. Such plants, when brought under cultivation would find garden-soil and the loam of pastures too rich in humus, and too retentive of moisture for perfect root-action, not so much in the summer as in the winter. They would be well suited with rocks, some around them as ornaments, and for providing sunny and shady sites; others buried beneath them as suitable well-drained surfaces on which roots could run. The advantages of buried rocks, either entire or broken up and mixed with the soil as suitable anchorage for alpine, is occasionally overlooked when the study of artistic effect predominates in the building of rockeries. Many may have noticed the flattened, wiry roots of some imported alpine, clearly revealing the nature of the rooting medium in which they flourished on the mountains.

Andine plants, and plants from dry districts, mostly have some kind of tuberous or bulbous root-stock, rendered necessary by the long periods of rest they have to undergo. They are among the first to suffer if given faulty rooting medium. Presumably, it is reasonable to attribute the heavy losses of small and delicate bulbous and tuberous plants, such as *Placodas*, *Cyrtanthus*, *Habenanthus*, *Bessera*, *Tecophylas*, *Iris*, *Tulipa Greigi*, and a host of others, to no other cause than this. They all require a very free soil, such as turfy loam, crushed sandstone, spent lime, rubble, &c., for plants in pots, and the addition of the rubble and coarse sand to the soil for plants in the open. What is most needed is free drainage, in order that the bulbs and permanent roots could receive the requisite amount of moisture when resting, to ensure plumpness without the slightest risk of stagnation.

BULBS AND ROOT-STOCKS.

The bulbs and root-stocks of spring-flowering hardy plants in the open border, which prove difficult to keep, may be encircled with living roots from other plants during the resting season—a perfectly natural method of protection from rot



FIG. 159.—CYPRIPEDIUM × HERA, VARIETY EURYADES.

cross, and exhibited it as *C. × Adrastus*; but later found, it is stated, that they had previously named it *C. × Hera*. In November, 1893, the form under notice was shown by Messrs. Veitch as *C. × Euryades*, it being florally sufficiently distinct from that previously shown as *C. × Adrastus*. But when Sir Trevor Lawrence exhibited it as *C. × Euryades*, on December 5, it was thought advisable to refer it to the supposed original *C. × Hera*, and make it a variety. But with that rendering of the question the difficulty is not quite done with; for, in *The Orchid Review*, vol. i, p. 295, is the remark, "*C. × Hera* was derived from *C. Spicerianum* ♀ and *C. villosum* ♂, and thus must be a variety of *C. × Lathamianum*." If this remark is correct, and it is a prior name, the present form had better be put under *C. × Adrastus*. In any case, its beauty is not in question, its glossy, richly-

the one hand, and what is of greater importance—excessive moisture on the other.

In Nature, the geographical limitations of given types is greatly influenced by the facilities afforded to roots to perform their duties to the plants they support. In Nature, again, given species have either become extinct, owing to the alluvial and hydrometric changes of that part of the earth's surface they particularly inhabited, or they have become greatly altered in habits, and modified in size.

The influence of unsuitable temperatures on any plants in cultivation is so apparent to the eye, that the cultivator may correct it before much harm is done; cases of faulty root-action from unsuitable conditions of soil are not so readily apparent, and much undermining of the constitution of the plants may occur before it is observed. Moreover, plants

through excess of moisture. Batches of slender, dwarf-growing annuals suggest themselves as suitable for this purpose, as well as many dwarf and not too dense herbaceous perennials. I know nothing better suited to preserve Tulips in the open border than bedding Pelargoniums and Gazanias. They could be planted between the rows of Tulips, and would permit of the leaves of the Tulips remaining on the plants as long as they will. Both plants being capital drought resisters, moisture to the extent of being injurious to the bulbs would not be needed. The tubers of *Helicodictyon crinitus* and other doubtfully hardy Aroids may be covered with the common *Sedum* acre as a means of protection from penetrating frost, aided by efficient drainage. It is probable, though I have not tried them, that *Calochortus* and *Tigridias* would survive all but the severest winters similarly protected. The *Sedum*, when in flower, and at all times, would be much more interesting than bare soil.

Liliums.—The best members of this genus are very particular as to the rooting mediums. The best groups of *L. auratum* and its varieties I have seen have been old-established, with one bulb growing on the top of another, and every bulb in excellent condition. Examination showed the permanent roots of the uppermost bulbs working among the scales of the lower bulbs, each bulb helping the other by removing moisture from a place where it would do more harm than good. It may not be possible to associate bulbs in this manner, for their mutual benefit, in all the phases of Lily cultivation, but it shows in what manner the permanent roots and the bulbs are preserved. In pot-culture, the conditions are within the power of the cultivator to imitate, though by other means, i.e., he can control the supply of water, and provide an open, free soil to surround the bulbs. Other *Liliums*, doubtless, are preserved under the same system of association, the bulbs and roots being of a similar character throughout the genus.

STOVE-HOUSE PLANTS.

These plants, naturally requiring a great deal of moisture the whole year round, should have special attention as to soils and drainage. Being for the most part inhabitants of districts which are covered with heavy layers of organic remains, in the form of tangled masses of living and dead roots, leaves and other vegetable debris, they should have as rough a compost as is possible, consisting of material that will resist speedy decay. Plants with stout roots, such as *Heliconias*, *Palms*, *Tillandsias*, and most *Bromeliads*, *Eucharis* and other tropical bulbs, should have such rooting material as pieces of fibrous loam, half-rotted leaves, small pieces of sandstone, charcoal, charred sticks, and other ingredients that will tend to keep soil sweet and porous for years, and which will afford food through decay at just the rate at which it would be appropriated by the roots. The ingredients should be well incorporated, and pressed firm in potting. Beside the method of affording aid to plants with manure-water applied to the roots, the practice of damping-down with lime and soot-water is a useful one, ammonia being carried on the atmosphere to the roots.

Tropical Aroids, being almost identical with tropical Orchids in the habit of depending upon an atmospheric food supply, are very impatient of a close-rooting medium. Examination of these plants in bad health usually shows such living roots as they may have either permeating the top layer of the compost, or among the drainage at the bottom of the pot; the conditions in either case offering the best protection to the delicate roots. The soil advised for stove-house plants, with the addition of firm peat, is suitable for Aroids, and such plants as are generally grown with them. The soil should be pressed just sufficiently firm to allow of water spreading over the whole surface before passing away. The more delicate Aroids and Marantaceous plants thrive best in pots with holes in the sides, thus admitting air to the

compost. Delicate *Caladiums* may also be treated in the same way. A word on the resting seasons of tropical bulbous and tuberous plants, and I have done. It is not possible to enter into detail as to the nature of the rest required by each plant, but a rule, to which there are few exceptions, may be found useful. Evergreen bulbs must not have water, and a growing temperature withheld from them long enough to make the leaves suffer. Forcible resting out of season, or retarding plants that incline to grow, is a risky proceeding, and should not be attempted with valuable plants. In the case of deciduous bulbs, it may be ruled, but not conclusively, that the longer and more slender the bulb, the shorter the rest required. With regard to tubers and pseudo-bulbs of any kind a similar rule applies. *Geo. B. Mallett, Isleworth.*

THE HOLLY AND YEW AS WOODLAND TREES.

Is it probable, as I lately heard remarked, that the Yew, which with the Oak, according to geological researches, flourished in British forests prior to historical times is, together with the Holly, in danger of becoming a rare tree, if not absolutely a thing of the past, in British woodland scenery? Owing to the great age that these trees live, this prophecy is not likely to be fulfilled for at least many years to come, but should it ever become true, we shall lose from our woods and coppices two of our most beautiful and indigenous evergreen trees, that with our poetry and history, help to link us to our ancestors. No one in looking through our nurseries and observing the great number of young trees there, would entertain a thought about this, and yet, upon reflection, are not a very great proportion of these used for the formation of hedges, topiary work, and the like, and but few for the purposes of beautifying our woods or landscapes? Both of these trees fruit freely, and notwithstanding that birds are fond of it, many seedlings in favourable places spring up; in too many cases, however, it is feared to be destroyed as soon as visible by the rabbit. Whether this is the case or not, so far as I have observed, where these trees revel in natural beauty, but few of them are very young.

Doubtless the popularity of the many newly-introduced beautiful species and varieties of Conifers and shrubs, do much to lessen the planting of the Holly and the Yew in pleasure and other dressed grounds; but this is outside the question, and yet it may be asked if the planting of some of these is not being overdone? such, for instance, as the easily-raised *Retinospora*, *Cupressus Lawsoniana*, and others, groups and single specimens of which may be seen almost everywhere, either in character or out of it, with their surroundings, while it is in comparison a rare occurrence to meet with fine specimen Hollies, as may be seen for instance at The Duffryn; Mountain Ash, or groups of them as at Cardiff Castle.

In no other district have I seen the Holly in a wild state so plentiful as on the border of Ashdown Forest, where in winter it enlivens the appearance of the woods in a most picturesque manner. Similar remarks apply to the Yew in the neighbourhood of Monmouth. It is common on the Hendre estate, where it is especially effective upon the undulating surfaces of the woodlands, and in the park it is also plentiful. One fine group of wide-spreading trees possesses some with trunks 16 feet and 18 feet in circumference at 4 feet from the ground. Then, again, in the Wye Valley, it is found in great numbers, and there at the Wind-cliff it takes a prominent part in making the scenery so charmingly romantic, and so greatly admired and enjoyed by tourists and others as it is. Here the steep winding banks of the river, which for long distances are supported by huge perpendicular Ivy and Bramble-clad rocks, are grandly furnished with trees, consisting chiefly of the Yew, Oak, and Birch. The magnificent effect of the whole, particularly in autumn, when the brown-tinted foliage of the Oak, and bright yellow leaves and white stems of the Birch in their harmony, afford greater visibility to the Yew, evinces the loss British woodland scenery would sustain by being robbed of this old British tree. *Thos. Coomber.*

TACSONIA MILITARIS ×.

UNDER this name we lately received from Messrs. Sander flowers of a hybrid *Tacsonia*, said to have been raised in the Transvaal, between *Tacsonia Volxemi* and *T. insignis*. The floral details do indeed suggest an infusion of *T. insignis*, but they are very different from the flowers raised between the two species named by Mr. Anderson, Sowerby House Gardens, Hull, in 1875 (see *Gardeners' Chronicle*, 1875, August 7); and also by Mr. Smythe, of Basing Park Gardens, June, 1887 (*Gardeners' Chronicle*, July 9, 1887; July 23, p. 107), so that whilst we are inclined to admit *P. insignis* as one of the parents we doubt whether the other was truly var. *Volxemi*. In some respects it suggests *T. manicata*. The present plant has three-lobed, finely serrate leaves, as shown in the illustration (fig. 180, p. 487), the upper surface being glabrous, the lower surface densely setose, like the petiole, though hardly so shown in the illustration. The stipules are linear, subulate. Three large, leafy, oblong bracts surround the flower-tube, which is cylindrical, with an inflated base, which is not ribbed. The colour of the flower is dull rose, the projecting threads of the corolla dull crimson. The details of the inner rows of the corona, the most important parts for botanical discrimination, but of little importance to horticulturists, are sufficiently indicated in Mr. Worthington Smith's drawing. The ovary is oblong and glabrous. *M. T. M.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. Young, Orchid Grower to Sir Frederick Wmsar, Bart., Clare Lawn, East Sheen.

A Retrospect.—The chief fact to note in the department of Orchid-culture during the past year is the extreme favourableness of the weather conditions for almost every class of Orchid. The one essential element which was lacking in many gardens towards the end of the summer was rain-water, but where other partially suitable water was available, nothing probably suffered with the exception of the sphagnum-moss, which always loses its fresh-looking appearance when hard water is employed. Strong, clear sunlight and warmth proved beneficial to the plants, such conditions being rare in this country, although they are those the plants enjoy in their native habitats. Those best suited for cultivation in the cool-house are not any the worse for being subjected to unusual warmth; for example, the cool *Odontoglossums* have, since cooler weather prevailed, made more satisfactory progress than in dull, wet summers; and, doubtless, it will be found that *Cattleyas*, *Lælias*, *Dendrobiums*, and indeed most genera, will, under average conditions of cultivation, show the beneficial effect of the high temperature of the past season. Another effect which may become more apparent as time goes on, is the increased germinating power of the seeds of Orchids during the last two seasons, the increased light and heat being responsible, I think, for the greater number of seedlings which have germinated, which otherwise would have, more or less, proved abortive. If ill effects are noticeable among certain species, the fault lies more probably with the methods of cultivation than with the weather. Shade-loving plants, for instance, would appreciate the extra heat, but not the light. Well, the latter is easily dealt with when too abundant; now, unfortunately, when a little would be acceptable, we cannot command it. Cold, drying winds were less common than usual, with the result that a greater volume of fresh air could be admitted to the plants. Fog also, until the end of the year, caused but little injury, so that, taken as a whole, this year has been an extremely good one for Orchids.

Ornithidium Sophronitis.—Though this is a plant that need not be grown in quantity, it commends itself to those who esteem the beautiful in miniature. The habit is trailing, and the plant forms a dense mass of tiny, dark green leaves, from the axils of which brilliant, orange-scarlet flowers arise singly. It should be fixed in a shallow pan, large enough for two or three seasons' extension,

and furnished with large quantities of drainage-materials, surfaced with a layer of peat and sphagnum-moss mixed together, the latter predominating. The longer pieces should be made secure to the compost with wooden pegs. Let the plant be placed near the glass in a house where *Masdevallias* are grown, and afforded the same kind of treatment as those plants. The plant is in flower at the present time.

Pleurothallis Roezli, now in flower, will succeed if cultivated with the plants of *Miltonia vexillaria*. The species generally dislike frequent disturbance at the root, and when once they are established, little should be done beyond replacing decayed sphagnum-moss with fresh. At the present season *P. Roezli* requires merely sufficient water to keep the material from becoming excessively dry.

THE KITCHEN GARDEN.

By H. MARKHAM, Gardener to the Earl of STRAFFORD, Wrotham Park, Barnet.

SEEDS being usually ordered by gardeners early in the year, there is time before that to test the germinating qualities of the various seeds left over from last year. To do this readily, place a certain number in small pots and stand the latter in a temperature of 60°. Those which germinate sparingly should be discarded, as certain to fail when sown in the open air.

Carrots.—In order to force the Carrot, a mild lasting bottom-heat is essential, and the forcing carried on in pits and frames. These should be cleansed previously to being utilised, and the sides limewashed; after making up beds 3 feet deep with leaves and stable dung made firm, put a layer of sandy soil on the top to the depth of 7 inches, and when this has been warmed throughout, sow seeds of some early varieties, not too thickly, in shallow drills or broadcast. Let the frame be kept close till the plants appear, then admit air by tilting the lights, more or less, according to the state of the weather, covering the glass at night with mats, and in hard weather with litter as well. The top heat should range from 55° to 60°, with a rise of ten degrees in the day time in bright weather.

French Beans.—Let sowings be made in pots, and start them in a temperature of 55°, and afford a higher temperature when they have germinated. The best kind of soil for French Beans is loam used in a rough state, and Mushroom-bed manure. The size of the pot for the first sowing need not be larger than 8 inches in diameter. The warmth may be increased to 65° by the time of flowering, and a light position near the glass is very essential for their success. *Ne plus Ultra* is a very productive variety of dwarf growth, and excellent for an early crop.

Peas in Pots.—Where accommodation exists for forcing Peas, a sowing of dwarf wrinkled varieties may now be made in clean pots filled with rich, rough loam, charred rubbish and decayed manure. The temperature at the start should not be higher than 50°, the Pea not bearing hard forcing till after podding has begun.

Herbs.—The roots of Mint, Tarragon, &c., may be put into heat in quantities equal to the demand, shallow boxes being employed to hold the roots and the soil necessary to cover them.

Spinach-Beet.—In establishments having a large demand for Spinach, the Spinach-Beet should be grown in addition to the ordinary Spinach, the young leaves being used separately or together with those of the latter.

THE FLOWER GARDEN.

By A. CHAPMAN, Gardener to Captain HOLFORD, Westonbirt, Tetbury, Gloucestershire.

Beds and Borders, if vacant, should now be deeply dug or trenched in order that the frost may pulverise the soil. In the case of beds and borders which are filled annually with the same kinds of plant it is advisable before each season to add some leaf mould, fresh soil or manure, according to the requirements of the various plants, and in quantity sufficient to nourish the plants without producing gross growth. If new beds are being made, great attention should be given to the drainage in all soils and situations needing artificial means of carrying off the moisture, many failures occurring from neglect of this precaution. When it is seen that the soil of a bed, &c., has become retentive of

moisture it should be dug out to the depth of two feet, and a drain made sufficiently large to take off the water, some brick-bats or tiles being laid at the bottom, and be covered with turf, or brushwood, or straw, finally replacing the soil in a loose manner.

Top-dressing.—*Pæonies*, *Delphiniums*, *Sun-flowers*, *Asters*, and other plants of strong growth, if they have not been replanted recently should be afforded a liberal top-dressing of manure, which will afford a certain amount of protection against frost, and does not excite growth; although the benefits are apparent in the flowering season. Lily of the Valley and Solomon's Seal crowns required for forcing should now be lifted, and the stronger ones selected and placed in pots or boxes containing a mixture of leaf-mould and soil, and allowed to be exposed to a few degrees of frost before placing them in a warmer structure. The weaker crowns if heeled in soil may be planted later on. The remaining crowns should have the leaves and stems remoulded, some soot sprinkled over them, and sufficient leaf-mould to cover them.

Conifers and Shrubs.—Many of the Conifers and evergreen shrubs that withstand wind and frost when of specimen size are very liable to injury if planted when young in exposed positions. Such plants should have shelter given from the colder winds; for which purpose Spruce or Yew branches if tied securely to stakes make an excellent protection. Similar wind screens must also be used for affording shelter to Tea Roses and a variety of tender shrubs in exposed positions on walls, but they should not be placed so thickly as to exclude the light. In the event of a heavy snowfall the branches which seem to be too much weighted down should be relieved but not wholly uncovered; in respect to rather tender species snow affords a protection against frost.

Work in General.—When inclement weather hinders or puts a stop to outdoor work, the men may be employed by preparing crocks, washing and stacking flower-pots, preparing stakes, or mixing and sifting soils.

Composts.—The various loams, leaf-mould, peat, manure, and road scrapings, &c., should now be got in and stored in conical heaps; while leaves which are usually to be found in low-lying places, in woods, and in ditches, may be collected and carted to the dépôt. Leaf-mould being the chief ingredient in most composts, it is as well to have a good supply of it in a well-rotted condition.

PLANTS UNDER GLASS.

By O. R. FIELDER, Gardener, North Mymms Park, Barnet.

Euphorbia (Poinsettia) pulcherrima.—This plant becomes useless for purposes of decoration when the bracts fall, and at that period water should be gradually withheld, until at last the soil may become quite dry. The plant may then be rested in an intermediate house, or a dry warm shed.

Allamanda nobilis and *A. grandiflora*.—If any of these beautiful stove climbers are required to bloom early, those which have been afforded a long rest may now be started into growth, after cutting back last season's shoots to within a few inches of the old wood, unless it is desired to extend the plant, when it will be sufficient pruning if partially-ripened growth be removed. The plants will be found to start into growth readily at this season if afforded bottom heat of 75° or 80°, although this is not necessary. The plants having been kept dry while resting must be afforded a thorough application of tepid water, and be placed in a house having a temperature of 65°. Re-potting, if such be necessary, should be performed when the young growth has reached a length of 2 inches. Cuttings of *A. Williamsiana* may be inserted at the present time for raising plants to flower in 5 inch or 6 inch pots in September and October. Suitable short shoots will be found on plants which have lately gone out of flower. The cuttings should be inserted singly in small pots, and the latter plunged in bottom heat in the propagating frame.

Selaginellas, *Oplismenus (Panicum)*, and *Tradescantias*.—The stock of these little plants may be kept up by propagating them, as the necessity arises, beginning at this season; the *Selaginella* by dividing large potfuls, and the *Oplismenus* and *Tradescantia* by cuttings inserted in sandy soil, and placed in a propagating frame.

Miscellaneous.—Assiduously remove decayed foliage from Violets and other plants in cold pits

and frames, affording air whenever the weather is mild, particularly when the opportunity occurs during a spell of frosty weather, when pits and frames of necessity have been closely covered. Afford the *Chrysanthemum*-stools required to furnish cuttings a position near the light in a greenhouse from which frost is excluded. Examine bulbs which are covered with plunging material at short intervals of time, removing all of those which have grown an inch in height, and possess plenty of roots, to a cool pit. Examine herbaceous Calceolaries, show *Pelargoniums*, *Cinerarias*, &c., for aphids, affording the plants a fumigation of Richards' XL-All insecticide if any be found on them.

THE HARDY FRUIT GARDEN.

By C. HERRIN, Gardener to J. B. FORBESCU, Esq., Dropmore, Maidenhead.

Canker of Apple-trees.—When the pruning of the trees is in progress, every case of canker should be duly noted, and if the tree is not worn out, in which case it should be rooted up, the diseased parts should be scraped clean, all the cankered portions of the bark removed, and afterwards scrubbed with a strong mixture of soft-soap and water, applied hot. When the dressed parts are dried, paint them with a mixture of Stockholm-tar and tallow in equal proportions. If warmed, the two mix readily, and the mixture is easily applied with a half-worn-out paint-brush. Trees that are badly cankered should be cut hard-back, and new growth encouraged, affording the soil over the roots a heavy dressing of rotten manure; or apply Pearson's Chemical Manure in the quantity recommended by the vendors.

Filberts and Cobs.—The pruning of these bushes may also be performed without loss of time, the buds of the female-flowers being in a very forward state, and easily seen—in fact, some of the earliest are almost on the point of bursting; but we shall probably get cold weather to check their further advance. The male-catkins are very numerous this season. Head-back some of the longest branches, keeping the heads of the bushes open, and where they are planted between Apple or other fruit-trees, let them be kept of moderate size, and their branches from running into those of the fruit-trees. Strong young growths should be cut back to 1 or 2 feet from the base, which will encourage the lower buds to break, otherwise they soon run up to an undue height before breaking. Every sucker arising from the roots should be dug out, and the best of them planted in the reserve-garden.

Top-dressing and Manuring Orchards.—After pruning and dressing the trees, let all prunings and rubbish be collected and burnt. Orchards inter-cropped with bush-fruits and the like, are much to be preferred to those under grass, as top-dressing the land is more efficiently carried out. The land being cleared of rubbish, should be top-dressed with a mixture of wood-ashes, lime-rubble or lime, leaf-soil, and rotten manure, in greater or smaller quantities according to the state of the trees, and the condition and texture of the soil, burying the dressing by digging the land with forks. In the operation, all suckers and large weeds should be dug up. Orchards consisting of vigorous young trees will not require manuring. Trees under grass should be fed with liquid-manure, and some heavy dressings of rotten dung put on early in the winter.

Miscellaneous Hints.—Where grafting is contemplated, the scions may now be selected, labelled, and the butt-ends buried in the soil to the depth of 3 or 4 inches in a cool, shady position. Trees which it is intended to graft may be headed-back to within 6 inches of the spot, which will eventually be worked. If Peach-trees are removed from the wall annually, they may now be pruned, cutting away old fruiting-growths, and retaining as many of those of the current year as will fill the space without crowding. If the trees were partially pruned after the fruits were gathered, the pruning now required will be of a light description. Where the trees are to remain affixed to the walls until nearly in bloom, the branches should be fastened to stakes fixed in the soil in the front of the wall. Any pointing-up of nail-holes or other repairs should also be done in favourable weather. In weather when outside-work is impossible, shreds may be cut into different sizes, wall-nails burnt, and prepared for future use; labels made, and where new ones are required, the names may be written or painted thereon.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY, JAN. 1.—Dutch Bulbs, Roses, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, JAN. 3.—Japanese Lilies, Lily of the Valley Crowns, Roses, Azaleas, &c., at Protheroe & Morris' Rooms.

FRIDAY, JAN. 5.—Imported and Established Orchids, at Protheroe & Morris' Rooms.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period December 17 to December 23, 1899. Height above sea-level 24 feet.

1899.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR.				RAINFALL.	TEMPERATURE OF THE SOIL AT 9 A.M.				TEMPERATURE ON GRASS.
		At 9 A.M.		Day.	Night.		At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	Lowest Temperature.	
		Dry Bulb.	Wet Bulb.								
DECEMBER 17 TO DECEMBER 23.		Dry Bulb.	Wet Bulb.	Highest.	Lowest.		At 1-foot deep.	At 2-foot deep.	At 4-foot deep.	Lowest Temperature.	
SUN. 17	S.E.	deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.	
MON. 18	N.N.E.	37.8	36.2	36.5	26.7	...	36.3	41.5	46.9	21.1	
TUE. 19	S.E.	33.3	32.9	30.3	33.0	...	36.7	40.9	46.3	25.4	
WED. 20	S.E.	37.3	36.5	39.3	29.7	...	36.9	41.1	46.1	23.5	
THU. 21	E.N.E.	39.9	35.1	37.8	36.5	...	38.1	41.1	45.9	38.9	
FRI. 22	S.S.E.	33.9	33.6	37.3	33.2	0.06	38.3	41.2	45.7	32.2	
SAT. 23	N.N.E.	34.0	34.0	42.0	33.7	0.04	38.4	41.5	45.7	27.7	
MEANS...	...	35.7	34.9	38.8	31.5	0.10	37.3	41.2	46.2	27.1	

Remarks.—A very foggy, dark week; some days scarcely any light. Small quantities of rain fell on the 22nd and 23rd.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—36°6'.

ACTUAL TEMPERATURES:—

LONDON.—December 27 (6 P.M.): Max. 35°; Min. 28°.

Dull; cold; rainy.

PROVINCES.—December 27 (6 P.M.): Max. 38°, S.W. Ireland; Min. 29°, Home Counties.

THE year now at its close has been one of great activity in horticultural centres. If generally it closes in gloom and uncertainty, there is at least plenty to look back upon with pleasure, and to anticipate with hope. We can only mention a few of the leading features of the period under consideration; and first as to the weather. After a sharp spell of cold weather in March, the summer became hotter and more hot—or, what is of more moment to us, drier and yet more dry. Heat and drought, indeed, characterised the summer of 1899, as they did that of the preceding year. We recognised the difficulties of the situation at the time, but it is more than probable that we shall witness its effects on trees and shrubs during the next year or two, and perhaps—so short is our memory of such matters—wonder why our trees and evergreen shrubs are suffering so much. Of course, much will depend on the nature of the soil.

The gardener is less or more independent of the seasons, and the completion of the temperate-house at Kew endows us not only with

the largest horticultural building in existence, but will—nay, does already—show how far more favourable to a plant's health and beauty is the open border than the best flower-pot that ever was made. In saying that, we by no means belittle that valuable article, as in some cases it is, as we all know, indispensable; but if we are to have permanent, tasteful arrangements under glass, we must largely dispense with pots. In this connection it may be stated that there is, or was till lately, at the Old Chelsea Botanic Garden, a north-house erected under the superintendence of the late N. B. WARD, and arranged in the natural style. We cannot say that the atmospherical conditions were favourable to such a house in such a place. It was not easy to keep clean, and the stronger plants overpowered the weaker, till at length but few of the latter category remained. It is interesting to know that in the present year the old garden has been rescued from threatened abolition, and although the Board of Management seems far too numerous and unwieldy, it may be hoped that some good results may accrue. Nevertheless, the main interest in the garden will henceforth be historical in character, and from that point of view the old physic garden, considering its size, may challenge comparison with any in the country.

The decision of the House of Lords in the rating case deprives nurserymen, and especially market gardeners, of the benefit of the Agricultural Rates Act. This is a deplorable incident, as it is likely to injure a thriving industry which has made astonishing progress during the past quarter of a century; and in a degree compensated for the depression among agriculturists. It is inconceivable that this result could have been intentional on the part of our legislators; simply the conditions which are now prevalent were at the time the law was passed, not in existence.

Another point that affects the trade is the restriction attempted to be placed on the sale of such substances as weed-killers, insecticides, and other compounds, containing in some cases enormous amounts of the most deadly poisons. Some people are so incautious that no regulations will save them from the consequences of their own want of care. Other people may, nevertheless, fairly demand that the sale of these substances should be carefully regulated, and though accidents cannot wholly be prevented, yet that every reasonable precaution should be taken to avoid them. Suppose a drop or two of some of these more potent insecticides were by accident to be introduced beneath the skin, or into an open wound, a mere scratch would be enough, the consequences would be most lamentable. Horticultural requisites of this nature should, of course, be obtainable from traders connected with horticulture, but only under such conditions as are imposed upon the druggist. The encroachment on the liberty of the subject is here only a means for securing the preservation of the liberty of the multitude.

The great horticultural event of the year has certainly been the Hybridisation Conference held under the auspices of the Royal Horticultural Society. Although many of our own botanists seemed to hold aloof, or were conspicuous by their absence, the meetings excited great attention; but the interest exhibited by our own workers in this field furnishes no adequate measure of that taken in the Conference by our foreign friends on the continent as well as in the United States.

In France, Belgium, Holland, Germany, and in the States, all of which countries sent representatives—in some cases two or three—we know of our own experience how great was the interest excited. We may be permitted, perhaps, to mention our own efforts to promote the work of the Congress by the publication of a series of historical articles on the production of garden varieties and hybrids, a series which should be of value to the historian of hybridisation. We also took the opportunity of publishing a large number of portraits of distinguish "raisers," with brief indications of their work, so that our record of the proceedings, and of the incidental subjects connected with it, was as complete and up to date as the exigencies of a weekly periodical will permit.

Of the other exhibitions there is no need to say more than that they were of their usual excellence, but presented no very special feature. A noticeable tendency in the special societies to adopt a more tasteful arrangement of the beautiful material at their disposal is most welcome. For many years we have advocated this, and from time to time we have been gratified by indications that the reign of the show-boards and lines is approaching extinction (except for special purposes). The Chrysanthemum show at the Aquarium this autumn must surely have convinced everybody which is the most effective and beautiful method of exhibiting.

The losses by death in the horticultural community have this year been singularly numerous and lamentable. Among the older members, the veteran JOHN LEE died on January 20, aged ninety-four. Well had he borne the stress of all those years, and his work as a nurseryman and as a strenuous upholder of the Gardeners' Royal Benevolent, will not soon be forgotten. KELWAY, of Langport, had attained the age of eighty-three; his services in the improvement of Peonies, Gladiolus, Delphinium, and many other categories of plants, place him in the front rank of raisers. Of Lord PENZANCE we have spoken too recently for it to be necessary for us to do more than call to mind his happy thought of hybridising the Sweet Briar with the hybrid perpetuals, with the result of originating the Penzance Briars.

Dr. WALLACE, of Colchester, may also be classed among the veterans; his memory will long be held in esteem among bulb-growers. CHARLES NAUDIN, naturally less known here than in France, was one of the first hybridisers and keenest of botanists; he had charge of the beautiful garden at Antibes, formerly in the possession of M. THURET, and was in the very forefront of garden-botanists and experimenters, but at his advanced age little more could have been expected from him. Passing from the ranks of the octogenarians to those in middle life, from whom we might fairly have expected further good work, the losses are very severe, as may be seen from the following selection: MALCOLM DUNN, T. A. DICKSON, T. J. SALTMARSH, JAS. ANDERSON, Major MASON, T. W. GIRDLESTONE, FRANCIS RIVERS, the honoured son of an honoured father; the noble-minded HENRY VILMORIN, ALFRED JOHNSON, WILLIAM THOMSON, JAMES MARTIN, the hybridist; SYDNEY COURTAULD, W. H. PROTHEROE, and A. OUTRAM. We need not cite more, these will suffice to show how the ranks have been thinned. While we venerate their memories, we acclaim the new comers, in the full assurance that they will rival the achievements of their predecessors, if not in one department at least in another.

. OUR ALMANAC.—According to our usual practice, we shall issue in our next number a *Gardeners' Chronicle Almanac* for the year 1900. In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical and allied Societies, or any of our correspondents, will send us IMMEDIATE INTIMATION of all fixtures for the coming year.

DREES & Co., of Philadelphia. Doubtless in due time we shall be able to judge of these novelties for ourselves.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The sixty-first annual general meeting of the members and subscribers of this Institution will be held at "SIMPSON'S," 101, Strand,

six by votes of subscribers. The chair will be taken by HARRY J. VERTCH, Esq., Treasurer and Chairman of Committee, at 3 o'clock. The poll will open at 3.15 o'clock and close at 4.30 o'clock precisely, after which hour no voting papers can be received. The voting papers have been issued; any subscriber not having received a copy should communicate with the secretary. The annual

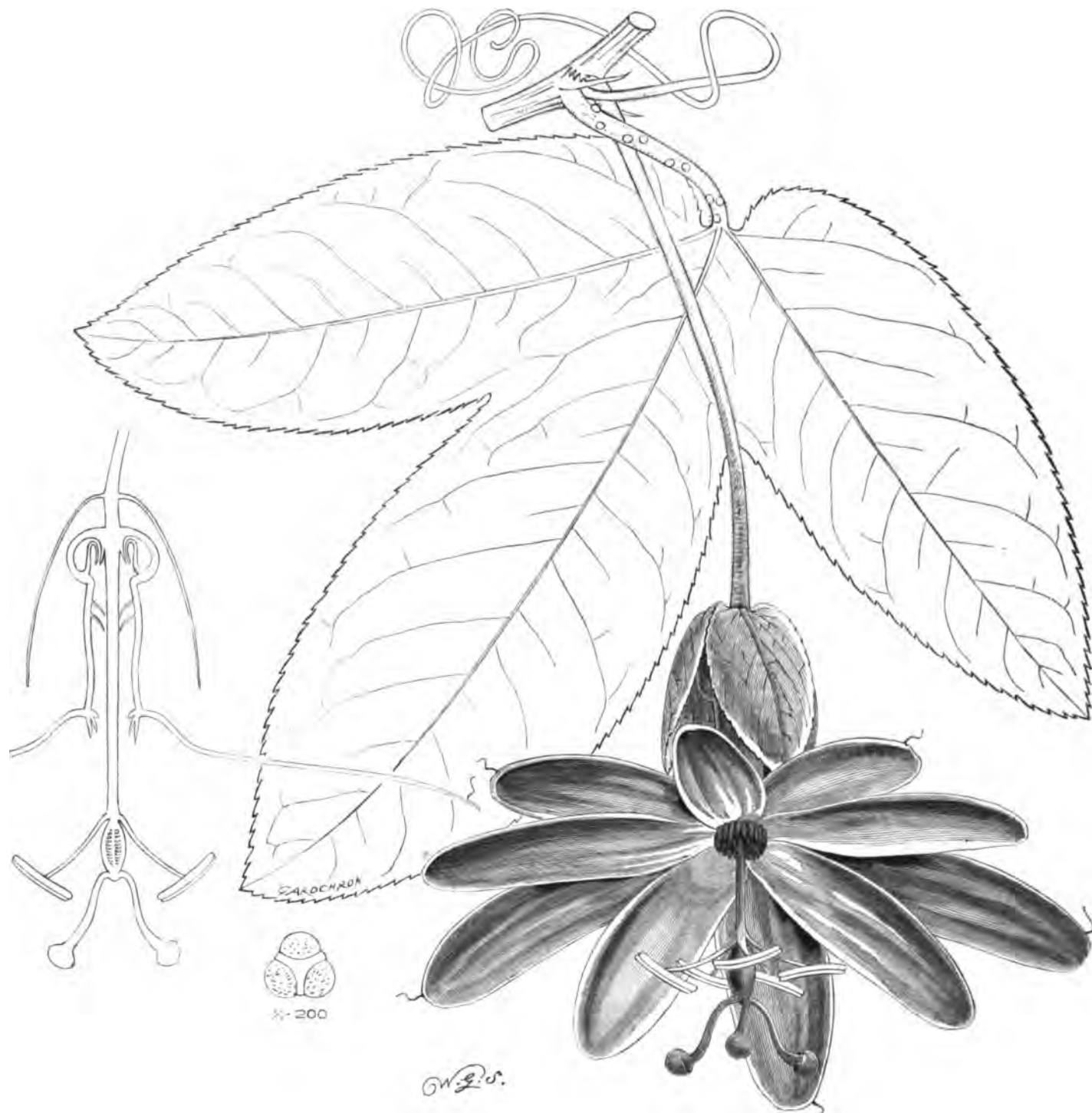


FIG. 160.—TACSONIA MILITARIS \times HORT. SANDER: FLOWERS DULL ROSE-COLOURED. (SEE P. 484.)

HYBRID WATER-LILIES.—We hear of three new hardy hybrid Water-Lilies, which have been certificated by the Massachusetts Horticultural Society, and which are highly spoken of. Some of them are said to remain open the whole day. They are "William Falconer," dark crimson; "William Doogue," pink; and "James Gurney," dark rose. They are to be sent out by HENRY A.

London, W.C., on Friday, January 12, 1900, at 3 P.M., for the purpose of receiving the report of the Committee and the accounts of the Institution (as audited) for the year 1899; electing officers for the year 1900, and for the purpose of placing sixteen pensioners on the funds, ten of whom will be recommended to receive the benefits of the Institution without election, and the remaining

friendly supper will take place also at "SIMPSON'S," 101, Strand, W.C., at 6 P.M., on the evening of the same day, when W. A. BILNEY, Esq., of Weybridge, will preside.

ROYAL INSTITUTION OF GREAT BRITAIN.—Friday evening meetings before Easter, 1900, to which members and their friends only are

admitted: Friday, January 19, the Right Hon. Lord Rayleigh, M.A., D.C.L., LL.D., F.R.S., M.R.I., "Flight;" January 26, the Hon. Charles A. Parsons, M.A., F.R.S., M.Inst.C.E., "Motive-power—High Speed Navigation—Steam Turbines;" February 9, Professor J. Reynolds Green, Sc.D., F.R.S., "Symbiosis and Symbiotic Fermentation;" February 16, H. Warrington Smyth, Esq., M.A., LL.M., F.R.G.S., "Life in Indo-China;" February 23, Prof. John H. Poynting, Sc.D., F.R.S., "Recent Studies in Gravitation;" March 2, Major Ronald Ross, D.P.H., M.R.C.S., "Malaria and Mosquitos;" March 9, Professor Frank Clowes, Sc.D., F.C.S., M.R.I., "Bacteria and Sewage;" March 16, Sir Benjamin Stone, M.P., "Pictorial Historical Records;" March 23, Sir Andrew Noble, K.C.B., F.R.S., M.Inst.C.E., M.R.I.; March 30, Professor J. Arthur Thomson, M.A., "Facts of Inheritance;" April 6, Professor Dewar, M.A., LL.D., F.R.S., M.R.I., "Solid Hydrogen."

PELORIAN CYPRIPEDIUM.—The variety of *Cypripedium insigne* shown at the last meeting of the Royal Horticultural Society was remarkable for the presence in each of the flowers of three lips—that is to say, that the two lateral petals had assumed the lip-like aspect. This, then, is a case of peloria by the increase of the irregular portions—irregular peloria. When the lip of a *Cattleya* becomes flat like one of the lateral petals, we have a case of regular peloria, wherein the flowers become regular by the increase of their regular parts. A further interest in the *Cypripedium* shown by Mr. APPLETON is that it is reproduced each year.

MALFORMED CYPRIPEDIUM.—Mr. SCHOFIELD kindly sends us a monandrous *Cypripedium* "Hera" x, which is of great interest structurally, but not very desirable culturally. In the first place, it is dimerous—that is, the parts are in twos. In the next place the dorsal sepal is absent, but its place is filled by a segment having the form and coloration of one of the lateral petals. Opposite this petal is the lip of the ordinary character. The second lateral petal is absent. The column is straight, with no staminode, but with a single central anther, and a second lateral one. The stigma is two lobed. The plan of the flower may be thus represented:—

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ABBOTSBURY GARDENS.—The Countess of Ilchester has caused to be printed for private circulation only, an alphabetical list of the hardy trees, shrubs, bulbous and herbaceous plants growing in the rich collection at Abbotsbury, near Dorchester, to which we have often had occasion to refer. The arrangement is alphabetical, the several categories of plants being indicated by appropriate symbols. The native countries also are mentioned. The catalogue comprises about 115 pages small 8vo.

PARIS EXHIBITION: INTERNATIONAL CONGRESSES OF HORTICULTURE, ARBORICULTURE, AND POMOLOGY.—We have received the programmes and regulations of the two Horticultural Congresses to be held in Paris in 1900; the first on May 25 and 26; the second on September 13 and 14.

HORTICULTURAL CONGRESS.

This Congress will be held during the temporary meeting that commences on May 22. Séances will be opened at 3 P.M. in the Palais des Congrès on Friday, May 25, and Saturday, May 26. The following items comprise the programme:—

1. Progress realised and to be achieved in heating glasshouses.

2. Formation of public gardens in different latitudes.

3. Decoration of public squares and promenades in large towns; advisability of labelling the trees, shrubs, and flowers used therein.

4. Causes and treatment of the Clematis disease.

5. The art of floral decoration; its development, progress, value, and position in horticulture; its employment of horticultural products.

6. Means of preventing or curing diseases of market-garden crops, such as the mildew of forced Lettuces and Cos Lettuces, "mildew" of Melons, "grise and rouille" of Celery; Tomato diseases.

7. Is it desirable in market cultivation to heat by means of hot-water pipes?

8. Manner of employing and composing chemical manures for different market crops.

9. What part has artificial fecundation played in horticulture?

10. What is the intervening cause favourable to vegetation when plants are placed near the glass and under the influence of sun or moonlight?

11. The part taken by electricity in vegetation.

12. Comparative study of the physical and chemical agents capable of hastening or of retarding germination; stratification.

13. Application of the principle of selection of seed to the production and "fixing" of various horticultural novelties.

14. Comparative study of methods of cultivation applicable to the establishment of nurseries in various countries; their management.

15. Study of vegetable and animal parasites that attack plants in nurseries. Methods of preventing their incursions or of combating them.

POMOLOGICAL CONGRESS.

At the Congress on Fruit Culture and Pomology to be held on September 13 and 14, opening on September 13 at 9 A.M., in one of the Salles du Congrès, Place de l'Alma, the following subjects compose the programme:—

1. Fruit farms, cultural and economic considerations, choice of the best varieties and their uses.

2. Fruit plantations along roads, varieties, uses, cultural requirements.

3. Harvesting and preserving of fruits under shelter or in the open, packing and transport.

4. Atmospheric agencies: their influence on the cultivation of forced fruit-trees and Vines.

5. On the influences of different cultural operations on the produce of fruit, grafting, pruning, form and direction of the branches.

6. Tariffs and conditions of the transport of trees and fruits.

7. Insects, diseases, remedies.

8. Manures and foods (physical and chemical properties); considerations based on the composition of the soil, and the nature or needs of the plant.

9. Fruit-trees for introduction into, and propagation in the colonies.

10. Instruction in fruit, arboriculture, primary and normal schools, special schools, outdoor instruction, lectures, conferences, publications, &c.

IMPORTS OF FOREIGN FRUITS AND VEGETABLES.—We have often complained that the monthly report issued by the Board of Trade relating to the imports of foreign and colonial fruit and vegetables were incomplete—much of the information being merged in the lines "unenumerated fruit" and "unenumerated vegetables." A few years since we induced the Board of Trade to particularise a few of these, but at present, and for some months past the evil, if so we may term it, has been a prominent one, requiring correction. Our old correspondent "E.C." took stock of this, and being interested in the returns appealed to the President of the Board of Trade to discriminate among the figures, and the matter was referred to the Committee of the Board, whose duty it is to consider all proposals for improvement in the conduct of affairs. The result of their deliberation on the subject of "E.C.'s" communication being recorded in the subjoined extract from an official letter

of date December 20:—"In future the more important items hitherto included under the heading 'Fruit, Raw, unenumerated,' will be shown separately. The following fruits will therefore be shown under separate headings, both in the annual and monthly trade accounts: Apriots and Peaches, Bananas, Currants (not dried), Gooseberries, Strawberries. A separate heading will also be raised in the Returns referred to for 'Tomatos,' which have hitherto been included under the head of 'Vegetables, raw, unenumerated.'" We are sure the reader will be glad of this added information, rendering, as it will, a monthly "stocktaking" paragraph of greater interest and seasonable value.

THE WEATHER IN CORNWALL.—At Pencarrow on Monday, December 11, 10°, and on the 15th, 12° of frost were experienced.

STATISTICAL SOCIETY, DUBLIN.—GEORGE W. RUSSELL, Esq., spoke recently on "Co-operation in Congested Districts," at the Social and Statistical Society, Molesworth Street; he pointed out the great disadvantages under which the poor farmer suffers from the standpoint of sale of his produce, and want of education, likewise the absence of any power to organise. The action of "The Irish Agricultural Organisation Society" in starting local associations throughout the country has been a great benefit, and is doing a large amount of good, by gradually raising the standard all round. The lecturer would advise a form of self-help very suitable to the congested districts; it is the system of co-operative credit, which first originated in Germany about fifty years ago, and is slowly spreading itself through the country. There are at present about thirty-five Raiffeisen banks in the congested districts, and these were situated in the poorest parishes; he alluded to the economic conditions of the farmer would necessitate societies to meet his pressing wants if the produce of the country was to be increased and improved.

PUBLICATIONS RECEIVED.—From the Michigan State Agricultural College Experiment Station, Entomological Department, Bulletin 175, July, 1899, *Some Insects of the Year 1898*, prepared under the direction of Walter B. Barrows by Rufus H. Pettit; and Bulletin 176, Horticultural Department, *Strawberry Notes for 1899*, by L. R. Taft and H. P. Gladden.—U. S. Department of Agriculture, Division of Vegetable Physiology and Pathology (Washington), Bulletin No. 17, *Wilt Disease of Cotton, Water-melon, and Cow-pea* (*Neocosmospora*, nov. gen.), by Vivian F. Smith.—*The Century Book of Gardening* (George Newnes, Ltd., 7-12, Southampton Street, W.C.), Part 16.—*Annals of Flowering Plants* (Frederick Warne & Co., 15, Bedford Street, Strand), Vol. III., No. 27, and Vol. IV., No. 28.—*Pharmaceutical Journal*, December 16.—*La Semaine Horticole*, December 16.—*Bulletin della R. Società Toscana di Orticultura*, Anno XXIV., Num. 11, November.—*Botanisches Centralblatt*, Band. LXX., No. 13.—*Gartenflora*, December 15.—*Müller's Deutsche Gärtner-Zeitung*, Erfurt, December 16.—U. S. Department of Agriculture, Division of Entomology, Bulletin No. 20, *Proceedings of the Eleventh Annual Meeting of the Association of Economic Entomologists* (Washington).—*Mechanics' Monthly* (Germantown, Philadelphia), December.—*The Weekly Florist's Review* (Chicago and New York), Vol. V., No. 106.—*The National Nurseryman* (Rochester, N.Y.), December.—*The Florists Exchange* (New York), December 9.—*The American Florist* (Chicago and New York), December 9.—*Bulletin of the Botanical Department, Jamaica*, November. Contains papers on: Diseases of the Vine; Eucalypti in the Transvaal; Effect of Tillage on Soil Moisture; Royal Botanic Gardens, Kew; Improvement of Sugar-Cane by Chemical Selection; Elementary Notes on Jamaica Plants.—III., Cashew, Insect Pests in Peas, &c.—*Provincial Government Crop Report*, Nova Scotia, December, 1899.—*Bulletin of Miscellaneous Information, Royal Gardens, Kew*, Appendix III., 1899, Contents: List of Staffs in Botanical Departments at Home, and in India and the Colonies.

PLANT PORTRAITS.

KNIPHOPIA TUCKER, *Garden*, December 9.
NECTARINE HUMBOLDT (Rivers), *Bulletin d'Arboriculture*, &c., December.

OXYSAPHUS HIRSUTUS, *Mechanics' Monthly*, December.—In this plant the flowers open in the afternoon and remain expanded till daylight; and there are other very curious details narrated by Prof. Mehan.

FRACH LEOPOLD L. (Van Orle), *Bulletin d'Arboriculture*, &c., November.

RICHARDIA PENTLANDI, *Moniteur d'Horticulture*, Dec. 10.

TULIPA SPRENGERI, *Garden*, December 2.

ZEPHYRANTHES AJAX.—A hybrid between *Z. candida* and *Z. citrina*. Flowers creamy-yellow, suffused in places with pink. *Garden Flora*, December 15.

TAXODIUM DISTICHUM VAR. PENDULA.

THERE is some confusion between this tree, a variety of the common Florida Cypress, and the south Chinese *Glyptostrobus heterophyllus*. The former, of which we give an illustration, is a very elegant feathery tree, the branchlets of which fall off in

winged. The descriptions in books describe the seeds as erect, but in the Chinese specimens we have examined they are decidedly pendulous. The distinctions between the two genera are therefore definite, and it is to be regretted that so much confusion should have arisen.

Taxodium distichum, like the Ginkgo (to which we lately referred), has a history! Geologists

and closely appressed acroscleaves, belong to the same species as those with spreading distichous branchlets, and flat leaves. . . . [This form] has long been an inhabitant of the gardens of the Eastern United States and Europe, and is generally cultivated as *Glyptostrobus pendulus*, and believed to be a native of China."

From the facts above cited, we suggest that the Chinese tree alone has the right to be called *Glyptostrobus*, and that it is generically different from *Taxodium*, to which Benthams and Hooker have referred it.

The illustration at fig. 161 is taken from a photograph obligingly transmitted to us by Mr. A. C. Bartlett from Pencarrow Gardens, Cornwall, who sends the following note:—

"Fine specimens of *Taxodium distichum* are fairly plentiful, but of *Glyptostrobus heterophyllus* generally so-called I have seen only three specimens out-of-doors in England. By far the best of these is the one I send a photograph of. It was planted at Pencarrow, Bodmin, about 1841, by that famous Cornish statesman and ardent horticulturist, the late Sir William Molesworth, Bart., and is now over 30 feet in height; at 5 feet from the ground the stem measures 2 feet 9 inches, and, as the photograph shows, is a really beautiful specimen. At the time of planting little or nothing was known of the majority of Conifers, and the position given this tree—a very sunny spot on a dry lawn—would now, with a greater knowledge of its habitat, be considered unsuitable. But Sir William was evidently fully aware of the value and necessity in wild north Cornwall of screens and wind-breaks; so around this tree, at a little distance, he planted *Rhododendron ponticum*, and still further away to the west he planted some Beeches. The *Rhododendrons* have been removed, and the Beeches have so far outstripped the nurse plants that instead of being in the full glare of the sun, this *Glyptostrobus* is completely shaded after midday. This fact most probably explains the unusual vigour and symmetry of the specimen. A. C. B."

HOME CORRESPONDENCE.

HYACINTHUS AZUREUS.—Although up to the day on which this is written, the pretty *Hyacinthus azureus* has not made its appearance above the soil, it will not be long before it pierces through, and shows its clustered cone of Grape Hyacinth-like flowers. It is among the earliest of our bulbous plants, flowering in January or February, and giving in its own modest way a pleasant variety to the Snowdrop or the few other plants in bloom at that early season. its colour is said to be sky-blue, but there is a faint tinge of green about the blue which makes the colouring unlike that of other things which show flower at the same time. It is so like a *Muscari* that it is not easy to persuade the unlearned in botany, or, for that matter, those who do know something about it, that it is not a Grape-Hyacinth but a Hyacinth, so exact is the resemblance it presents to the former. With some it is not very hardy, but here it has proved so for a number of years in light soil. It is, however, a little too early in its flowering time to be quite satisfactory here unless it is covered overhead with a sheet of glass to ward off the rain. The latter accumulates in the cavity formed by the leaves, and, if frost comes, the ice formed injures and decays the flower-stem. The precaution of a sheet of glass above the plants is one easily applied. Slugs are also troublesome, and should be warded off if possible. The attention of those who have a liking for early bulbous plants in the garden is drawn to *Hyacinthus azureus* with every confidence. S. Arnott, *Carsehorn-by-Dumfries*, N.B.

RESTRICTING FIG-TREE ROOTS.—Passing through a Fig-house at Ruxley Lodge, Esher, recently, I remarked to Mr. Miller that he seemed to keep his trees to a very short allowance of soil, three very strong trees were seen to be growing in a border 2 feet wide, and had but recently been



FIG. 161.—*TAXODIUM DISTICHUM* VAR. *PENDULA*.

autumn, and the leaves on which are usually distichous, or two-ranked, but in some varieties spirally disposed. The Chinese plant, which we believe to be very much less common in gardens, has linear leaves arranged in three or more ranks; the cone is club-shaped, and the cone-scale is not peltate, but elongated; the bract is confluent with the scale at the base, deeply lobulate at the apex, and the two seeds are pendulous, flattish, and

tell us that it or its ancestors and their allies, *Sequoia* and *Glyptostrobus*, grew in the Miocene epoch in Central Europe, as well as in Greenland and the United States. Of the variety pendula, Sargent, *Silva* x., 152, adnot. thus speaks:—"No one unfamiliar with the fact that branches of the two forms occasionally occur on the same individual would imagine that the Cypress trees with erect or pendulous, thread-like branchlets,

newly made. He said that the trees were each in a 20-inch pot, and had been so for several years. That kept the greater portion of the roots severely restricted. These stood on a concrete floor, and were filled in round each year with good turfy loam, with which was mixed some old, hot-bed manure, wood ashes, and old mortar refuse, the outer edge of the soil being of slabs of turf to form a solid wall. Into this fresh soil roots from the surface of the pots broke freely each year, and whilst the roots in the pots finished up the first crop of fruit the new surface roots seemed to render similar service to the successive fruit crop. In the winter of each year, when the old soil or, in any case, a portion of it, was removed, the whole of the surface-roots made from the pots are cut quite hard back. That may be said to be very severe restriction; yet the results are found in stout, sturdy growth and heavy crops of fruit. The very fine collection of Figs in pots at Chiswick, one of the very best of its kind in the kingdom, show conclusively how well these trees thrive with limited root areas. When, in the autumn, I was looking over the gardens at Chilworth Manor, Romsey, and observed a Fig-wall, some 6 feet in height and 100 feet long, covered with wood throughout. Here it is found needful to open a trench 2 feet from the stems and as deep every two years, to sever all roots, and then refill with soil. Trees having a liberal root-run, especially in well-manured borders, practically produce far more wood than fruit. Hard root-pruning remedies that. *A. D.*

DRESSING TO PRESERVE TREES FROM HARES, ETC.—Your note of Dec. 9 on the proportions of a mixture for the prevention of the attacks of hares and rabbits upon trees and shrubs, reminds me of an article which has long been in commerce, and which on the testimony of great numbers of landowners and practical foresters, has proved at once handy and effective in achieving the object in view. I allude to the widely known "Ablottins Composition." In my experience it is the best that has as yet been discovered. Neither hares, rabbits, or other browsing animals will touch, bark, or twig to which it has been applied, and from its greasy or treacley consistency, it is not liable to be washed off with rain, so as to require frequent renewal; it is, moreover, inexpensive and readily procured from any of the nursery or seedsmen, while the facility of its application is such that it can be handled with the greatest ease by any unskilled labourer. It may be added that the composition contains no poisonous ingredients, and that it is not only harmless to the most tender barks, but has a curative effect on such as may have been damaged, by the gnawing of such animals, the perforation of insects, &c. *Silva.*

THE SWEET PEA CONFERENCE.—In reference to the list of "promised" subscriptions in connection with this project, which appeared in the *Gardeners' Chronicle* last week, may I be permitted to say that the Secretary has not received any consent or authority from me to use my name in the form in which it appears in circulars and the press. It is quite true that I have not promised him anything, but I object to this fact being advertised, as thousands of persons would object under similar conditions. I am not out of sympathy with the movement, but on the contrary, wish it success. The Editor was, of course, justified in publishing the list officially sent for that purpose. *J. Wright.*

EULALIA JAPONICA ZEBRINA.—Among hardy grasses this *Eulalia* is one of the most attractive. It has a very ornamental effect during the summer months when growing in clumps in the pleasure-grounds, especially if the plants be near to the margins of a stream or lake. In addition to its graceful foliage, the plants produce flower-stems which rise boldly to a height of 6 feet or more. If these be cut in autumn, and placed in a warm room, the plumes will develop well. I have seen excellent specimens of this *Eulalia* thriving well in a clayey soil, and probably such a root-medium suits the plant best, especially during such dry summers as we have lately had. A dry soil is, without doubt, unsuited to the plant. The plant may be easily increased by division. *H. T. M., Stoneleigh.*

DOUBLE-FLOWED DAISIES.—Referring to your suggestion on p. 456, that the Battle Nursery, whence the seed of the large double Daisies was obtained, might be that of Mr. Luff, I may state

the nursery was that of Mr. B. W. Knight. I have an impression that it has passed into other hands; but I should be glad to hear that his Daisies are still kept up by some one. It must be fourteen or fifteen years since I had the seeds, and I cannot lay my hands upon the list. I recollect that it contained the names and descriptions of a fair number of named varieties, under names not to be found among those offered in catalogues of the present time. As I have always had a liking for raising seedlings, I preferred to take my chances with the seed to buying named plants. I hope someone in the locality may be able to tell something more about the Battle Daisies. Those I grew had large flowers on tall stems. *S. Arnott.*

—I am very pleased to find that my recent note on these hardy plants has evoked a commendatory rejoinder from Mr. Arnott. I fear it would not be practicable to induce Daisies to flower freely in the autumn and winter in the north, through divided plants, as in all cases, except the summer be unusually moist. Plants that are so shallow rooted suffer very much in heat and drought, and reproduce blooming crowns too late in the autumn to carry flowers until the following spring. Generally, too, these propagated double Daisies, even of the best varieties, flower late. But seedling plants, raised as were those at Kingston Hill from an early summer sowing, if they get ordinary attention, keep on growing all the summer, and thus create strong flowering crowns. That is one of the great benefits which result from raising from seed. No doubt seedsmen having done so much will yet do more not only in perfecting doubleness, but also in getting good varieties in set colours. I can have no doubt but that Messrs. Sutton & Sons have noted the commendatory remarks which close Mr. Arnott's note. *A. D.*

THE HATFIELD CURE FOR RED SPIDER.—Relative to the note on the above subject, which was published on the 16th inst., and the footnote appended, on the utility of sulphur as an effective antidote for this insidious pest, the following quotation from E. G. Lodeman's (Instructor on Horticulture in the Cornell University) book on *The Spraying of Plants* may have a fitness, along with the practical experience of Mr. Norman. "Sulphur is valuable both as an insecticide and as a fungicide. Its use for the first purpose is practically confined to greenhouses and conservatories, and even there only few insects are affected by it. It is most rapidly applied by evaporating in a sand bath over an oil stove, but extreme care must be given that it does not take fire, as then it will instantly destroy all the plants. Red spider and related insects are said to be destroyed by the fumes, and treatment should be made as soon as they are discovered, or even before. Sulphur may also be evaporated successfully by placing it upon the heating pipes; it is well to mix it with an equal amount of lime, and then add water to form a thick paint, with which the pipes may be covered. When applied in a dry form directly to the plants, it possesses little value as an insecticide. A moist atmosphere in the house probably renders the fumes more effective (this latter suggestion should form a valuable adjunct to the sulphur treatment, as observation tends to show that a dry atmosphere is favourable to its development; whilst the converse, namely, moisture, is a deterrent, and spraying with water has always been advocated as a specific)." Sulphur is one of the most valuable fungicides for the treatment of surface mildews, and it has long been used for this purpose. Previous to 1880, it was almost the only fungicide used in Europe, and it did excellent service in controlling the European mildews which attacked the Vine and many other plants, whether grown under glass or in the open. Out of doors it was commonly applied in a dry condition, being blown upon the plants by means of hand bellows. Under glass it was used in three ways: in the form of powder, when mixed with water, and when evaporated from the heating surfaces. The first method was executed in the same manner as outdoors. When mixed with water both the sulphur and the water assist in destroying many pests, and it is a common practice to make such applications. The proportion of the two varies greatly. It has been recommended to use 1 ounce of sulphur to 5 gallons of water, and also as much as 1 pound to 1 gallon. The more dilute mixtures are more easily applied, and if the work is thoroughly done are, on the whole, equally valuable. The fumes of sulphur for treating mildews are obtained

as described above. When the powder is used out-of-doors, the value of the remedy undoubtedly rests in the fact that the sulphur gradually gives off fumes on account of the heat of the sun, and the mildews yield for the same reason that they do when the powder is evaporated under glass. One of the most valuable preparations of sulphur is known as "Grisson's Liquid." Although this latter insecticide is fairly old, to give the formula may be of service to some growers. Take the following:

Flowers-of-sulphur	...	500 grams, or 17 oz. (avoid.)
Freshly-slaked lime	...	500 " or 17 "
Water	...	3 litres, or 5½ pints. "

Boil the above ingredients for ten minutes, let the mixture then settle, and draw off the clear liquid, after which the liquid must be bottled to use, 100 parts of water to 1 part of liquid, and apply with a syringe (still lately the quantities of sulphur and lime have been reduced respectively to one-half). This prescription was always advocated as an excellent cure for surface mildews, and about three applications were sufficient to preserve the foliage. It seems feasible to suggest that instead of syringing, heating the intending wash might prove more effectual in the houses. *A. O'Neill.*

CARNATIONS AND VIOLETS AT THE GRANGE, ALRESFORD, HANTS.

DURING a recent visit to the gardens of The Grange at Alresford, the country seat of Lord Ashburton, I was particularly impressed with the beautiful display of Tree Carnations and Violets to be seen there. The principal Carnation-house is a large span-roofed structure, with stages running round the sides and one end, with a central stage arranged in tiers, so that the plants receive abundance of light. This house accommodates about a thousand plants grown in 6 and 7 inch pots, each plant a typical example of what a Carnation should be, not tall and straggling, but well clothed to the pot with strong sturdy growths, many of them surmounted with a wealth of buds and blossoms, that plainly shows that the treatment given them by Mr. Allen, the able chief, is of the best. On the occasion of my visit the plants were scarcely at their best, but there were already some hundreds of expanded blooms, and the fast opening buds promised a succession for a considerable time. A span-roofed pit, with a hot-water pipe running round it, contained a batch of plants to succeed those in flower, the plants being equally as good as those in the flowering-house. They are being kept cool and well aired, but are already commencing to throw up for bloom. The favourite variety is Mrs. Leopold de Rothschild (syn. Mdlle. Thérèse Franco), although some other varieties are well represented.

Of Violets in frames there are between nine hundred and a thousand plants grown, the demand for them being so great that more frame room has had to be given up to them this year than formerly. Two long spans, containing about five hundred plants, were in full flower at the time of my visit; they are planted about a foot apart, well up to the light, and just before coming into flower the plants receive a top-dressing of cocoa-nut fibre, which not only keeps the blooms from getting soiled and splashed from contact with the soil, but also, to a great extent, prevents the ravages of slugs, and at the same time affords an agreeable setting to the plants. I counted as many as a dozen blooms on some of them, such blooms as one rarely sees, some of them recurring until they were quite globular in shape, with good long stems attached. Another lean-to pit, containing about the same number of plants, had been gathered rather freely, but the numbers of buds peeping from amongst the dark green foliage promised a good display of bloom in the near future. This pit has a hot-water pipe running round it level with the soil, but divided from it with boards. Heat is only applied in severe weather, and then only sufficient to exclude frost and create a circulation of air. The

chief advantage claimed being easy access to gather the blooms during hard weather, when those in unheated frames are sometimes covered for days together with protective material. The chief variety grown is *Marie Louise*, and a few lights are devoted to *Comte Brazza* and *California*. *Visitor*.

DENDROBIUM SPECTABILE.

In fig. 162 is given an illustration of the new species of *Dendrobium* shown at the meeting of the Royal Horticultural Society on December 19, from

fine addition to our gardens was awarded a First-class Certificate. Further details respecting the species will be given in an early issue.

A SURVIVAL.

"CULPEPPER'S HERBAL."—The sixteenth and seventeenth centuries abounded in so called botanical works, but in nearly all cases drugs were regarded first, and then botany afterwards, if at all. Still, in those centuries botanical science was being slowly differentiated from medi-

the "Colledg of Physitians" of publishing in Latin "because that doth not make against their interest, which, I perceive is the great *Diana* they adore!"

In "The Translator's Preface to the Catalogue of Simples," he makes several side-thrusts at the College. Thus, with regard to the names of plants—which the College published in Latin only—he adds the English, and observes: "All the Latin names to one herb are not set down, most of which are superfluous. Some are idolatrous, as to attribute one herb to the Virgin Mary, another to the Holy Ghost, &c. So in the compositions, "to call

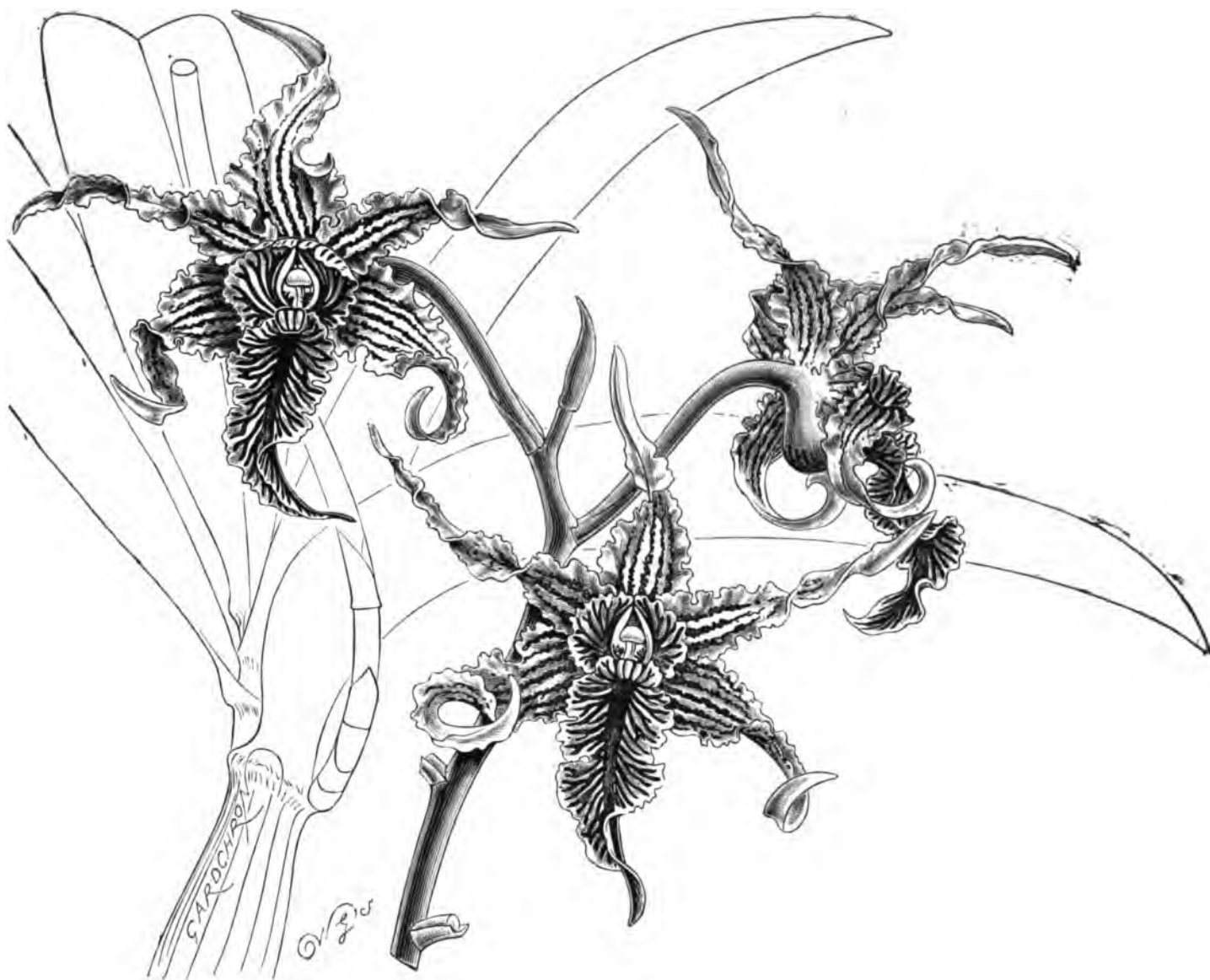


FIG. 162.—DENDROBIUM SPECTABILE.

Major Joicey's collection at Sunningdale Park (gr., Mr. F. J. Thorne). This plant was figured in *Rumphia* as *Latourea spectabilis*, the flowering of which, out of Messrs. Sander's recent importation from New Guinea, has been looked forward to with interest. The flowers, which are produced on upright spikes, are large, and singularly formed, the labellum taking much the same form as the other segments, though being the largest. The sepals are triangular at the base, extended into a long, wavy, apiculate tail; the petals are narrower, both pale yellow in colour, and prettily marked with purple. The labellum has the side lobes erect, hood-like, the front being elongated, wavy, and apiculate, white in colour, with a beautiful veining of clear purple. This very

cine. This latter art had been more or less always separated into the professional and the non-professional; and in the seventeenth century they were represented by the College of Physicians on the one hand, and by the herbalists on the other. One of the most noted of the latter was Nicholas Culpeper. He boldly threw down the gauntlet by translating the Latin "Dispensatory made by the Colledg of Physitians of London." He says:—"It is a Base, dishonorable, unworthy part of the Colledg of Physitians of London to train up people in such ignorance that they should not be able to know what the Herbs in their Gardens are good for; both *Gerrhard's Herbal* and *Parkinson's*, which is an hundred times better, being of such a price that a poor man is not able to buy them." He accuses

an oyntment, the Oyntment of the Apostles. . . . The Colledg might have been ashamed of it, if they had ever come where shame grew!"

The third edition of this work appeared in 1651, and in 1653 Culpeper published his famous herbal, which has gone through many editions; and what is so surprising is, that it is still published in immense quantities, the last (12mo) being issued in 1896. The herbal is entitled, "The English Physician. . . . An Astrologo-Physical Discourse of the Vulgar Herbs of this Nation, containing a complete Method of Physic, whereby a Man may preserve his body in Health, or cure himself, being sick, for Threepence charge, with such Things only as grow in England, they being most fit for English Bodies." It contains "(1) the way of making

plaisters, ointments, syrups; (2) what planet governeth every herb or tree; (3) the time of getting them, &c. By Nich. Culpeper, Gent., Student in Physic and Astrology." It commences with "An alphabetical Table of Herbs and Plants; also what Planet governeth them."

He does not generally say why plants are under the dominion of the planets, but now and then he gives a reason which the intelligent reader of to-day will hardly consider sufficient. Thus, in speaking of Henbane:—"I wonder how astrologers could take on them to make this an herb o Jupiter. . . . The herb is, indeed, under the dominion of Saturn, and I will prove it by this argument: All the herbs which delight most to grow in Saturnine places are Saturnine herbs, and the Henbane delights most to grow in Saturnine places. . . . Scarce a ditch [or manure-heap] is to be found without it growing by it: ergo, it is an herb of Saturn."

Hot, biting plants, as Mustard, Hedge Mustard, Peppermint, Radish, and Horseradish, are under Mars, as being of a fiery, martial temper; but why, e.g., Ragwort should be "under the dominion of Dame Venus," is not quite evident.

As another sample of Culpeper's lucid and convincing reason, is the following observation upon *Carduus benedictus*:—"It helps swimings and giddiness of the head . . . because Aries is in the house of Mars. It is an excellent remedy against the yellow jaundice and other infirmities of the gall, because Mars governs choler. . . . The continual drinking the decoction of it helps red faces, tetters, and ringworms, because Mars causeth them. It helps the plague, sores, boils, the bitings of mad dogs and venomous beasts; all which infirmities are under Mars. Thus you see what it does by sympathy." "So, that is how the trick is done," the conjuror obligingly observes!

As another specimen of the author's logic is his account of *Celandine*:—"This is an herb of the Sun, and is under the celestial Lion, and is one of the best cures for the eyes; for all that know anything in astrology know that the eyes are subject to the luminaries. . . . Is not this [drug] far better than endangering the eyes by the art of the needle?"

The book is full of this sort of stuff, the plants being classified alphabetically, and their descriptions in paragraphs, headed Description, Place, Time, Government, and Virtues.

The remarkable fact about this herbal is its extraordinary persistence to the present day. Happening to meet with a recently-published 12mo edition, with seventeen plates containing some 120 small-coloured illustrations of plants, the publishers very courteously replied to my enquiries as follows:—"We have looked up our books, and find that the first edition was in August, 1847, 12mo, and the present edition was published in 1896. In the fifty years we have published 68,385 copies of the small book; of a larger edition we have sold 9,864. We sell to all the wholesale houses, and a large majority of the retail booksellers in English-speaking lands."

I observe that Mr. W. A. Bishop Culpeper presided over the annual meeting of the Astrological Society on February 6, 1897. Who would have thought that this science, "falsely so called," could not only have existed till A.D. 1900, but that a college of astrology should be actually proposed to be founded on that occasion! *George Henslow.*

FLORISTS' FLOWERS.

FANCY CHRYSANTHEMUMS.

THE season has proved that there is no diminution in the popularity of the autumn flower, whether exhibited in its utmost development or in a free and

* A case was tried in 1895, in which a quack had injured a man's eyesight by putting a needle under the skin of the eye-ball.

more natural manner. The capabilities of the *Chrysanthemum* are being probed to their full extent, and the introduction of varieties is assiduously carried on, both here and abroad. The charms of the single-flowered kinds are much admired, but there is an inclination on the part of raisers to increase the list of varieties unduly, and varieties are brought forward which are not sufficiently meritorious to deserve cultivation. It is a weakness of the enthusiast to regard with favour anything which approaches the ideal of the moment; but it behoves us to be exacting, and to ask for those only which possess some good or new colour, compact habit of growth, stoutness of flower-stalks, and freedom to flower. A type of fancy *Chrysanthemum* is rapidly coming into favour which will probably obtain appreciation for use as cut flowers. The recently-introduced and beautiful Golden Shower, and the strangely-named "What Ho!" are instances of the type referred to. Their characteristics are variable, some have long thread-like drooping florets, others short and Thistle-like, or intermingled in a confused sort of way, others have florets split at the tips, or divided for the greater part of their length.

The cultivation of this type is the same as that followed with other types, but one point is of importance, i.e., the pinching of the shoots, in order to induce free branching, must not be carried on later than the middle of the month of June.

I give a list which includes the best varieties, viz.:—*Bouquetière*, *Sam Caswell*, *King of Plumes*, *Cheveux d'Or*, *Mrs. Filkins*, *Miss Harvey*, *Golden Shower*, *Gold Faden*, *Lovely*, *White Thread*, *Cannell's Favourite*, *Elegans*, *Arachnoideum*, *Star of Honour*, *Mrs. Brown-Potter*, *Daisy*, *Mrs. W. Butters*, and *Gold Lock*. *W. H. Lees.*

Obituary.

WILLIAM MAYO.—On Friday, the 21st inst., the remains of William Mayo were laid to rest in the cemetery at Winchester. The deceased, who had held the position of head gardener for forty-four years to the late Mr. and Mrs. Fitzgerald, of Shalstone Manor, Buckinghamshire, was a thorough gardener and a successful exhibitor in the counties of Buckingham and Oxford. He came to reside at Winchester seven years ago, and during that time he took a very active part in the Winchester Gardeners' Association, of which he was elected chairman three years in succession; and his genial personality will be greatly missed by all who knew him. The deceased was seventy years of age.

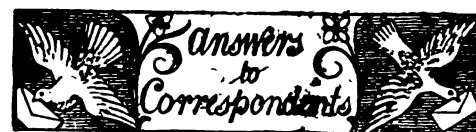
JAMES SELDEN.—We regret to record the death on Christmas Day, at The Gardens, Brookwood Park, near Alresford, of this estimable gardener, at the age of forty-eight years. He was a few years ago well known as an exhibitor in the Kingston and Wimbledon district, whilst gardener at Coombe Cottage, Kingston. Mr. Selden's decease was due to a severe attack of influenza, followed by pneumonia, and the circumstances are rendered more sad by the fact that his wife suddenly succumbed to the same malady only two days previously. They were both buried at Titchborne, Hants, on the 27th inst. They leave one son, aged eleven years.

SOCIETIES.

WARGRAVE GARDENERS'.

THE last meeting for the current year was held on the 20th inst. A contingent from the Reading Gardeners' Association paid a visit on that occasion, and a paper on "The Cyclamen" was read by Mr. J. CASWELL, gr. to the Rev. H. M. WELLS, Scarlets, who treated the subject in a practical way, explaining the details of cultivation from the sowing of the seed until the plants would be in bloom.

A fine group of *Begonia Gloire de Lorraine* was exhibited by the Chairman (Mr. W. POPE).



BOOKS: *H. E. T.* We believe Messrs. Cannell and Sons, Swanley, Kent, publish a book of flower-bed designs.

CUCUMBER PLANT DYING OFF: *W. P.* The root and collar of the plant sent are healthy, and we imagine that the death of the bine is due to mechanical injury, fumes from furnace, syringing with a detestable substance, &c. You afford no particulars of treatment. Obtain the advice of some good gardener in your neighbourhood.

CUCUMBERS FOR MARKET: *J. W. K.* The two varieties mentioned are as good as any. The true Telegraph is scarcely surpassed by any other variety.

GRAPES DECAYING: *F.* Notwithstanding that which you tell us you have done in the way of precaution, we believe the injury is caused by damp within the vinery, aggravated it may be by inability to afford air during recent foggy weather. Examine the bunches daily, and remove any berry that shows any trace of decay. Keep the vinery free of all kinds of plants which have to be supplied with water, and remove everything likely to harbour damp.

HERBACEOUS PLANTS: *A Subscriber.* We are unable to devote so much space to the mere enumeration of the names of herbaceous plants, and would refer you to the volumes for the present year, where lists are given by our writer of the Flower Garden Calendar.

KITCHEN-GARDEN CROPPING: *L. H.* We know of no work dealing exclusively with intercropping. Most gardeners, who have to deal with a garden that is too small for the needs of the mansion, have to adopt intercropping, and seldom can allow a piece of land to lie fallow. A book that would suit your purpose is Mr. H. W. Ward's *My Gardener*, published by Eyre & Spottiswoode, East Harding Street, London, E.C.

LAWN TENNIS COURT: *H. E. T.* See our issue for November 25 this year, p. 408.

TULIPS: *C. W.* and *C. H.* The failure to root or produce flowers is due to the immaturity of the bulbs, or to improper treatment whilst in store. They were very bad samples.

VIBURNUM MACROCEPHALUM: *B. B.* Try cuttings taken in the months of March or April, selecting well ripened one-year-old shoots. Previously to taking the cuttings, prepare a bed of sandy soil 1½ ft. deep, make it firm and level, and having made the cuttings 10 to 12 inches in length, drop these carefully into perpendicular holes made with a thin dibber, leaving two buds above the ground-level. Fill in the holes, making the soil firm about the cuttings, and afford water, so as to settle the soil about them. You might find that grafting by approach, having stock and scion growing in pots, a successful method, using *V. Opulus* as the stock. The other question will be answered in our next issue.

VIOLETS: *A Subscriber.* Marie Louise, California, Wellsiana.

COMMUNICATIONS RECEIVED.—D. T. F.—G. B. M.—Rev. H. F.—W. W.—H. E.—J. B.—W. G. S.—Mungo Temple.—E. Burton.—H. T. M.—A. O'N.—S. A.—J. A.—A. S.—W. R., and numerous correspondents who have obliged us by sending particulars of appointments for 1900, which will be included in the Almanack to be issued with the *Gardeners' Chronicle* for next week.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets, see p. viii.)

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